WHY ASIA MUST UP FEMALE WORKFORCE PARTICIPATION

WOMEN HOLD THE KEY TO GROWING PRODUCTIVITY IN A SUSTAINABLE WAY, AS AGING SHRINKS WORKFORCES

PUBLIC SECTOR

The Asian Productivity Organization (APO) is an intergovernmental organization committed to improving productivity in the Asia-Pacific region. Established in 1961, the APO contributes to the sustainable socioeconomic development of the region through policy advisory services, acting as a think tank, and undertaking smart initiatives in the industry, agriculture, service, and public sectors. The APO is shaping the future of the region by assisting member economies in formulating national strategies for enhanced productivity and through a range of institutional capacity building efforts, including research and centers of excellence in member countries.

APO members

Bangladesh, Cambodia, Republic of China, Fiji, Hong Kong, India, Indonesia, Islamic Republic of Iran, Japan, Republic of Korea, Lao PDR, Malaysia, Mongolia, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, and Vietnam.

WHY ASIA MUST UP FEMALE WORKFORCE PARTICIPATION

WOMEN HOLD THE KEY TO GROWING PRODUCTIVITY IN A SUSTAINABLE WAY, AS AGING SHRINKS WORKFORCES

AUGUST 2018 | ASIAN PRODUCTIVITY ORGANIZATION

Why Asia Must Up Female Workforce Participation

Dr. Chin-Hui Hsiao served as the volume editor.

First edition published in Japan
by the Asian Productivity Organization
1-24-1 Hongo, Bunkyo-ku
Tokyo 113-0033, Japan
www.apo-tokyo.org

Designed by Convert to Curves

CONTENTS

LIST OF TABLES

LIST OF FIGURES

FOREWORD

The most important determinant of a country's competitiveness is its human capital. Ensuring the development of human capital requires the ability to use resources to upgrade labor quality appropriately and efficiently and to enhance productivity. In the context of rapidly aging populations in Asia, the APO member economies face the prospect of shrinking labor forces and labor shortages in coming years. Better utilization of the enormous untapped or underutilized pool of female labor is crucial to stimulate productivity growth and develop human capital. Greater female labor force participation (FLFP) could boost productivity growth by increasing the labor supply, while poor use of women's potential places a significant drag on aggregate productivity. National programs to reduce the factors that hinder FLFP are proven to be effective measures to deal with aging societies in the long run, and government efforts to formulate policies for boosting FLFP result in higher productivity performance.

Since 2009, the APO has been looking into the issue of increasing the role of women in the labor force. As a continuing effort, a research team of six experts from the Republic of China, India, Indonesia, Malaysia, the Philippines, and Thailand were commissioned to examine the trends and patterns, barriers to, and drivers of FLFP and their impact on productivity in several APO member countries. Research findings showed that FLFP varies greatly among Asian countries, reflecting differences in economic development, social norms, education levels, fertility rates, and access to childcare and other support services. Policies to promote the participation of women in the labor force for more efficient human capital development were then analyzed. Best practices in gender mainstreaming in human capital-related policies to increase FLFP were documented and serve as the basis for recommendations for more active participation of women in the labor force.

The APO thanks all contributors for their inputs and commitment to the research. It is expected that this volume will contribute to government policies recognizing the importance of women in the workforce, thus boosting the rate and quality of their participation as an efficient way to deal with the challenges of aging societies in APO member countries.

Dr. Santhi Kanoktanaporn
Secretary-General
Tokyo
August 2018

CHAPTER 1

AGING SOCIETY VS FLFP IN ASIA: ISSUES AND CHALLENGES

Dr. Chin-Hui Hsiao
Associate Professor, Chihlee University of Technology

1. Background

Aging of population is a pervasive, significant, and enduring trend sweeping the Asia region. In many Asian countries, the proportion of elderly people is growing faster than any other age groups, as a result of both declining fertility rates and increasing life expectancies. According to the UN's "World Population Prospects," as shown in Table 1-1 [1] and Figure 1-1, the proportions of populations aged 65 and above across Asia have showed mostly increasing trends for the past several decades. In 1970, the proportion of population aged 65 and above for all of Asia was 3.74%, which increased to 7.53% in 2015. The aging is happing much more rapidly in eastern Asia than in the other sub-regions. In eastern Asia, the proportion of population aged 65 and above advanced dramatically, increasing from 3.99% in 1970 to 11.03% in 2015, thus recording a growth of 7.04% points in the past four-and-a-half decades.

Internationally, the societies in which people 65 years and older account for 7%, 14%, and 20% of the population are referred to as "aging societies," "aged societies," and "hyper-aged societies," respectively, by the UN. Generally speaking, Asia as a whole has met the criteria of an aging society.

TABLE 1-1

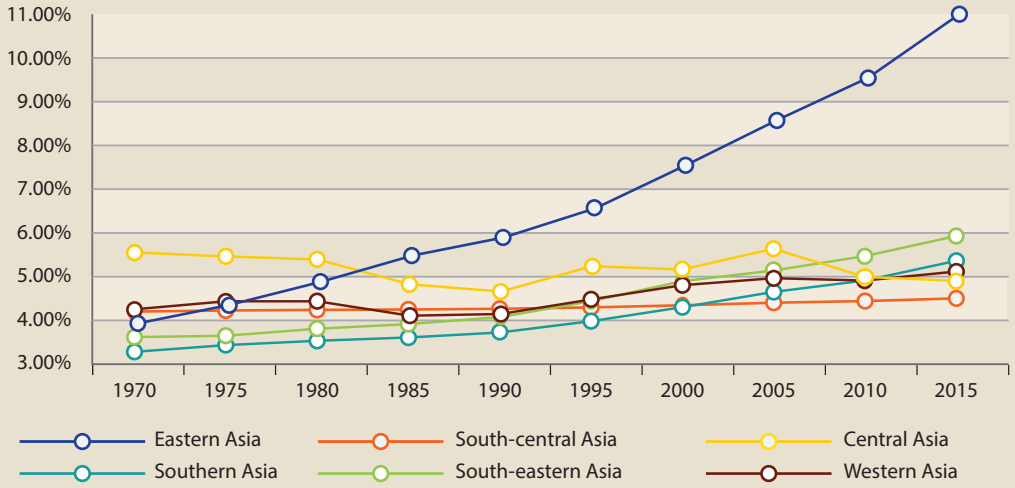
PERCENTAGE OF POPULATION AGED 65 AND ABOVE IN ASIA, 1970–2015

	1970	1975	1980	1985	1990	1995	2000	2005	2010	2015
Asia (all)	3.74%	3.97%	4.27%	4.54%	4.77%	5.19%	5.75%	6.30%	6.79%	7.53%
Eastern Asia	3.99%	4.35%	4.91%	5.52%	5.93%	6.61%	7.59%	8.61%	9.58%	11.03%
South-central Asia	3.39%	3.54%	3.64%	3.69%	3.79%	4.03%	4.33%	4.70%	4.98%	5.39%
Central Asia	5.57%	5.48%	5.41%	4.84%	4.67%	5.25%	5.16%	5.65%	5.03%	4.92%
Southern Asia	3.30%	3.45%	3.56%	3.64%	3.75%	3.98%	4.30%	4.67%	4.98%	5.40%
South-eastern Asia	3.63%	3.67%	3.84%	3.93%	4.11%	4.44%	4.90%	5.16%	5.49%	5.94%
Western Asia	4.28%	4.46%	4.48%	4.16%	4.15%	4.52%	4.83%	4.99%	4.95%	5.13%

Table 1-2 [1] shows the ratio of those aged 65 or older to the working-age population, i.e., to people aged 15–64, in select Asian countries, according to UN's "World Population Prospects." The ratio has grown visibly throughout these Asian countries and is projected to grow further over the next two decades. As shown in Figure 1-2 [1], by 2030, the percentage of the elderly to the working-age population would exceed 50% in Japan, and be close to 30% in the Republic of China

FIGURE 1-1

PERCENTAGE OF POPULATION AGED 65 AND ABOVE IN SELECTED ASIAN REGIONS



(ROC) and Thailand. In Malaysia, Indonesia, India, and the Philippines, it would become 14.5%, 12.4%, 12.5%, and 10.3%, respectively. Notably, Japan has the most aged population in Asia and also has the most rapidly aging population in the world.

TABLE 1-2

PERCENTAGE OF POPULATION AGED 65 AND ABOVE IN SELECTED ASIAN COUNTRIES

Countries/economies	1990	2000	2010	2020	2030
Japan	17.1	25.2	36.0	48.3	53.1
India	6.6	7.2	8.0	9.8	12.5
Indonesia	6.3	7.3	7.5	8.6	12.4
Malaysia	6.1	6.1	7.2	10.0	14.5
Philippines	5.6	5.5	6.7	8.0	10.3
ROC	9.0	11.1	13.3	18.0	29.9
Thailand	6.9	9.5	12.4	18.4	29.2

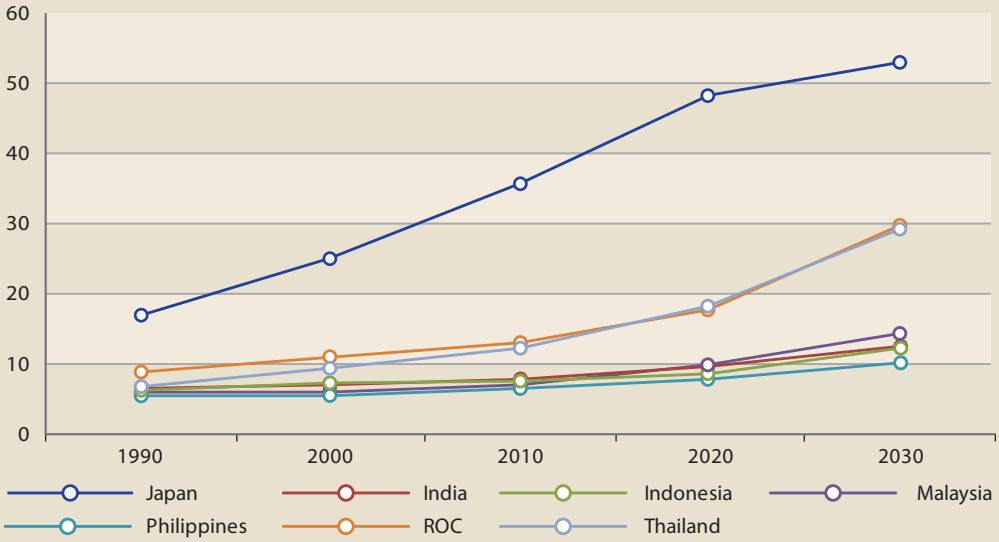
Unit:%

Low fertility rates, aging society, and the reduction of working-age population are now serious problems faced by the Asian countries. In Japan, the percentage of population aged 65 and above exceeded 25% in 2013, and an estimate by the Japan government shows it would be almost 40% by 2060. In ROC, senior citizens comprised 12% of the population in 2014, and according to population projections by the ROC government, it would become an aged society in 2018 and a hyper-aged society in 2025. Alarmingly, the percentage of population aged 60 and above had increased in Thailand from a mere 5% in 1970 to 13% in 2013, and is projected to cross 40% by 2050.

From a life-cycle perspective, the key drivers of economic growth, such as aggregate labor supply, productivity, consumption, and savings tend to vary, depending on where most of the people fall in the life-cycle. Labor supply and savings are higher with the working-age adults than with the elderly people. Population aging will tend to lower both labor force and savings rates, thereby raising concerns about a future slowing of economic growth [2]. Indeed, in the context of rapidly aging populations, Asian economies face the prospects of shrinking labor forces and labor shortages

FIGURE 1-2

PERCENTAGES OF POPULATION AGED 65 AND ABOVE IN ASIA, 1990–2030



in the coming years, thus exerting a negative influence on productivity. All these combined could translate into a visibly slower economic development, thereby undermining the countries' economic vitality and competitiveness over time.

As a means of addressing this problem, this research initiated and sponsored by the Asian Productivity Organization (APO) focuses on:

1. The trends of female labor force participation (FLFP) and its impact on labor productivity.
2. Gender mainstreaming in human capital-related policies in aging societies through the policies of promoting FLFP.

This chapter captures four key topics: an overview of FLFP trends and patterns in the participating countries; key factors influencing FLFP; government policies for boosting FLFP in the Asian countries; and future challenges with respect to labor productivity. Country reports were commissioned to experts in India, Indonesia, Japan, Malaysia, the Philippines, the ROC, and Thailand, to detail out the country-specific FLFP trends and the characteristics of population aging as well as their implications for productivity change.

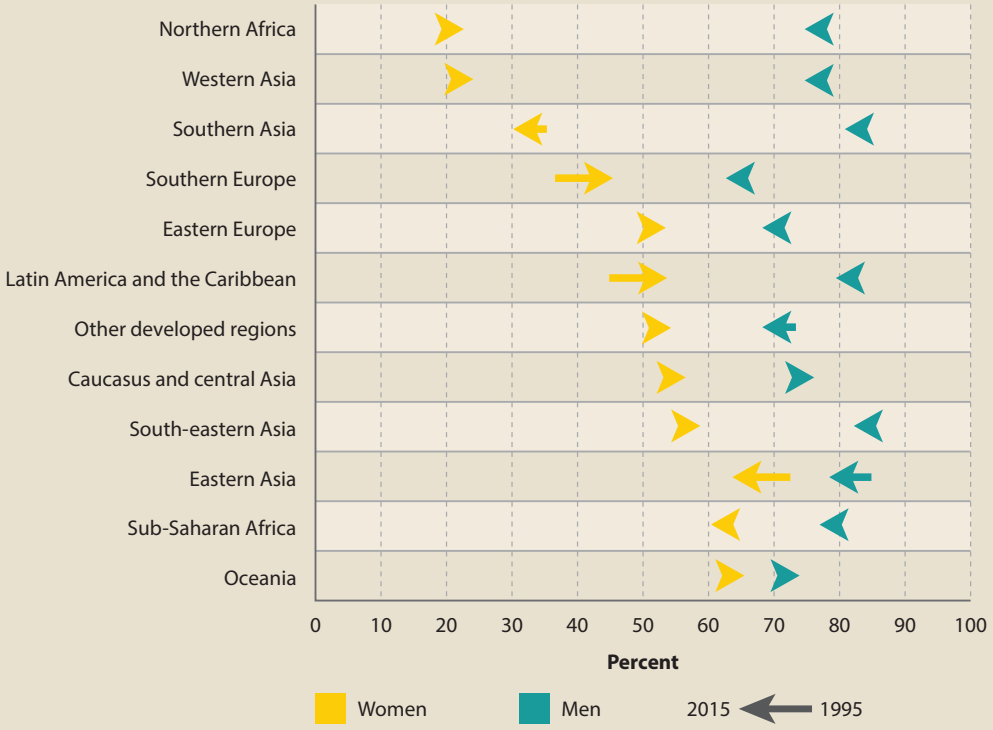
2. Overview of FLFP Trends and Patterns in Asia

A high FLFP can boost growth by increasing the labor supply. Increased contribution by women in the labor force has become one of the key policy issues, particularly in developed economies that face a rapidly aging and shrinking population [3]. FLFP varies greatly across Asian countries, reflecting differences in economic development, social norms, education levels, fertility rates, and access to childcare and other supportive services.

As in Figure 1-3, data from ILO [4] shows that labor force participation rates of women and men vary greatly by regions within Asia. In 2015, the women labor force participation rates were 30%

FIGURE 1-3

LABOR FORCE PARTICIPATION RATES BY GENDER AND REGION, 1995 AND 2015



or lower in South Asia, but between 50% and 70% in other regions. The female labor force participation decreased in eastern and southern Asia, mainly due to patterns observed in China and India, where, between 1995 and 2013, women's participation in the labor force declined from 72% to 64%, and from 35% to 27%, respectively [5]. On the other hand, the sharpest decline in the male labor force participation rate was recorded in eastern Asia, where the participation rate fell by more than 6%. As a result, the difference between the labor force participations of women and men has narrowed in most regions. However, while eastern Asia's FLFP rate is the highest among all regions at around 65%, it is still about 10% lower than the corresponding rate for men (around 75%). Southern Asia has had the largest gender gap of over 50% for the past two decades.

The countries that participated in this project were India, Indonesia, Japan, Malaysia, the Philippines, the ROC, and Thailand. Data from the ILO's Key Indicators of the Labor Market database [6] were used. Over the past decades, there have been substantial changes in the structure and performance of labor markets in the participating countries. As Table 1-3 and Figure 1-4 show, in 1995, Thailand had the highest FLFP rate, followed by Indonesia, Japan, the Philippines, the ROC, Malaysia, and India. Two decades later, Thailand still had the highest FLFP rate, followed by Indonesia, the Philippines, the ROC, Japan, Malaysia, and India. Thailand had a high FLFP rate of more than 60% overall, even though it decreased a bit, from 65.6% in 1995 to 64.6% in 2014. The FLFP rate of Japan was 50% in 1995 and decreased 1.3% points over the years to become 48.7% in 2014. On the other hand, FLFP rates have risen significantly in the ROC, and moderately in Indonesia, the Philippines, and Malaysia over the past two decades. The FLFP rate in the ROC was 45.34% in 1995, and increased 5.3% over the years to clock 50.64% in 2014.

TABLE 1-3

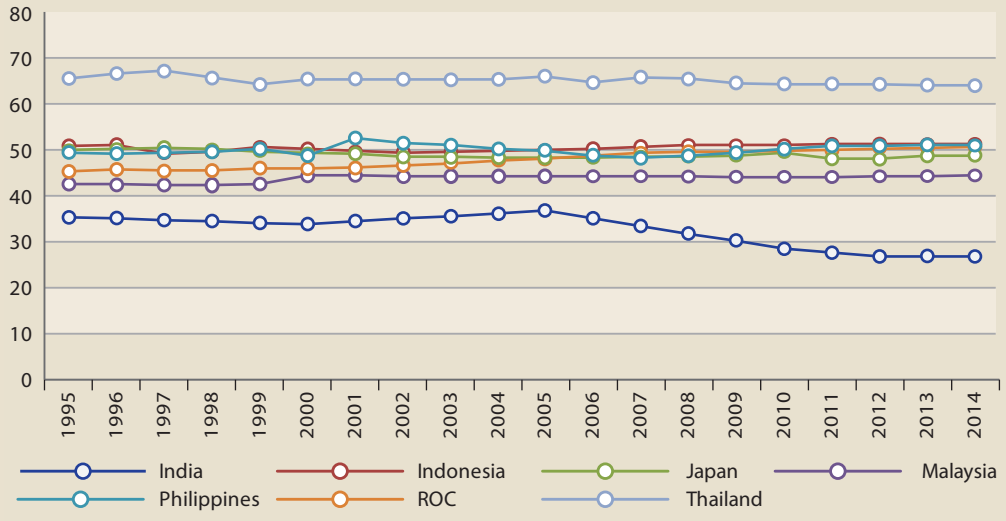
MALE/FEMALE LABOR FORCE PARTICIPATION RATES IN SELECTED ASIAN COUNTRIES

	India		Indonesia		Japan		Malaysia		Philippines		ROC		Thailand	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
1995	86.2	35.4	85.0	50.9	84.6	50.0	83.3	42.6	84.8	49.5	72.03	45.34	86.3	65.6
1996	86.0	35.1	86.1	51.1	85.1	50.1	83.4	42.5	85.0	49.2	71.13	45.76	85.9	66.8
1997	85.8	34.8	84.8	49.2	85.4	50.4	83.5	42.4	84.6	49.3	71.09	45.64	85.7	67.4
1998	85.6	34.5	82.8	49.7	85.4	50.2	83.5	42.3	85.2	49.7	70.58	45.6	85.4	65.9
1999	85.4	34.2	86.6	50.8	85.3	49.6	83.1	42.6	84.3	50.2	69.93	46.03	84.4	64.5
2000	85.2	33.9	86.7	50.3	85.3	49.3	83.4	44.6	83.0	48.7	69.42	46.02	84.8	65.4
2001	85.3	34.5	86.8	49.9	85.1	49.2	82.9	44.5	84.5	52.7	68.47	46.1	85.6	65.5
2002	85.4	35.1	86.8	49.4	84.9	48.6	82.4	44.4	83.1	51.7	68.22	46.59	85.3	65.5
2003	85.6	35.7	87.0	49.6	84.8	48.5	81.9	44.4	84.9	51.1	67.69	47.14	85.1	65.5
2004	85.7	36.3	87.2	49.8	84.4	48.3	81.3	44.4	84.5	50.2	67.78	47.71	85.6	65.5
2005	85.8	36.9	87.5	50.0	84.4	48.4	80.8	44.3	81.4	49.8	67.62	48.12	85.3	66.1
2006	85.3	35.1	87.2	50.4	84.6	48.4	80.2	44.3	80.7	48.7	67.35	48.68	85.3	64.9
2007	84.8	33.4	86.8	50.8	85.0	48.5	79.5	44.3	79.8	48.3	67.24	49.44	85.9	65.9
2008	84.4	31.8	86.3	51.2	85.1	48.5	78.9	44.3	80.6	48.7	67.09	49.67	86.0	65.8
2009	83.9	30.2	86.7	51.2	84.8	48.7	78.4	44.2	80.8	49.3	66.4	49.62	85.9	64.7
2010	83.4	28.6	86.5	51.2	84.8	49.4	78.4	44.1	80.9	50.3	66.51	49.89	85.6	64.4
2011	82.9	27.8	86.5	51.3	84.5	48.1	78.5	44.2	81.5	50.9	66.67	49.97	85.8	64.4
2012	82.4	26.9	86.4	51.3	84.4	48.1	78.8	44.3	81.4	51.0	66.83	50.19	85.8	64.4
2013	82.5	27.0	86.3	51.4	84.6	48.8	79.1	44.4	81.4	51.1	66.74	50.46	85.9	64.3
2014	82.5	27.0	86.1	51.4	84.7	48.7	79.4	44.5	81.3	51.1	66.78	50.64	85.9	64.2

Unit:%

FIGURE 1-4

FLFP RATES IN SELECTED ASIAN COUNTRIES, 1995–2014

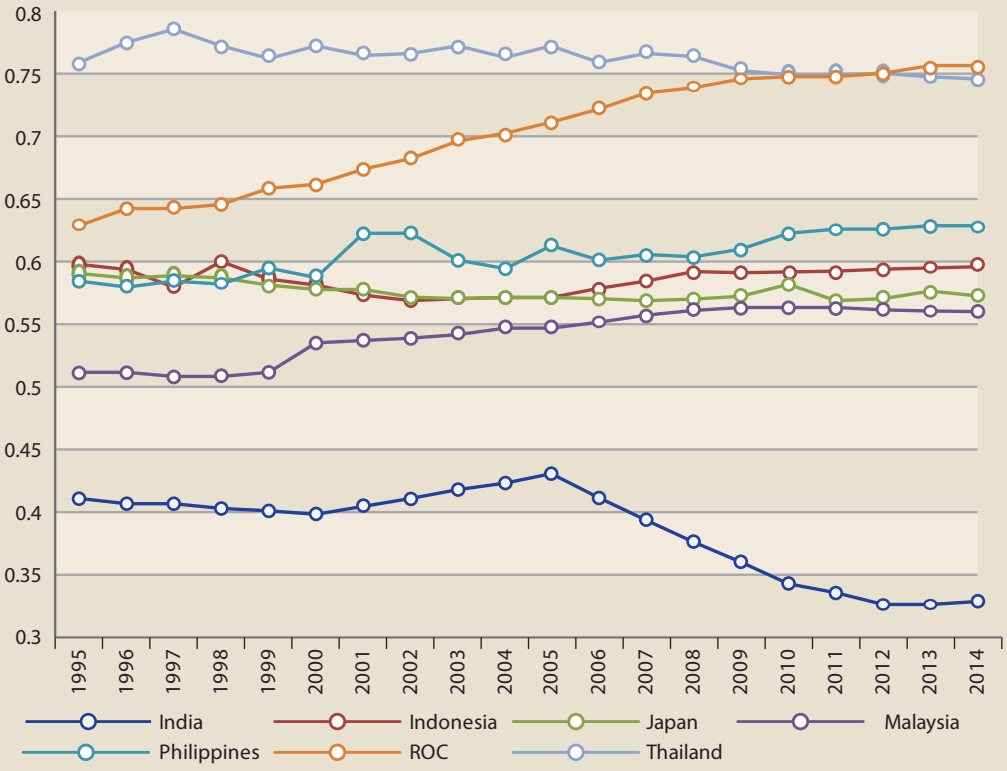


The FLFP rate for India declined significantly, while for most of the countries, it steadily increased. India's FLFP rate came down from 35.4% in 1995 to 27% in 2014. The low and declining FLFP rate in India despite a strong growth in the past decade is puzzling and stands out among emerging markets [7]. According to the ILO's Global Employment Trends 2013 report, India's labor force participation rate for women fell from just 37% in 2004–05 to 29% in 2009–10. Out of the 131 countries with available data, India ranked 121st in FLFP.

Despite the advances in female educational attainment and the expansion of the market economy, FLFP rates are still low in comparison to the rates of their male counterparts in Asia. As shown in Figure 1-5, the trends for the gap between male labor force participation (MLFP) rates and FLFP rates, as seen from the ratios of FLFP rates over MLFP rates, varied across the participated countries. Gender gaps in labor force participation rates have narrowed in the ROC, the Philippines, and Malaysia. In the ROC, the proportion of all women in the labor force has increased from 45.34% to 50.64%, while the proportion of men in the labor force decreased, from 72.03% to 66.78% during 1995 and 2014. In other words, the ratio of FLFP rate to MLFP rate has increased from 0.63 to 0.76 during 1995 and 2014. In Malaysia, the ratio of FLFP rate to MLFP rate was 0.51 in 1995, and grew to 0.56 in 2014. Similarly, the Philippines' ratio of FLFP rate to MLFP rate was 0.58 in 1995, and grew to 0.63 in 2014. On the other hand, gender gaps in labor force participation rate have enlarged in India in the past two decades. In India, the proportion of all women in the labor force decreased from 35.4% to 27%, while the proportion of men stayed at the same levels during the period 1995 to 2014. In other words, the ratio of FLFP rate to MLFP rate decreased from 0.41 to 0.33 between 1995 and 2014.

FIGURE 1-5

RATIO OF MLFP RATE OVER FLFP RATE IN SELECTED ASIAN COUNTRIES



3. Key Factors Influencing Asia's FLFP

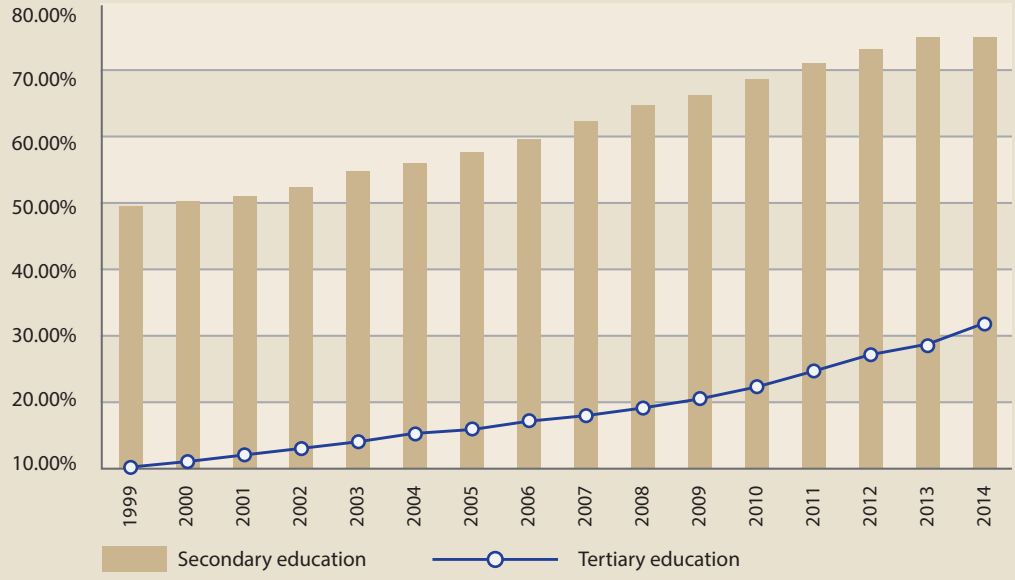
3.1 Educational Attainment

Education provides the basic skills to empower women, and also enhances their status in the society. Educational attainment plays a critical role in determining the nature of employment taken up by the women in Asian countries. The opportunities for women to pursue higher education have empowered them to participate in the labor market. Human capital theory (HCT) postulates that the education of women is positively related to their labor force participation. The better educated the women are, the more likely they are to participate in the labor market. The literature on human capital also emphasizes upon the role of education in positively influencing employment outcomes. Tansel [8] highlights the importance of educational attainments in impacting the decision to participate in the labor market. The literature on human capital reveals that greater educational attainments lead to higher labor market participation and higher productivity too [8–10]. From a supply-side perspective, education has an important impact on an individual's decision to participate in the labor force. Once women have more than a secondary school education, higher wages encourage them to join the labor force, particularly if appropriate jobs are available.

In Asia, access to education has improved dramatically over the past few decades, and there have been a number of encouraging trends in women's education. As shown in Figure 1-6 [11], according to UNESCO, 49.54% of Asian women were enrolled in secondary school in 1999, while the enrolment went up to 75.20% in 2014. Simultaneously, the Asian female tertiary education enrolment rate increased from 10.27% in 1999 to 32.14% in 2014.

FIGURE 1-6

FEMALE TERTIARY/SECONDARY EDUCATION ENROLMENT RATES IN ASIA, 1999–2014



In Thailand, an increase in the basic education tenure from nine years to 12 years in 1997, along with the reforms in higher education system, significantly increased the number of women completing the high school and the college, thereby qualifying for a labor market entry. Various changes in Thailand's labor market, including a higher demand for female labor; increases in females' average wages; and the availability of flexible work arrangements, have been found to

increase the participation of women in the labor force [12]. Moreover, the share of working women with upper secondary or higher education rose from 5% in 1984 to 40% in 2014, whereas the share of working women with elementary or lower education went down from 90% to 40%.

The share of the ROC female labor force with a college, university or other type of higher educatation degree increased from 11.0% in 1989 to 41.2% in 2014, while the share of female labor force with a junior high school or lower education decreased from 60.6% to 28.0%. The percentage of people in the ROC with a higher education degree increased by more than 30% in the past 25 years.

In the Philippines, a high supply of female labor, coupled with educational attainments, has made women competitive to land a job. Moreover, females who earned a college degree or attained higher education significantly outnumbered males in these years.

In Malaysia, the percentage for secondary education attainment increased from 33.8% in 1982 to 55.6% in 2010, while the tertiary education attainment reached 18.3% in 2010. The remarkable achievement in education is reflected in the reduction of those who never attended school, from 25.5% to 6.7%, over time.

In Indonesia, data from the 2010 Population Census indicates that in the age group of 25–29 years, there were 76 tertiary-educated men for every 100 tertiary-educated women. In the same census year, the sex ratio of the tertiary-educated population aged 50–54 years was 176 men for every 100 women.

In Japan, the proportion of tertiary-educated adults increased from 34% to 47% between 2000 and 2012, and now accounts for the second largest proportion among OECD countries. In 2000, 49% of Japanese women in the age group of 25–34 years had a tertiary qualification. By 2012, 61% of women in that age group had a tertiary qualification. This was well above the OECD average of 45% and more than the proportion of Japanese men in the same age group with the same level of education (56%) [13].

3.2 Health

There exists a positive relationship between health and labor force participation in literatures. Health is a key factor in a person's ability to develop one's skills and knowledge. Poor health is a hurdle in developing or using skills, and therefore improving health could raise labor force participation and economic output [14].

Cai [15] employed a simultaneous equation model to explore the relationship between health and labor force status. The results confirm that health has a positive and significant effect on labor force participation for both males and females. However, it is found that labor force participation has a negative effect on male health but a positive one on female health. Thomas & Frankenberg [16] mention that for women, better access to healthcare is associated with greater participation in the labor market and in higher productivity. Cai & Kalb [17] note that better health increases the probability of labor force participation for all age groups, and health has a positive and significant effect on labor force participation for both males and females. However, the effect is larger for the older groups and for women. Fan [18] points out that health status significantly affects the individual labor force participation rate.

Life expectancy (LE) is an estimate of how many years a person might be expected to live, whereas healthy life expectancy (HLE) measures the number of remaining years that a person of a

certain age is expected to live without disability. Indeed, HLE is a key summary measure of a population's health.

As shown in Table 1-4 [19], HLEs for all the selected countries increased in 2013 as compared to 1999. The HLEs for the total population, the male population, and the female population for the years 1999 and 2013, are also detailed in Figure 1-7, Figure 1-8, and Figure 1-9, respectively. As shown in Figure 1.9, the HLE for Japanese women reached an average of 77.6 years in 2013, the highest among the selected countries. The HLE for the ROC women was the second highest at 73.6 years in 2013 among the selected countrris. Thailand's female HLE increased significantly from 62.1 years to 68.6 years, while that for India went up from 53.5 years to 58.6 years, for the years 1999 and 2013, respectively. It attributed the longer lifespan to improvements in sanitation and medical care, better food supplies, and the reduction in child mortality caused by illness and malnutrition.

TABLE 1-4

HEALTHY LIFE EXPECTANCY IN SELECTED ASIAN COUNTRIES

Countries	Total population		Male		Female	
	1999	2013	1999	2013	1999	2013
India	53.2	57.5	52.8	56.5	53.5	58.6
Indonesia	59.7	62.3	58.8	60.8	60.2	63.9
Japan	74.5	75	71.9	72.4	77.2	77.6
Malaysia	61.4	64.6	61.3	62.9	61.6	66.4
Philippines	58.9	59.8	57.1	57.0	60.7	62.8
ROC	68.9	71.1	66.7	68.9	71.7	73.6
Thailand	60.2	65.7	58.4	62.9	62.1	68.6

FIGURE 1-7

HEALTHY LIFE EXPECTANCY IN SELECTED ASIAN COUNTRIES FOR TOTAL POPULATION

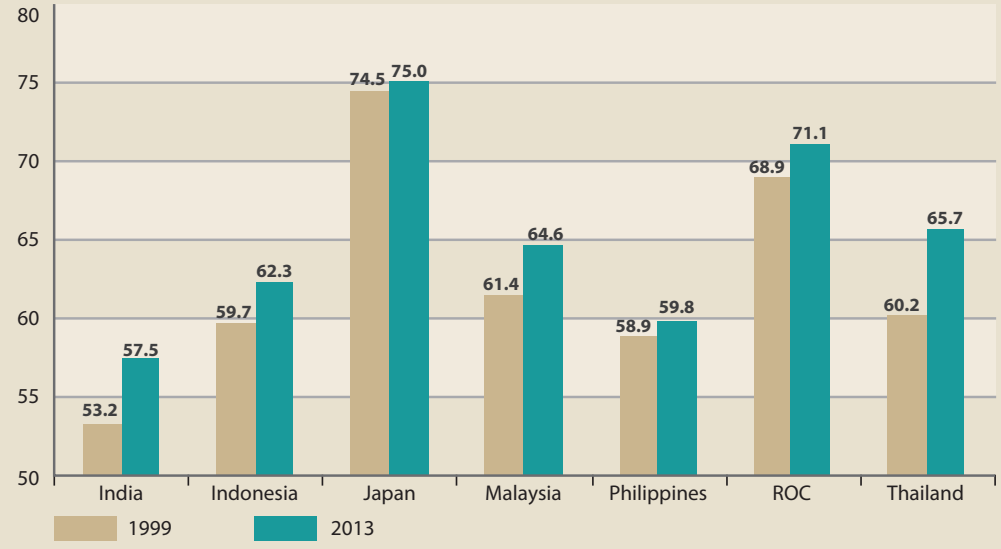


FIGURE 1-8

HEALTHY LIFE EXPECTANCY IN SELECTED ASIAN COUNTRIES FOR MALES

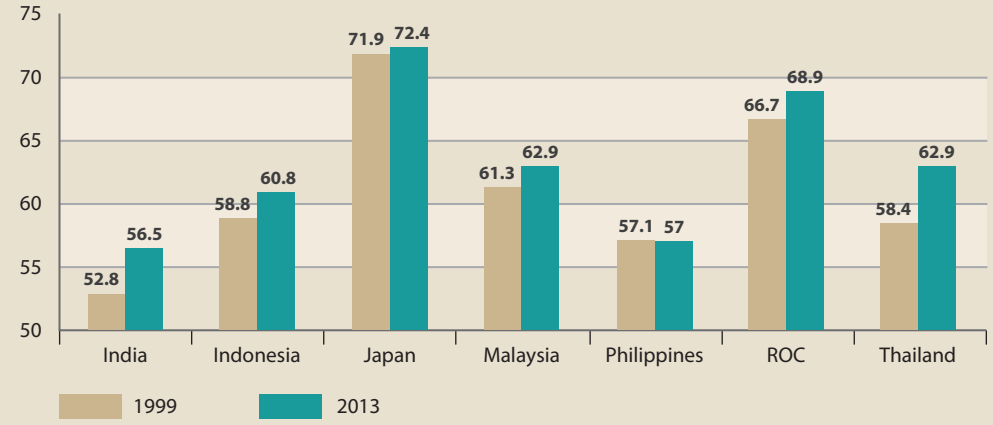
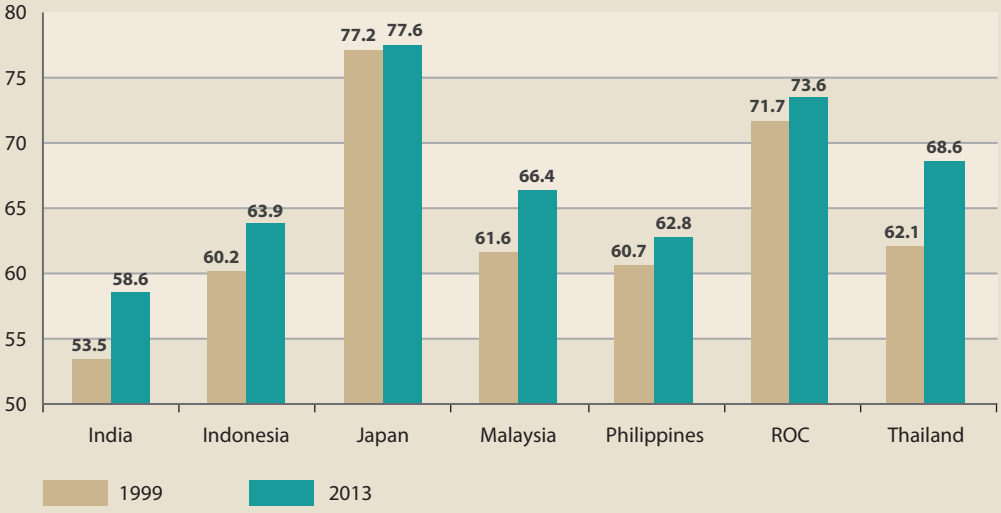


FIGURE 1-9

HEALTHY LIFE EXPECTANCY IN SELECTED ASIAN COUNTRIES FOR FEMALES



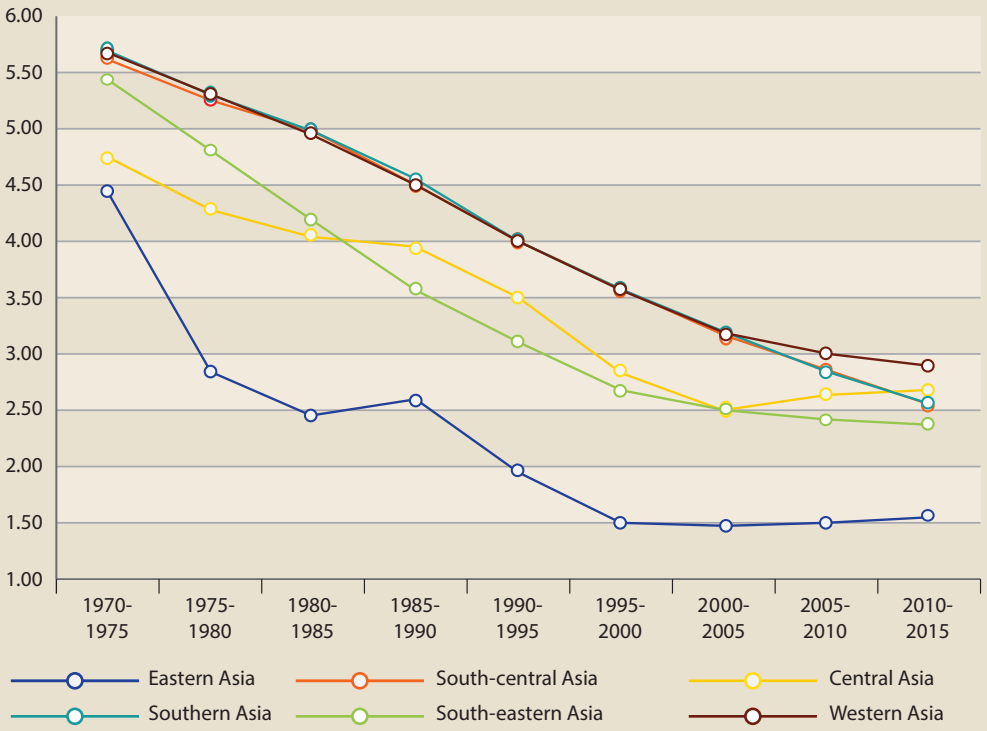
3.3 Fertility Rate

Literature supports that there exists a negative correlation between the female labor force participation rate and the total fertility rate. Bloom, et al. [20] estimated the effect of fertility on FLFP in a cross-country panel data set, and found a large negative effect of the fertility rate on FLFP. Mishra and Smyth [21] examined the relationship between the FLFP rate and the total fertility rate for 28 OECD countries, and found that there was an inverse relationship between the FLFP rate and total fertility rate. Emara [22] estimated the effect of female labor participation on fertility rate for a sample of 29 developing countries over the period 1990–2011. The empirical results indicated that the increase in FLFP rate had a negative impact on fertility and that this negative effect was decreasing over time.

As shown in Figure 1-10, fertility rates in all Asian regions showed declining trends over the past decades. In the 1970s, the fertility rate of eastern Asia was as high as 4.43, but declined to 1.55 in 2015. In other parts of Asia too, the fertility rate has fallen by half or more in the past four decades. Indeed, fertility rates in eastern Asia have fallen catastrophically since the early 1970s and are now the lowest in the world. If these trends in fertility are not substantially reversed, the population of Asia will rapidly shrink as the continent heads into extinction.

FIGURE 1-10

FERTILITY RATES IN ASIAN REGIONS, 1970–2015



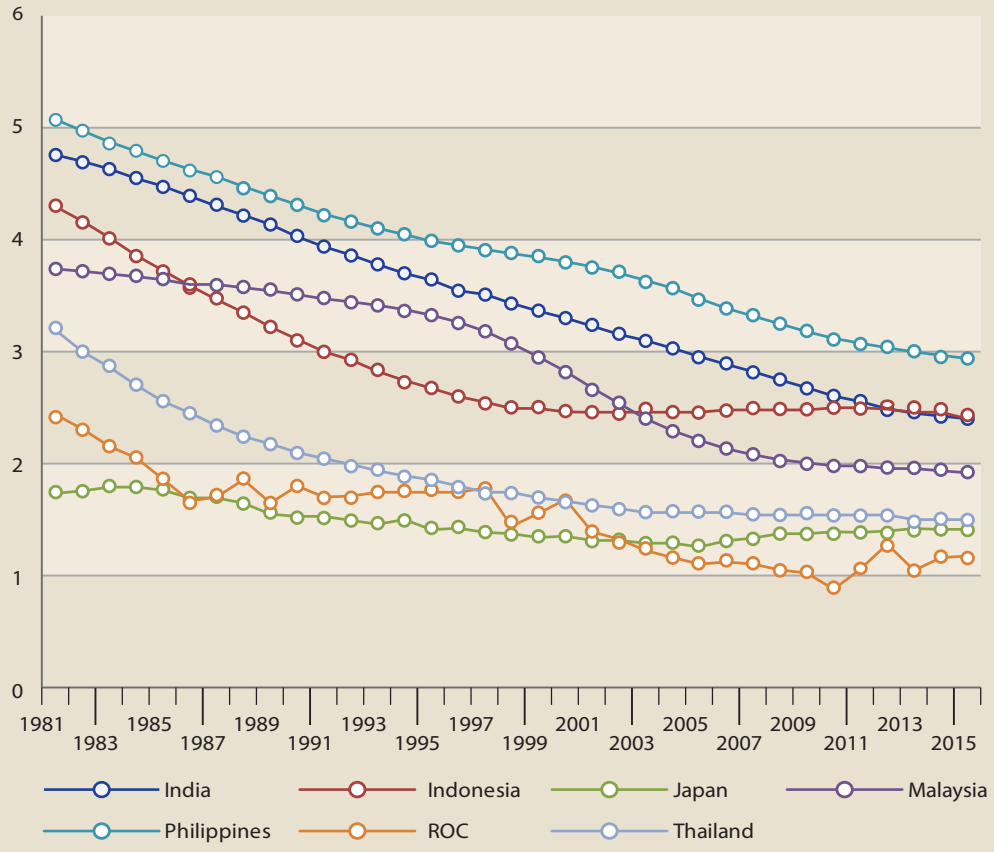
As shown in Figure 1-11 [23], fertility rates in selected Asian countries also showed decreasing trends over the past three decades. The fertility rate in Japan had been inching up after hitting a historic low of 1.26 in 2005, but was 1.42 in 2014 after having fallen by 0.01 point over the previous year. It is still one of the lowest in the world, and the country's population is officially declining.

Similarly, the fertility rate in the ROC decreased from 2.46 in 1981 to 1.17 in 2014. By 1984, the fertility rate had dropped below 2.1 births per woman. This represented 30 straight years that the fertility rate had been below the 'replacement level,' i.e., the level that is needed for couples to replace themselves in the population. By the early 1980s, Thailand's fertility rate had declined to below three, and it slid to a below-replacement fertility rate by the early 1990s. The decline trend continued unabated, and the rate further came down to 1.497 in 2015.

In Malaysia, the average number of children born to a woman during the childbearing age declined quite rapidly from 3.75 children in 1980 to three children in 2000, and statistics showed that in 2007, the rate had reached the population replacement level of 2.1.

FIGURE 1-11

FERTILITY RATES IN SELECTED ASIAN COUNTRIES, 1981–2015



India's fertility rate too fell to 2.395 in 2015, thus marking a significant slowdown in population growth, when compared to 4.767 in 1981. Also, the total fertility rate of the Philippines, which used to be as high as five children in 1980s, dropped below three in 2015.

In the early 1980s, Indonesia's fertility rate hovered at 4.3. The government implemented a family planning initiative that eventually lowered the fertility rate to 2.5 in the early 2000s, and the rate has plateaued since 2002.

3.4 Cultural and Social Norms

Cultural and social norms have an important effect on the female willingness to supply labor in the market and an employer's willingness to hire a female worker [24]. A number of literatures have examined the relationship between the cultural factors and the FLFP using different perspectives. Most of these literatures confirm that culture can be very influential on women's participation in the labor market.

Reimers [25], Antecol [26], and Fernández and Fogli [27] used ethnicity and home country values as cultural proxies and found that these proxies were significant in predicting FLFP and fertility rates. Clark, et al. [28] used six different categories, namely, Islamic, non-Islamic African, Latin American, non-Islamic Asian, Marxist, and Western, to define culture for

examining the relationship between culture, gender, and labor force participation. They found that women in Islamic and Latin American nations had the smallest labor force participation rates and explained that this could be attributed to a custom of gender segregation in Islam and the entrenched traditional gender roles in Latin America.

Vella [29] developed an attitudes index on gender roles using Australian survey data to investigate a relationship between gender role attitudes and labor market outcomes. He concluded that females in Australia with 'modern attitudes toward gender roles were more likely to invest in human capital and participate in the labor force than females with traditional attitudes to gender roles. Antecol [30] used responses on gender attitudes and sex roles from International Social Survey Program (ISSP) data as a proxy for culture to examine the relationship between the male attitudes toward family, sex roles, and FLFP rates. The results indicated that men's gender attitudes were negatively correlated to FLFP.

Fortin [31] investigated the effect of gender role attitudes on labor market outcomes across 25 countries using data from World Values Surveys, and found that 'anti-egalitarian' attitudes toward gender roles had the strongest negative association with FLFP rates in OECD countries.

Contreras and Plaza [32] used two indicators of variables from the ISSP data to identify if a woman had internalized machista or had conservative values to be culture proxies, and they found that women with conservative values were less likely to participate in the labor market.

"Environment for Women's Entrepreneurship" published by the World Bank [33], examined a cross-country comparison of the significance of culture on FLFP that included male and female opinions on the value of work and their attitudes toward working women. The report found positive, statistically significant relationships between women's positive views on value of work and their labor force participation. Similar relationships were found between both men's and women's positive attitudes towards working women and FLFP.

Ho [34] used two cross-cultural psychological constructs, namely, the 'Hofstede 5 dimensions' culture variables and the 'Globe 8 dimensions' culture variables to proxy for culture to examine the relationship between culture and FLFP. She found that gender egalitarianism and uncertainty avoidance had a positive relationship with female labor force while assertiveness had a negative relationship with female labor force.

H'madoun [35] examined the effects of religious affiliation, fervency of belief or religious conservatism, and participation in religion on FLFP in different countries. He found that participation in religious activities had a positive effect on female employment. The author explained that the participation cultivated a work ethic and an active engagement that was reflected in a higher likelihood of employment.

Whitehead [24] estimated the influence of cultural factors on FLFP and showed the importance of including these factors in the model for labor supply. This study includes cultural variables on fertility, religion, government type, government spending, citizens' views of work, women in the workforce, and the fulfillment of being a housewife. The results on the R-square values suggest that the influence of cultural factors as a whole on the FLFP rate cannot be disregarded.

Accordingly, cultural factors generally serve as a frame of reference for a woman to choose if she should enter the labor market, and also affects her decision through her concern for the well-being

of her family, her reputation, and her husband. Cultural factors also carry important implications for the demand of female labors because they influence employers' decisions when they consider possible female applicants for a job [33].

3.5 Gender Wage Gap

Gender discrimination is cited as one of the main hindrances to employment participation of women [36], and gender wage gap is a main proxy for gender inequality. Blau & Jed [37] and Goldin [38] have found that rising real wages for women have played a major role in explaining the rise in married women's labor force participation. The substitution effect due to the increases in female wages more than outweighed the negative income effect due to increases in their husbands' incomes during periods of rising male wages.

Gender wage gap and gender labor force participation gap are often connected with each other. However, the relationship between both is ambiguous. A wide gender wage gap may discourage women from working while a lower FLFP rate could drive a gender-based wage wedge even wider. Hunt [39] has found a negative relationship between females' labor participation and gender wage gap (lower female labor force participation is often accompanied with a narrower gender wage gap), and the related explanation for the finding is that low-skilled female workers quit the labor market. Zhang [40] argued that a higher female labor force participation is accompanied with narrower gender wage gaps, because the negative effect is overwhelmed by the effect of rapidly increasing female education.

Even though FLFP in Asian countries has generally been a rising trend, there is a skew toward non-regular female employment. Kinoshita and Guo [41] pointed out that the persistent gender wage gap encourages more non-regular employment.

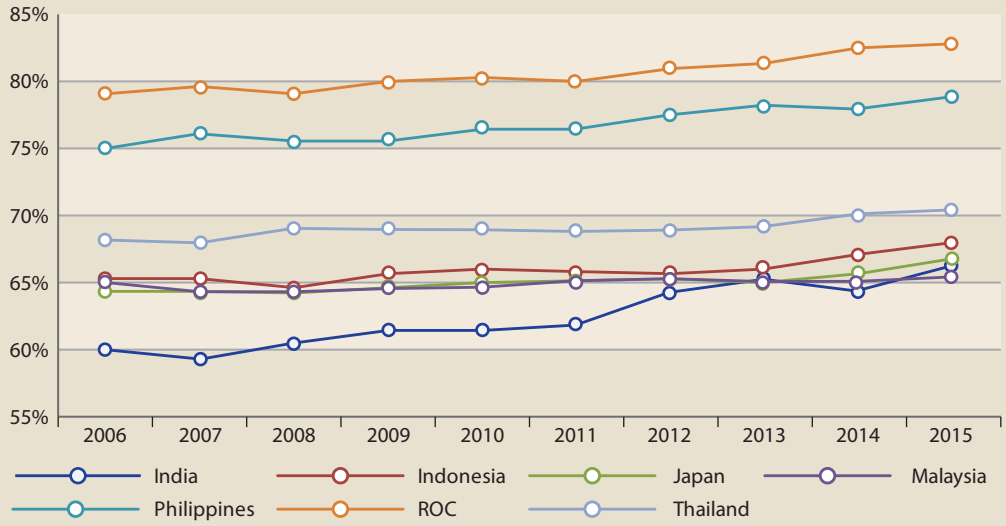
It is calculated that women could increase their incomes globally by up to 76% if the employment participation gap and the wage gap between women and men were closed. This is calculated to have a global value of USD 17 trillion [42].

The Global Gender Gap Report was first published in 2006 by the World Economic Forum. The 2014 report covers 144 major and emerging economies. The gender remuneration gap is captured through a hard data indicator (ratio of estimated female-to-male earned income) and a qualitative indicator gathered through the World Economic Forum's Executive Opinion Survey ("Wage equality between men and women for similar work" came from responses to the survey question, "In your country, for similar work, to what extent are wages for women equal to those of men?," where 1 = not at all, significantly below those of men; 7 = fully, equal to those of men). The data is converted to a female-over-male ratio.

According to the report, gender gap by income shows that low-income countries start out having closed only 62.61% of the overall gap, and make gains of nearly 5% over the years. Lower-middle income countries, while starting out lowest, make the second largest gains of 3.4%. Next are the high-income countries at 3.3% and finally, upper middle-income countries at 2.2% (See Figure 1-12) [43]. The report indicated that women earn two-thirds to four-fifths of what men earn for the same work in the selected Asian countries. These wage gaps were slightly diminished in the past decade, but the gaps persist nonetheless. Gender remuneration gaps are comparatively large in India, where the ratio was 60% in 2006 and improved to 66.4% by 2015. On the other hand, the ROC and the Philippines had comparatively smaller gender remuneration gaps.

FIGURE 1-12

GENDER WAGE GAPS IN SELECTED ASIAN COUNTRIES, 2006–15

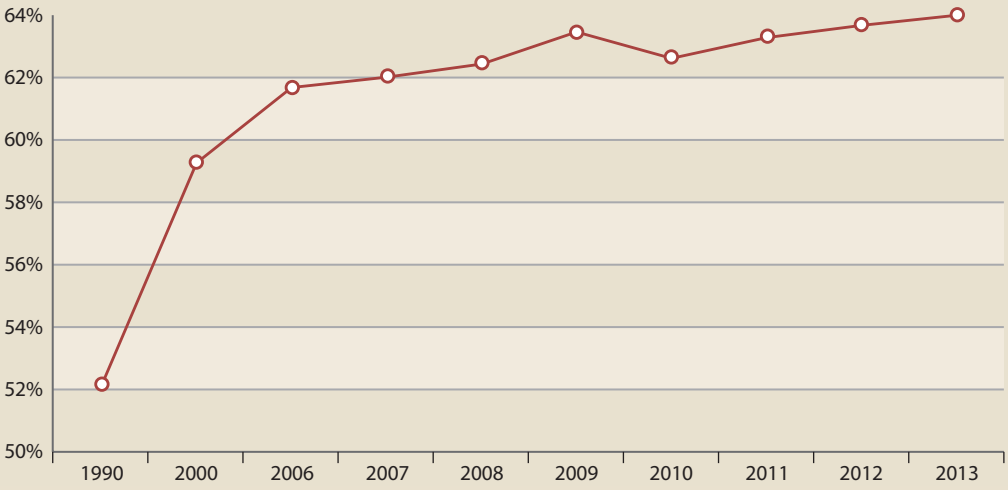


3.6 Employment Structure

Most high-income countries today are post-industrializing, i.e., becoming less reliant on the industry, while most low-income countries are industrializing, i.e., becoming more reliant on the industry. However, even in countries that are still industrializing, the services sector is growing relative to the rest of the economy [44]. Indeed, the services sector already accounts for a substantial share of a developing Asia's output, employment, and growth. As shown in Figure 13 [45], Asia's share of the services sector in GDP rose from 52.14% in 1990 to 63.95% in 2014. The sector has become an important driver of growth in Asian countries. Due to its labor-intensive nature, a large and growing services sector can generate millions of jobs for the region's huge workforce and thus promote a more inclusive growth.

FIGURE 1-13

GDP COMPOSITION OF THE SERVICES SECTOR IN ASIA, 1990–2013

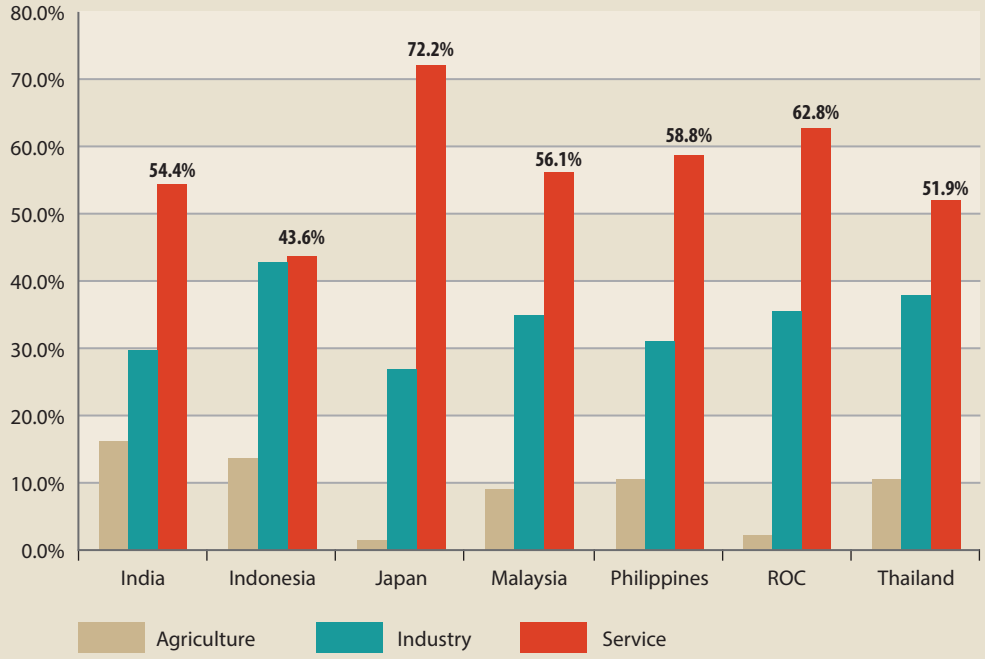


As per the 2015 data shown in Figure 1-14 [46], the services sector is the dominant sector of the Japanese economy, and contributes around 72.2% of the GDP. Similarly, the services sector accounted for 62.8% of the ROC's GDP, and over 50% of the GDPs for India, Malaysia, the Philippines, and Thailand.

According to Economic Survey 2013–14, India had the second-fastest growing services sector in the world and had a compound annual growth rate of 9% from 2001 to 2012. This was due to a deceleration in the growth rate of the combined category of trade, hotels, restaurants, transport, storage, and communications.

FIGURE 1-14

GDP COMPOSITION BY SECTORS IN SELECTED ASIAN COUNTRIES, 2015

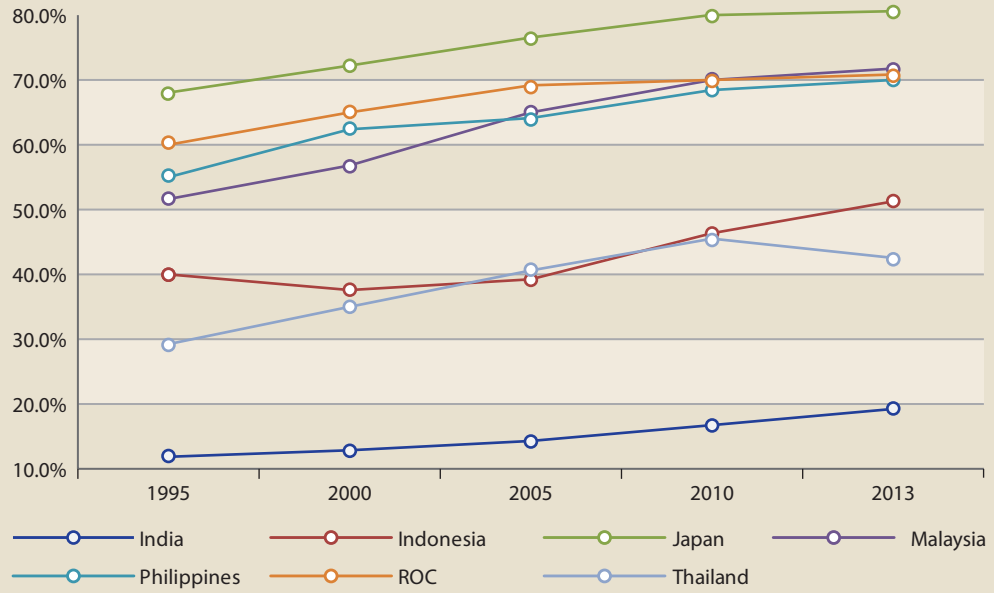


Women have been the group most likely to take up any new jobs created, particularly in the services sector. The rise of the services sector may favor women, who have comparative advantages in these sectors. In many countries, the expansion of the sector has accounted for the steadily increasing absorption of women into the labor force. In a majority of countries, relatively more women are employed in services than men.

As shown in Figure 1-15 [45], for all countries, female employment in the services sector showed an increasing trend over the past two decades. In Japan, the percentage of females employed in the services sector was more than 80% in 2013. Women in Malaysia, the Philippines, and the ROC accounted for 71.09%, 69.72%, and 71.04%, respectively. In India, the share of female employment was comparatively low at about 19.4%, though it also showed an increasing trend. So far, most Indian females worked in the agriculture sector, but the percentage of female employment in the agriculture sector has showed a decreasing trend in the past two decades, and has declined from 72% to 60%.

FIGURE 1-15

PERCENTAGE OF WOMEN EMPLOYED IN THE SERVICES SECTOR, 1995–2013



4. How Government Policies Promote FLFP in Asia

Many Asian countries are trying to boost FLFP, because of demographic changes such as rapid population aging, very low fertility rates, and labor force shrinkages. Increased contribution by women in the labor force has become one of the key policy issues in Asian economies that face a rapidly aging population and shrinking labor force [46]. Though FLFP has generally been a rising trend in Asia, the female labor force tends to have a relatively lower participation in its labor markets than in other regions, despite women's improved education levels. Public policies play an important role in reducing barriers to enter the labor market and in eliminating discriminatory gaps for women.

4.1 Gender Equality Conventions and Standards

The Convention on the Elimination of all Forms of Discrimination against Women (CEDAW) is an international convention adopted in 1979 by the United Nations General Assembly. CEDAW is the most comprehensive and detailed international agreement that seeks the advancement of women. The Convention defines discrimination against women as any distinction, exclusion or restriction made on the basis of sex which has the effect or purpose of impairing or nullifying the recognition, enjoyment or exercise by women, irrespective of their marital status, on a basis of equality of men and women, of human rights and fundamental freedoms in the political, economic, social, cultural, civil or any other field. [47].

So far, 189 countries have ratified the convention, pledging to give women equal rights in all aspects of their lives including political, health, educational, social, and legal. In Asia, most of the countries have ratified and made progress towards their obligations under the convention. The signing countries have the obligation to provide a national report once in every four years to state the progress of the execution of the convention and the difficulties they encounter. Ratification dates and reporting status of the participated countries in this project is shown in Table 1-5.

TABLE 1-5

CEDAW RATIFICATION DATE AND REPORTING STATUS OF SELECTED ASIAN COUNTRIES

Countries	Date of ratification	Reporting status
India	9 July 1993	Combined second and third periodic reports (2007)
Indonesia	13 September 1984	Combined fourth and fifth periodic reports (1998)
Japan	25 June 1985	Fourth periodic report (2003)
Malaysia	5 July 1995	Combined initial and second periodic reports (2006)
Philippines	5 August 1981	Combined fifth and sixth periodic report (2006)
ROC	9 February 2007	Second periodic report (2014)
Thailand	9 August 1985	Combined second and third periodic reports (1999)

Source: UN, CEDAW webpage, http://www.un.org/womenwatch/daw/cedaw/

The ILO also has a comprehensive convention, namely the Discrimination (Employment and Occupation) Convention, 1958 (No. 111). It provides that the ratified member countries are to declare and pursue a national policy designed to promote equality of opportunity and treatment in respect to employment and occupation, with a view to eliminate any discriminations. It mentions the right to not be discriminated against on grounds of race, color, sex, religion, political opinion, national extraction or social origin, or other grounds determined by member states, in employment. This Convention is among the most widely ratified, with 172 countries having demonstrated their commitments to the principles embodied in this convention through ratifications.

Another fundamental convention, Equal Remuneration Convention (No. 100), adopted by the International Labor Conference in 1951, promotes equal pay for work of equal value between men and women. As such, the convention addresses one form of discrimination (on the basis of gender) in the important but limited area of employment (remuneration). This convention is also widely ratified by 171 member countries.

A third important convention about employment that has been acknowledged as being part of the key package of gender equality conventions is the Maternity Protection Convention, 2000 (No. 183). It provides for 14 weeks of maternity benefit to women to whom the instrument applies. It provides that women who are absent from work on maternity leave shall be entitled to a cash benefit, which ensures that they can maintain themselves and their children in proper conditions of health and with a suitable standard of living and which shall be no less than two-thirds of their previous earnings or a comparable amount.

The convention also requires ratifying countries to take measures to ensure that a pregnant woman or nursing mother is not obliged to perform work that has been determined to be harmful to her health or that of her child, and provides for protection from discrimination based on maternity. The standard also prohibits employers to terminate the employment of a woman during pregnancy or maternity leave, or during a period following her return to work, except on grounds unrelated to pregnancy, childbirth and its consequences, or nursing. Women returning to work must be returned to the same position or an equivalent position paid at the same rate. It also provides a woman the right to one or more daily breaks or a daily reduction of hours of work to breastfeed her child. This convention is ratified by only 32 member-countries, and all Asian countries have not ratified this convention so far [48].

If these ILO conventions are ratified, the conventions generally come into force for that country one year after the date of the ratification. Ratifying countries commit themselves to applying the convention in national law and practice and reporting on its application at regular intervals.

4.2 Taxation Reform

Literature [49, 50] has indicated that the marginal tax rate that the second earner faces for the first dollar of her or his earnings is the rate that the primary earner faces for the last dollar of his or her earnings. As a result, a reduction in the marginal tax rates can create significant participation incentives for secondary earners if they are not in the labor force. Since a majority of secondary earners are married women, they usually have tended to have larger labor supply elasticities than their spouses. A tax reform is therefore likely to play an important role in the rise in their participation rate. Existing income tax reforms have reduced the marginal tax rates for married households in Malaysia, Japan, and the ROC.

In the last two decades, Malaysia has implemented extensive tax reforms concerning the treatment of working married women. Malaysia moved from a tax system in which the income of a married woman was attributed to her husband unless she elected a separate assessment, to a system in which husbands and wives are treated as separate taxable units with an option for joint treatment. The Malaysian tax law now gives a wife the choice of whether she wants her income to be assessed with her husband's income. If she does not elect to have her income aggregated with that of her husband's, then her income is assessed separately. If her income is assessed separately, she is entitled to a personal deduction, an applicable child relief credit, and a spousal dependent relief credit [51].

In Japan, "Womenomics" is a vital component of Prime Minister Shinzo Abe's much lauded reform plans, popularly known as "Abenomics." Abe insists that his policies are all about empowering women, and taxation reform is an important part of the plan. The current tax and social security system provides disincentives to married women from participating more fully in the workforce. Developed in 1961, the taxation system allows the head of a household (usually the husband) to claim a dependent exemption for a spouse (usually the wife) as long as the spouse's income does not exceed ¥1.03 million. Additionally, if the spouse's income stays below ¥1.3 million, the spouse can also claim a national pension without paying any premiums. The government has pledged to review the tax and social security system to be neutral with regard to how women choose to participate in the labor market [52].

The ROC government removed the tax penalty for dual-earner families in 2015. Married couples in the ROC now have the option of calculating their tax liability separately to save money when they file their income tax returns. Before the amendment, married couples were required to either file their taxes together, or calculate their tax liabilities on their salaries and earned incomes separately while combining their non-wage incomes. Either way, it constituted a 'marriage tax penalty' because combined income is taxed at a higher level in a progressive tax rate system.

4.3 Family Friendly Practices

4.3.1 Flexibility of Working-time Arrangements

Flexible work arrangements are alternative arrangements or schedules other than the traditional working days and weeks. Common arrangements include flexible working time, part-time, compressed work week, teleworking, job sharing, and so on.

Flexible working arrangement is a more common phenomenon in western countries compared to Asian countries. In EU countries, the employees, particularly those with children, have a right to

request flexibility in their working hours. Women in many EU countries are legislatively entitled to flexible work arrangements in employment. In Sweden, parents have a legal entitlement to reduce their working hours by up to 25% until the child's eighth birthday, with a return to full hours guaranteed thereafter. In Germany, since January 2001, employees have been entitled to contractual reductions in hours, provided that their employer's workforce is greater than 15 people. Employees can reduce their hours for up to three years after the birth of a child while retaining the legal right to return to full-time work afterwards.

In UK, until recently, employees with care responsibilities were entitled to flexible scheduling and reduced-hour options. New laws passed in April 2014 extended the right to request flexible working hours to all employees. In the Netherlands, since 2000, all people in employment with the same organization for over a year are entitled to request an increase or decrease in their working hours. A single, non-transferable entitlement to reduced hours is offered to all employees with children up to the age of eight. This entitlement applies to all employers with 10 or more employees, but organizations are able to reject requests on business grounds [53].

The "Flexible Work Arrangements in Asia" study was conducted by Global Workforce Roundtable within the scope of the Asia region, including China, Hong Kong, India, Indonesia, Japan, Malaysia, the ROC, the ROK, the Philippines, Singapore, and Thailand in 2008. The results indicated that 57% of respondents had established a formal flexible work arrangement policy within their companies, but the expressed demand and utilization of the policies varied dramatically by company and by country. The study revealed that the demand for flexible work arrangements across Asia was strongest in Japan compared to other Asian countries such as India, the ROC, Singapore, and Thailand [54].

Another study, "Are Malaysian women interested in flexible working arrangement at workplace," found that about 86% of the respondents were interested in flexible working arrangements and more than 70% of them had not used any form of flexible working arrangements before. Most of them were interested in flexible-time and working-from-the-home as compared to teleworking and part-time working. The findings from this study also indicated that older women who were more educated and earned higher incomes were more interested in flexible working arrangements in the workplace. Women who had young children and were in their 30s were also the ones who were more interested in flexible working arrangements [55].

Another study, "Flexible Working Goes Global," which interviewed over 17,000 senior business people from 80 countries, found that companies were using flexible working practices to encourage and facilitate working mothers to return to the workforce around the world. Flexible working is recognized as an effective practice for motivating and rewarding family-oriented employees, and 70% of companies viewed flexible working as being more family-friendly. As many as 88% of the German businesses thought that flexible working was more family friendly, while 72% of businesses in the Netherlands would allow their employees flexible work arrangements regardless of seniority, age or length of service. However, Asian countries obtained relatively lower scores than the Western countries [56]. Notably, the ability of a company to provide flexibility to its employees in Asia is dependent not only on the country's culture, the company's culture also appears to play an important role.

4.3.2 Maternity Leave and Parental Leave

In Japan, according to Prime Minister Shinzo Abe's "womenomics," expanding childcare leave benefits has been effective since April 2014. The government increased payments to new parents

from 50% to 67% of their salaries during the first six months of parental leaves. Pay for the remaining six months of parental leave was kept constant at 50% of the salary. The government also provided incentives to encourage fathers to take childcare leave, and set a goal to increase the proportion of fathers taking paternity leave from 2.6% in 2011 to 13% by 2020.

In October 2011, the Malaysian government improved the maternity leave facility for female civil servants by providing the flexibility to self-determine fully paid maternity leave, which has been extended from 60 to 90 days, subject to a total of 300 days of maternity leave throughout the tenure of a service. The maternity leave in private sector has been extended from 60 days up to 90 days. Meanwhile, local banks have extended fully-paid maternity leaves from 60 days to 90 days, effective since 10 August 2010 through a collective agreement.

In the Philippines, employed women in the private sector, whether married or not, are entitled to a 60-day maternity leave with pay, provided that they have rendered an aggregate service of at least six months. Women employed in the public sector also enjoy the same benefit, provided they are married and have rendered service for at least two years. Under the Magna Carta of Women, a special leave benefit is accorded to women who undergo surgery caused by a gynecological disorder. A woman employee who has rendered continuous aggregate employment service of at least six months for the last twelve months is entitled to a special leave benefit of two months with full pay, based on her gross monthly compensation.

In Thailand, female government officials and employees of private firms are entitled to maternity leaves of up to 90 days per pregnancy. A compensation of full pay for 45 days is provided by the employer while full pay for another 45 days comes from the Social Security Fund. Female government officials are allowed leaves up to a total of 150 days, inclusive of the maternity leave, to take care of their children. Male government officials whose registered wives have given births are entitled to paternity leaves of up to 15 days.

In the ROC, the duration of maternity leave ranges from five days to eight weeks. Fully paid maternity leave is granted to any female worker who has been employed for more than six months. For any female worker on maternity leave, if her spouse is employed, he is to be granted three days off as paid paternity leave. Parental leave can be used for up to two years till the child reaches the age of three. Although the parental leave is unpaid, Employment Insurance Account provides an insured employee with an allowance for up to six months per child and the amount of this remuneration is 60% of the insured person's monthly earnings. If both parents are covered by the employment insurance, they may apply for the parental leave allowance separately but not at the same time.

In India, the Maternity Benefits Act, 1961, which grants employees mandatory paid leaves and extends to the whole of India, is implemented with variable success. Employees must also have worked in the establishment for 80 days in the 12 months preceding the date of delivery. Employees are due a maximum of 12 weeks of fully paid leaves, with six of the weeks to be taken after the date of delivery. An additional medical bonus of Rs 3,500 is also available.

In Indonesia, women are entitled to receive full wages during maternity leave, including one-and-a-half months before the birth and one-and-a-half months after the birth, as certified in writing by an obstetrician or midwife. In the event of a miscarriage, the worker is entitled to one-and-a-half months of paid leave or as certified in writing by an obstetrician or midwife. The durations of

leaves before and after the child birth or miscarriage can be extended, subject to the recommendation by a doctor.

4.3.3 Childcare Support Services

Better access to comprehensive, affordable, and high-quality childcare frees up women's time for formal employment, and would be helpful for boosting FLFP. To promote FLFP, most Asian countries have expanded childcare services by increasing the number of childcare facilities and children who were eligible for childcare subsidies.

In Japan, although more than two million children are enrolled in childcare centers, more than 23,000 are on waiting lists. In the past two decades, the Japanese government has launched a series of five-year childcare policy initiatives through Angel Plans 1994–98, New Angel Plans 1999–2004, and Child-Family Support Plan 2005–09. To enhance "womenomics," the government has pledged a "zero childcare waiting-list project," to increase childcare capacity by 400,000 children by 2017. In order to reach this goal, the government has proposed opening more childcare centers by utilizing a rental system and government-owned land; hiring new childcare workers; subsidizing small-scale childcare businesses; assisting unregistered childcare centers seeking registration; and supporting on-site childcare centers on business premises. The government is also taking steps to increase the availability of after-school care for elementary school children. There is an expression in Japan, "sho-ichi no kabe" or "the first-grade wall," that refers to the lack of places where school-aged children can spend time after school, and some believe the dearth of childcare options is a major reason why women leave their careers [52].

In the ROC, community childcare systems are operated by local governments. These systems provide comprehensive childcare services, such as extended-hour childcare and drop-in childcare, and are backed by community support services and volunteers. Also, the government initiated subsidy for childcare services in April 2008 to decrease pressure of family on childcare and finance. Parents whose annual pre-tax income falls below a defined threshold are entitled to a monthly subsidy toward childcare expenses. The government recently integrated two different systems of childcare and early childhood education into one Early Childhood Education and Care (ECEC) service system. In the beginning of 2012, the ECEC Act regulated both kindergarten and childcare facilities [57].

In Malaysia, approximately 400 new private preschools and 580 new private childcare centers were established in 2014. The government also provided subsidies on childcare fees to increase the participation of women in labor market and to ease the burden of low-income parents. On the other hand, according to the Service Circular of No. 6 Year 1989, it is compulsory for all ministries, departments, and agencies to establish childcare centers at workplaces.

In Thailand, the government implements various measures for childcare support, including welfare of children from low-income families; education allowances for children studying in educational institutions; allowance for children aged up to six years; preschool childcare centers, and so on.

4.4 Skills and Vocational Training

Rapid technological changes and increasing global competition have continued to deliver great economic benefits to Asian countries, but this recent wave of change has also left some women behind, particularly the less-skilled ones, by making it more difficult for them to find good job opportunities, and so some of them choose to be out of the labor market.

Women can take action and gain new and practical skills to improve their reemployment opportunities and find jobs more quickly, or to improve the quality of their jobs and the levels of their pays. Training programs offer unique opportunities to improve the well-being of less-skilled and displaced workers. In other words, to encourage more women to seek and demand better workplace opportunities, policies such as those that explicitly promote skills-training for them should be instituted.

On the other hand, the mismatch between skills needed by the labor market and those acquired by job seekers should be paid much attention. According to a survey of the World Bank [58], more than 40% of firms have reported vacancies for skilled production worker positions, and the average time required to fill a vacancy is about four weeks. The main reason given by the firms for this long process is that the applicants did not have the required basic skills or the right technical skills to carry out the jobs in question. Thus, in order to direct trainees to invest in courses and fields of studies relevant to the available jobs, training programs should directly engage employer and industry partners, or actively guide students to career-specific trainings [59].

In Japan, the Job Card system covers participants in the Japanese Dual System, introduced in 2004. In this system, the time spent in a training institution is matched with employer experience, as well as other types of training. The Job Card system combines new and existing programs targeted at recent graduates, freeters (young people who hold a series of non-regular jobs), women who left the labor force to care for children, and single mothers. The Job Card is a document that records the individual's education, training, and employment history, and can be used for further training and job search. Also, the New Growth Strategy in Japan targets an increase in the number of Job Card holders from about 0.4 million in 2010 to three million by 2020 [60].

In Malaysia, "10th Malaysia Plan" details an integrated human capital and talent development framework that streamlines the major policy measures introduced in various initiatives. One of the main themes is "Raising the skills of Malaysians to increase employability," which includes mainstreaming and broadening of access to quality technical and vocational training, and enhancing the competencies of tertiary graduates to prepare them for entering the labor market.

In the Philippines, according to "Women Empowerment Development and Gender Equality Plan, 2013," the government has conducted capacity development programs for women through provision of gender-responsive vocational training and has collaborated with industrial sectors and microenterprise to promote gender-responsive training on women's rights and work conditions in accordance with national labor standards [61].

In the ROC, according to the Employment Service Act, in order to counsel women who left their jobs due to gestation, parturition, or child-rearing, and are seeking reemployment, the government should, depending on actual needs, hold vocational training programs therefor. The government provides free monthly comprehensive vocational training programs and living allowances at 60% of minimum wage for six months, so as to enhance their work competitiveness and help them to return to work or change professions.

4.5 Women's Entrepreneurship

Women entrepreneurs with new perspectives can be the driving force behind economic growth, bringing needed changes to the economy and the society as a whole. In Asia, small and medium enterprises (SMEs) employ between 60% and 80% of the national workforces in more than ten

countries. According to the Asia-Pacific Economic Cooperation (APEC), SMEs account for 90% of businesses and over 60% of employment in this region.

It is estimated that SMEs account for more than 96% of all enterprises in ASEAN while their contributions to GDP are calculated between 23% and 58%. One of the outstanding features in ASEAN is high female-to-male entrepreneurship ratios in several member states, such as the Philippines at 1.05, Indonesia at 0.96, and Thailand at 0.92. Catalyzing women's entrepreneurial talent can have a positive impact on women's economic empowerment, generate new ideas, and create jobs [62]. According to the 2016 Women Entrepreneurs Cities Index, Singapore, Beijing, Hong Kong, Taipei, Shanghai, Tokyo, Seoul, Delhi, and Jakarta featured among the Top 25 Global Cities for Women Entrepreneurs.

In Japan, Prime Minister Shinzo Abe's "womenomics" focuses on unleashing the creative potential of half of Japan's population and requires an equally sustained effort to promote female entrepreneurship. The primary policies, implemented since early 2000s, to support startup companies are:

1. Removal of the minimum capital requirement for the establishment of limited liability companies.
2. Provision of education and information for entrepreneurs through the National Startup and Venture Forum.
3. The startup loan program, which requires no collateral, guarantors, or personal guarantees, and the expansion of the upper limit of "free property" based on the New Bankruptcy Law [63].

According to the Ministry of Trade, Malaysia has seen a 55% increase in the number of women-owned SMEs during the past decade. The Malaysian government made the effort to create and develop quality, resilient, and successful entrepreneurs by cultivating an enterprising culture among women [64]. The Ministry for Women, Family and Community Development (MWFCD), especially the Department of Women's Development (DWD), is one of the significant players in establishing women entrepreneurs in Malaysia. In its 2014 budget, Malaysian Government increased the allocation to RM2.2 billion for MWFCD from RM2.0 billion in 2013 [65].

In the ROC, the government provides various forms of assistance for women's entrepreneurial activities. These measures include the provision of consulting services, guidance and training programs, the establishment of incubation centers, the provision of funding, loans for business startups, etc. For example, "Flying Goose Program for Empowering Women Entrepreneurs" provides integrated counseling resources for women entrepreneurs, and "Micro-Business Start-up Phoenix Loan" provides them with up to NTD 1 million in low-interest loans that are interest-free for the first two to three years. The maximum loan term is seven years.

In India, women entrepreneurs constitute 10% of the entrepreneurs in the country. There has been a significant growth in self-employment of women, with women now starting new ventures at three times the rate of men. Indian government has formulated various training and development cum employment generation programs for women to start their ventures [66].

SMEs are growing very rapidly in Indonesia covering many fields. It is estimated that 60% of these enterprises are run by women in Indonesia. A number of policies have been formulated to provide loans for new entrepreneurs to start or expand their businesses. The government also provides

trainings to improve citizens' business skills, organizes exhibitions to showcase their products, and so on. All of these activities are conducted to increase the number of entrepreneurs from 0.18% to 2% of the total population, which is considered as the ideal ratio by the government. Many entrepreneurial projects in Indonesia target women [67].

5. Future Challenges: Labor Productivity Issue

5.1 Growing Labor Productivity in Asia

Productivity performance is crucial to a country's economic prospect. As shown in Figure 1-16 [68], all Asian regions' labor productivities show sharply increasing trends over the past four decades. Labor productivity growth during the period 1970–2013 has increased in southern Asia, eastern Asia and ASEAN, by 212%, 402%, and 190%, respectively. Eastern Asia, with its lower initial labor productivity, has sustained growth rates higher than other Asian regions. Labor productivity in eastern Asia has accelerated and has increasingly accounted for a greater proportion of economic growth in Hong Kong, the ROC, and the ROK, among others.

Southern Asia has shown relatively lower labor productivity than the other Asian regions. However, recently, foreign-invested facilities have brought in new technology, capital, and management expertise and have improved the productivity of domestic industries. Within the manufacturing sector, shifts have occurred from relatively labor-intensive, low-productivity industries toward high-productivity industries, particularly in the area of information and communications technology (ICT). As a result, the manufacturing sector continues to drive much of the overall productivity growth in southern Asia.

FIGURE 1-16

LABOR PRODUCTIVITY LEVELS BY PER-WORKER GDP IN ASIAN REGIONS

(GDP AT CONSTANT BASIC PRICES PER WORKER, USING 2011 PPP, REFERENCE YEAR 2013)

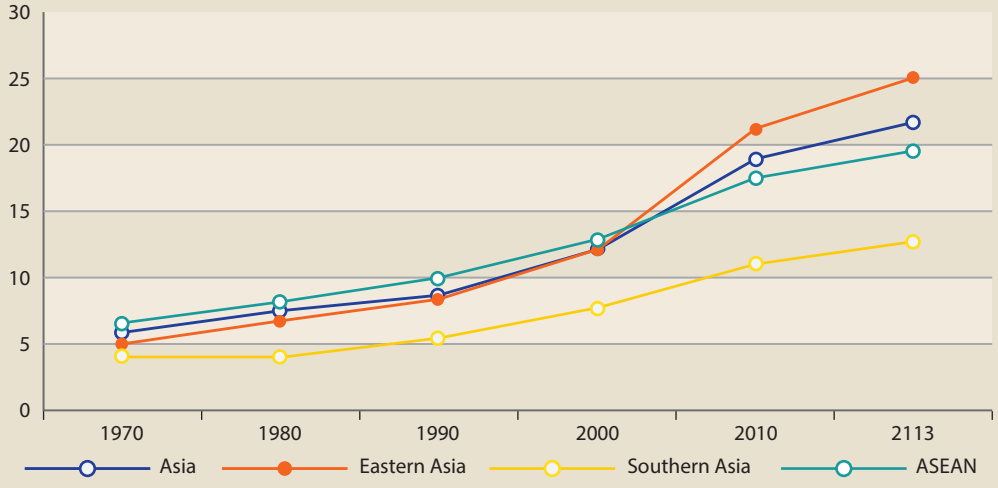


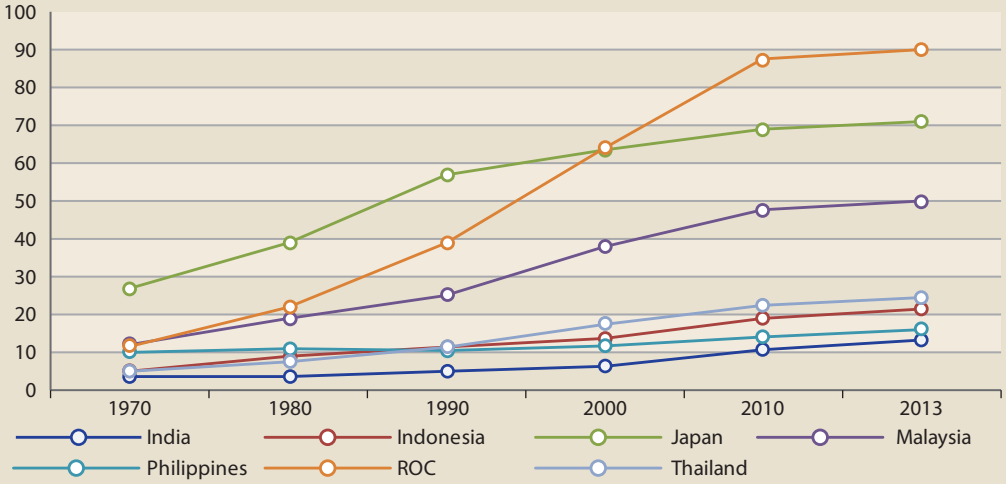
Figure 1-17 [68] presents the cross-country comparisons of labor productivity levels in the 1970–2013 period, measured as GDP per worker in US dollars. All countries' labor productivities showed an increasing trend over the past four decades. On this measure, the ROC was the leading economy among the selected countries in 2015, with Japan following at some distance. The ROC began with

40% of Japan's productivity levels in 1970 but four decades later pulled ahead of Japan. The ROC's labor productivity grew dramatically, from 11.7 to 90.6, with a growth of 675% in the past forty years. India, Indonesia, Malasia, and Thailand also improved dramatically in labor productivity terms, and all grew more than 250% during 1970 and 2013. The Philippine productivity growth has been low compared to other countries, having increased from 9.5 to 15.7 in the same period.

FIGURE 1-17

LABOR PRODUCTIVITY LEVELS BY PER-WORKER GDP IN SELECTED ASIAN COUNTRIES

(GDP AT CONSTANT BASIC PRICES PER WORKER, USING 2011 PPP, REFERENCE YEAR 2013)



5.2 Labor Productivity vs FLFP: Can Both Growths be combined?

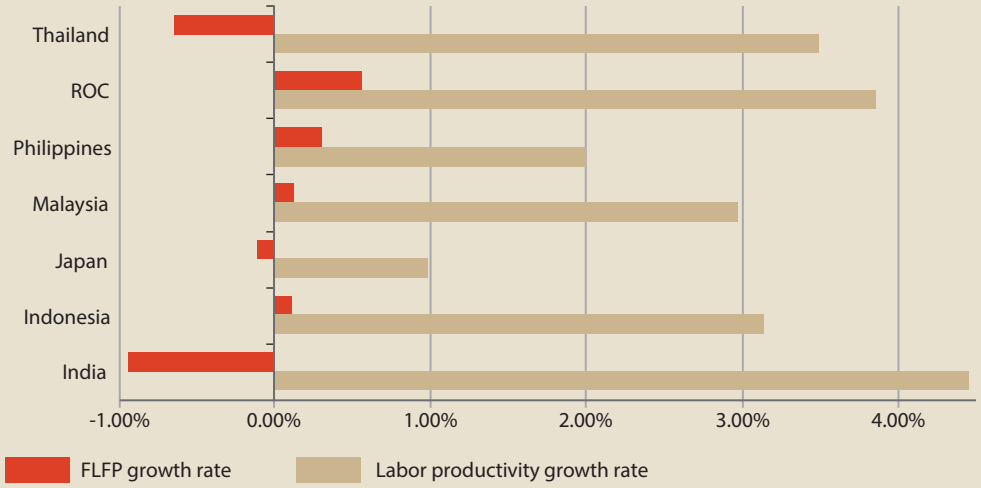
The average growth rates for labor productivity per person and FLFP for the period 1970–2013 are shown in Figure 1-18. The productivity growth rates and the FLFP growth rates went in opposite directions in India, Japan, and Thailand, whereas both the growth rates were positive in Malaysia, Indonesia, the Philippines, and the ROC.

Asian countries have taken up a series of measures to increase female labor participation rates. However, the results have varied from country to country. The emerging challenge for Asian countries is to see that labor productivity growth and FLFP growth are aligned. In other words, the challenge is that increases in FLFP should also affect productivity advances positively. An important issue will remain to improve education attainment levels and support training of newcomers to the labor markets. As mentioned before, in Asia, access to education has improved dramatically over the past decades, and there have been a number of encouraging trends in women's education. However, a potential mismatch between the levels of skills among the working-age population and the demands by the employers should be avoided.

In addition to formal education and training, employers are demanding that workers obtain more technical proficiency and interpersonal skills than in the past. Moreover, the reduced role of the manufacturing sector, the increased importance of the service sectors, advancements in technology, and the wave of globalization should be focused upon by the policy makers. The increase in effective training and lifelong learning is likely to have a positive impact on promoting women participating in the labor market and their productivity growth. However, boosting FLFP is a complex issue and requires mutlidimensional

FIGURE 1-18

LABOR PRODUCTIVITY AVERAGE GROWTH RATE VS FLFP AVERAGE GROWTH RATE, 1970–2013
(GDP AT CONSTANT BASIC PRICES PER WORKER, USING 2011 PPP, REFERENCE YEAR 2013)



coordination of many stakeholders to fully address all the challenges. Effective education and training is just one measure of boosting FLFP policies. Government leadership, with careful coordination among ministries and agencies, would be essential for effective policies to boost FLFP.

References

[1] United Nations. World Population Prospects: The 2015 Revision Population Database. https://esa.un.org/unpd/wpp/. Accessed on 8 June 2016.

[2] Bloom D., Canning D., Fink G. Implications of Population Aging for Economic Growth, NBER Working Paper No. 16705; 2011.

[3] IMF. Women, Work and the Economy: Macroeconomic Gains from Gender Equity. IMF Staff Discussion Note; 2013.

[4] ILO. Estimates and Projections of the Economically Active Population (EAPEP); 2013.

[5] Department of Economic and Social Affairs, United Nations. The World's Women; 2015.

[6] ILO. Key Indicators of the Labor Market database, http://www.ilo.org/global/statistics-and-databases/lang--en/index.htm. Accessed on 20 June 2016.

[7] Sorsa P., et al. Determinants of the Low Female Labor Force Participation in India. OECD Economics Department Working Papers; 2015.

[8] Tansel A. Economic Development and Female Labor Force Participation in Turkey: Time-series Evidence and Cross-province Estimates, ERC Working Papers in Economics, Economic Research Centre. Ankara: Middle East Technical University; 2001.

[9] Ejaz M. Determinants of Female Labor Force Participation in Pakistan: An Empirical Analysis of PSLM (2004–05) Micro Data, The Lahore Journal of Economics 2007; 2, Special Edition: 204–235.

[10] Psacharopoulos G., Tzannatos Z. Female Labor Force Participation: An International Perspective, World Bank Research Observer 1989; 4, No. 2: 187–201.

[11] United Nations Educational Scientific and Cultural Organization (UNESCO), Institute for Statistics. http://www.uis.unesco.org/Pages/default.aspx. Accessed on 16 June 2016.

[12] Warunsiri S., McNown R. Female Labor Supply in Thailand: 1985–2004. A Synthetic Cohort Analysis. A paper presented at the 74th Annual Meeting of the Midwest Economics Association, USA, 2010.

[13] OECE. Education at a Glance; 2014.

[14] Holt H. Health and labor force participation, New Zealand Treasury Working Paper 10/03; 2010.

[15] Cai L. The Relationship between Health and Labor Force Participation: Evidence from a Panel Data Simultaneous Equation Model. Labor Economics 2010; 1: 77–90.

[16] Thomas D., Frankenberg E. Links between Women's Health and Labor Market Outcomes in Indonesia, The POLICY Project, USAID/G/PHN/POP/PE. 2000.

[17] Cai L., Kalb G. Health Status and Labor Force Participation: Evidence from Australia, Health Econ. 2006; 15(3): 241–61.

[18] Fan M. The Effect of Health on Labor Force Participation, IMACS Multi-conference on Computational Engineering in Systems Applications, Beijing, China, 2006.

[19] WHO. Health Statistics and Information Systems. http://www.who.int/healthinfo/statistics/indhale/en/. Accessed on 22 June 2016.

[20] Bloom D., Canning D., Fink G., et al. Fertility, Female Labor Force Participation, and the Demographic Dividend. NBER Working Paper No. 13583; 2007.

[21] Mishra V., Smyth R. Female Labor Force Participation and Total Fertility Rates in the OECD: New Evidence from Panel Co-integration and Granger Causality Testing. Journal of Economics and Business 2010; 62: 48–64.

[22] Emara N. Fertility and Female Employment: A Panel Study on Developing Countries. Applied Economics and Finance 2016; 3: 122–27.

[23] World Bank. World Bank Open Data. http://data.worldbank.org/. Accessed on 2 July 2016.

[24] Whitehead K. Women in the Workforce: How Cultural Factors Affect Labor Supply. University of Tennessee Honors Thesis Projects; 2011.

[25] Reimers C.W. Cultural Differences in Labor Force Participation Among Married Women. The American Economic Review 1985; 75: 251–55.

[26] Antecol. H. Why Is There Inter-Ethnic Variation in the Gender Wage Gap? The Role of Cultural Factors. Journal of Human Resource 2001; 36: 119–43.

[27] Fernández R., Fogli A. Culture: An Empirical Investigation of Beliefs, Work and Fertility. American Economic Journal: Macroeconomics 2009; 1: 146–77.

[28] Clark R., Thomas W., Emily S. Culture, Gender, and Labor Force Participation: A Cross-National Study. Gender and Society 1991; 5: 47–66.

[29] Vella F. Gender Roles and Human Capital Investment: The Relationship between Traditional Attitudes and Female Labour Market Performance. Economica 1994; 61: 191–211.

[30] Antecol H. Why is there Cross-Country Variation in Female Labor Force Participation Rates? The Role of Male Attitudes toward Family and Sex Roles. Claremont Colleges Working Papers, Department of Economics, Claremont McKenna College; 2003.

[31] Fortin N. Gender Role Attitudes and the Labor Market Outcomes of Women Across OECD Countries. Oxford Review of Economic Policy 2005; 21: 416–38.

[32] Contreras D., Plaza G. Cultural Factors in Women's Labor Force Participation in Chile. Feminist Economics 2010; 16: 27–46.

[33] The World Bank. Environment for Women's Entrepreneurship in the Middle East and North Africa Region; 2011.

[34] Ho J. The Effect of Culture on Female Labor Force Partcipation. CMC Senior Theses. Paper 101; 2010.

[35] H'madoun M. Religion and Labor Force Participation of Women. http://anet.uantwerpen.be/docman/irua/d9cb1a/024cf1d5.pdf. Accessed on 28 June 2016.

[36] Sauré P., Zoabi H. International Trade, the Gender Wage Gap and Female Labor Force Participation. Journal of Development Economics 2014; 111: 17–33.

[37] Blau F., Jed D. New Evidence on Gender Differences in Promotion Rates: An Empirical Analysis of a Sample of New Hires. Industrial Relation 2007; 46: 511–50.

[38] Goldin C. The Quiet Revolution That Transformed Women's Employment, Education, and Family. American Economic Review 2006; 96: 1–21.

[39] Hunt J. The Transition in East Germany: When Is a Ten-Point Fall in the Gender Wage Gap Bad News? Journal of Labor Economics 2002, 20: 148–69.

[40] Zhang J., Ge Y. Female's Labor Participation and Gender Wage Gaps in Hong Kong. 2nd CIER/IZA Annual Workshop: Research in Labor Economics; 2010.

[41] Kinoshita Y., Guo F. What Can Boost Female Labor Force Participation in Asia? IMF Working Paper; 2015.

[42] Staszewska K. Close the Gap! The Cost of Inequality in Women's Work. http://www.actionaid.org.uk/sites/default/files/publications/womens_rights_on-line_version_2.1.pdf. Accessed on 6 July 2016.

[43] World Economic Forum. The Global Gender Gap Report 2014. http://reports.weforum.org/global-gender-gap-report-2014/. Accessed on 10 July 2016.

[44] World Bank Group. Growth of the Service Sector Beyond Economic Growth; 2009.

[45] World Bank Data. http://databank.worldbank.org/data/databases.aspx. Accessed on 19 June 2016.

[46] IMF. Women, Work and the Economy: Macroeconomic Gains from Gender Equity. IMF Staff Discussion Note; 2013.

[47] United Nations. Committee on the Elimination of Discrimination Against Women. http://www.ohchr.org/EN/HRBodies/CEDAW/Pages/CEDAWIndex.aspx. Accessed on 4 July 2016.

[48] ILO. Databases on International Labour Standards. http://www.ilo.org/global/standards/information-resources-and-publications/databases/lang--en/index.htm. Accessed on 4 July 2016.

[49] McCaery E. Taxing Women. Chicago: The University of Chicago Press; 1997.

[50] Kaygusuz R. Taxes and Female Labor Supply. Review of Economic Dynamics 2010; 13: 725–41.

[51] Gauff T. Eliminating the Secondary Earner Bias: Lessons from Malaysia. the United Kingdom, and Ireland. Northwestern Journal of Law & Social Policy 2009; 5: 425–56.

[52] Chanlett-Avery E., Nelson R. Womenomics in Japan: In Brief. Congressional Research Service; 2014.

[53] Silim A., Stirling A. Women and Flexible Working. Institute for Public Policy Research. JCMorgan Chase & Co; 2014.

[54] Global Workforce Roundtable. Flexible Work Arrangement. Boston College; 2007.

[55] Subramaniam G., Overton J. Are Malaysian Women Interested in Flexible Working Arrangement at Workplace? Business Studies Journal 2010; 2: 83–98.

[56] Regus. Flexible Working Goes Global; 2011.

[57] Chin M. Demographic Changes and Work Family Balance Policies in East Asia. International Day of Families. NY NGO Committee on the Family; 2012.

[58] World Bank. Malaysia Productivity and Investment Climate Assessment Update, World Bank. Poverty Reduction and Economic Management Sector Unit. East Asia and Pacific Region. Report No. 49137-MY, August, Washington DC.

[59] Greenstone M., Looney A. Building America's Job Skills with Effective Workforce Programs: A Training Strategy to Raise Wages and Increase Work Opportunities. http://www.brookings.edu/research/papers/2011/11/training-greenstone-looney. Accessed on 8 July 2016.

[60] Jones R., Urasawa S. Labor Market Reforms in Japan to Improve Growth and Equity. OECD Economics Department Working Papers, OECD Publishing; 2011.

[61] Thongsame A. Gender Equality in ASEAN: Lesson from the Philippines and the Road Ahead. Warwick ASEAN Conference. 31 January 2016.

[62] Rodriguez-Wong. D. Women's Entrepreneurship in the ASEAN Economic Community. GEM ASEAN Regional Entrepreneurship Report 2014–15.

[63] Yasuda T. Programs to Stimulate Startups and Entrepreneurship in Japan: Experiences and Lesson. http://www.nap.edu/read/12194/chapter/8. Accessed on 25 June 2016.

[64] Alam S.S., Fauzi M., Jani M., et al. An Empirical Study of Success Factors of Women Entrepreneurs in Southern Region in Malaysia. International Journal of Economics and Finance 2011; 3: 166–75.

[65] Mutalib A. et al. Women and Entrepreneurship: An Overview of Women Entrepreneurship Programs in Malaysia. Journal of Governance and Development 2015; 11: 15–14.

[66] Sharma Y. Women Entrepreneur in India. IOSR Journal of Business and Management 2013; 15: 9–14.

[67] Melissa E., et al. The Internet and Indonesian Women Entrepreneurs: Examining the Impact of Social Media on Women Empowerment. Impact of Information Society Research in the Global South. Singapore: Springer; 2015.

[68] APO. APO Productivity Database 2015 Version 1. http://www.apo-tokyo.org/wedo/measurement. Accessed on 10 June 2016.

CHAPTER 2

FLFP TRENDS AND POLICIES IN INDIA

Dr. Seema Joshi
Associate Professor of Economics, Department of Commerce
Kirori Mal College, University of Delhi

1. Analytical Frame

Gender equality was first recognized as a fundamental right in the Charter of the United Nations signed in 1945. The beginning of the UN Decade for Women (1976–85) created a keen interest among researchers, policy makers, international organizations, and economists in gender issues throughout the world. The UN General Assembly, on 18 December 1979, adopted the Convention on the Elimination of All Forms of discrimination Against Women, which came into force on 3 September 1981. Further, target 4 of the Millennium Development Goal 3, emanating from the UN Millennium Declaration 2000, bound all the 189 committed member countries of the UN, including India, to do more to promote gender equality and empower women as it aimed at eliminating gender disparity in primary and secondary education, preferably by 2005, and in all levels of education not later than 2015 [1–2]. Later, the number of these countries rose to 193.

The Sustainable Development Goals (SDGs) listed under the 2030 Agenda for Sustainable Development are an intergovernmental set of goals with 169 targets. The Official Agenda for Sustainable Development adopted on 25 September 2015 has outlined 17 SDGs, of which one goal relates to achievement of gender equality and empowerment of women and girls.

The initiatives undertaken at global, national, and regional levels to improve the status of women have come to be linked with the twin concepts of equality and empowerment. Equality implies equal opportunities in terms of access to sources of livelihood, education, health, and participation of women in social, political, and economic processes, without discrimination. As pointed out by Kabeer [3] and Carr et al. [4], gender inequalities arise from relations of power and authority, class-caste hierarchies, and sociocultural traditions, customs, and norms. Empowerment refers to the process of transforming the structures and institutions to ensure equality. Sudershan [5] says, "the concept of empowerment and its measurement has been much debated [3, 5–9]. Gaining greater control over one's own life (variously measured through enhancement of mobility, decision-making, choosing a life partner, and so on) and an enhanced sense of self-esteem are at the core of empowerment as is commonly understood." Samanta [10] in his book emphasizes on focusing attention on the necessary dimensions required for facilitating meaningful empowerment. These dimensions are: economic empowerment; physical empowerment; empowering women in areas of time, technology, and transport; and psychological empowerment.

Kabeer [9, 13] defines women's empowerment as the processes through which women gain the capacity for exercising strategic forms of agency in relation to their own lives as well as in relation to the larger structures of constraint that position them as subordinate to men. A subsequent version of this definition attempted to link changes at an individual level to forms of agency that were collective in nature and were needed to bring a sustained structural change in societies and constraints that limit women. In her study, women's empowerment has touched upon different aspects of

women's lives, both as standalone factors as well as in interrelationships with other aspects. These aspects range from women's sense of self-worth and identity to their ability to recognize and question their subordinate status; their capacity to control their own lives and renegotiate their positions in relationships that matter to them; and their capacity to participate and contribute equally in the reshaping of their societies such that the distribution of power is more democratic and just.

In a World Bank report, Alsop and Heinsohn [14] described individuals and groups as empowered when "they possess the capacity to make effective choices, i.e., to translate these choices into desired actions and outcomes." More recently, a broader notion of agency was offered in a World Development Report, 2012 [15], which included control over resources, decision-making, freedom of movement, freedom from the risk of violence and a voice, and influence in collective decision-making processes. Other definitions include the one put forward by Inter-American Development Bank [16], which defined women's empowerment in terms of expanding the rights, resources, and capacities of women to make decisions and act independently in social, economic, and political spheres. The UN [17] defined women's empowerment as encompassing five components: 'women's sense of self-worth; their right to have and determine choices; their right to have access to opportunities and resources; their right to have the power to control their own lives, both within and outside the home; and their ability to influence the direction of social change to create a more just social and economic order, nationally and internationally."

According to the 2011 census, women account for 586.47 million in absolute numbers and represent 48.46% of the total population of the country [18]. However, their contribution to measured economic activities, growth, and well-being is far below the potential, which has serious macroeconomic implications. Despite the rapid progress that India has made in recent decades, labor market remains divided along gender lines, and progress towards gender equality seems to be a distant dream. Women face inequality in terms of consumption, assets, and participation in the decision-making process relating to determination of family size, education of children, overall welfare of the household, and wage differentials vis-à-vis their male colleagues.

As per a World Bank report [15], gender equality is very essential for development as it is termed as 'smart economics.' It can enhance economic efficiency and improve other development outcomes. Misallocation of women's skills and talents has a high and rising economic cost. In addition, OECD [19] says that for the achievement of Millenium Development Goals, sustainable development and pro-poor growth, women need to be economically empowered. Gender equality and women empowerment lead to the multiplication of development effect, such that investments in these yield highest returns of all developmental investments.

1.1 Alternative Frameworks of Women's Empowerment

Review of literature reveals that there are different alternative pathways to empower women. These pathways are: reducing gender gaps in human capital endowments by spending on education and health of women; by giving them control over assets; by way of removal of sociocultural barriers; and by way of releasing women's time. However, we argue in this paper that economically empowering women by ensuring their labor market participation can have several spillover effects.

1.1.1 Reducing Gender Gaps in Human Capital Endowments

Education and Training of Women

Education of women is essential to women empowerment and is an important factor influencing the female labor force participation rate (FLFPR). Human capital theories underline the role of

education in influencing employment outcomes. Tansel [20] highlights the importance of educational attainments in impacting the decision to participate in the labor market. The literature on human capital reveals that greater educational attainments lead to higher labor market participation and higher productivity [20–22]. Moreover, studies also show higher returns to education for women than for men [23–25].

Education provides the knowledge and self-confidence to help women utilize economic opportunities effectively. Steps like removal of school fees and provision of financial incentives for girls' education have proven successful in increasing their enrolments and completion rates. Other ways include building schools close to remote communities, hiring quality teachers, providing satisfactory sanitary facilities, and ensuring girls' safety. Well-structured vocational training leads to better paying jobs and counters concentration of women in low-wage and low-skill jobs or reinforces occupational segregation between men and women [19, 26].

Reproductive and Sexual health

The promotion and realization of reproductive health and rights is an important step toward women empowerment, including economic empowerment. Given the fact that maternal mortality rates, as well as infant and child mortality rates are high in developing countries and sex ratios are skewed at birth, improvements in women's health could also contribute to their economic empowerment by ensuring their greater participation in the labor market. Basic services such as those pertaining to medicines and health, and availability of skilled attendants at birth, when provided on time to pregnant women, along with other services such as clean water and sanitation, can go a long way in reducing the gender gaps in excess mortality.

Accessibility of sexual and reproductive information such as those pertaining to HIV transmissions and fall in marriage rates can increase women's chances of finishing education and breaking out of poverty [15, 26] as well as traditional roles of caring and maintenance of the household. All these positive developments can lead to greater participation of women in the labor market, and empower them economically.

1.1.2 Women and Property Rights

OECD [26] recognizes that a critical element of economic empowerment of women is the access and control of productive assets, such as livestock, tools, and houses. An equitable distribution of these assets can be a deciding factor for economic growth to produce poverty reduction. This is especially relevant in case of developing countries where majority of people work in an informal setting without adequate rights. In such conditions, implementation of 'decent work' principles, e.g., rights, social protection, and secure jobs should be promoted. Women's unpaid work needs to be valued and made visible, through programs that reduce drudgery. Irregular and low incomes make it difficult to accumulate savings and drive people into selling their assets in times of crises, or taking children out of schools. Social protection helps people survive crises and maximize their human capabilities.

Microfinance is important to promote education. It helps increase families' savings, allowing them to manage emergency and crises situations better. It is important to note the difference between institutions providing credit on profit-making basis and local mutual associations providing varied services to members. Unsustainable indebtedness results from supply driven, unsuitable credit, while excluding those who could benefit most from it.

Aggarwal [27] argues that entitling women with land could empower them economically, as well as strengthen their ability to challenge social and political gender inequities. She further states that

land rights could enable a woman to get better treatment from other family members and add to her bargaining power. Mies et al. [28] go one step further when they say that landownership can empower women by improving the social treatment they receive from other villagers.

1.1.3 Removal of Sociocultural Barriers

In developing countries like India, social and cultural factors have significant influences on women's ability to participate in the economy. Studies [29] have identified certain sociocultural barriers affecting employment and empowerment of women in several countries. In several South Asian and Southeast Asian countries, women have to face family-related and societal constraints. The history and cultural traditions of all these countries have given rise to gender-specific expectations about certain behaviors and attitudes. These have produced a general pattern of inadequate personal autonomy for women, coupled with lack of resources at their disposal and compromised decision-making abilities in their homes and societies. In the light of these realities, women empowerment can be achieved by helping them identify discriminatory practices and formulate and express the changes they visualize in their own societies, including the cultural and gender norms.

1.1.4 Releasing Women's Time and Sharing of Care Responsibilities

It has been aptly pointed out by Sen et al. as quoted in Samanta [9] that while empowering women requires fundamental changes at many levels of society, arguably the most complex and elusive transformation potential may lie in the relations within the household and the family.

A bulk of unpaid care work is considered the duty of women across various economies and cultures. Social norms in many societies dictate that the primary responsibility for the care of children and elders, along with the affairs of the household, including the provisioning of water and energy supplies, lies on girls and women. This hampers their ability to complete education, engage in productive activities, and obtain secure sources of income [19]. B.M.B. and Femconsult, and Clever and Schreiber [30–31] considered lack of time due to preoccupation with family maintenance and survival needs an important constraint accounting for low productivity of women and their incomes. Faith and Blackden [19] said that access to public services, such as health clinics and public transport, and their efficient and improved delivery could also reduce the time burden that women face. Women's unpaid work, particularly in the care economy, needs to be given greater attention, while the discriminatory social norms also need to be tackled [32]. World Bank [15] also emphasized the need for addressing the blinding norms and releasing women's time, which means paying more attention to three types of policies: childcare and parental leave policies; improvement in infrastructure services; and policies that reduce transport costs associated with accessing markets.

It is a challenging task for women to balance dual work, i.e., meet maternity and family responsibilities while working. Unpaid care brings in benefits as it contributes to economic growth through a labor force that is fit, productive, and capable of learning and creativity. However, it also carries a cost as it drains the market of its female work force. It has been estimated that if care work was assigned a monetary value it would account for 10% to 39% of the GDP [19]. Therefore, in the light of the above facts, another route for empowering women is to release women's time so that they can participate in the labor market.

1.1.5 Empowerment through Participation in Labor Market

There are different routes through which women can be empowered. These include increasing human endowments, releasing women's time, and giving them property rights. However, we argue

in this paper that women become economically empowered by entering the labor market and getting livelihood, as they then gain access to economic resources,[1] which in turn brings in spillover effects.

1.2 Labor Market Participation Framework

If women actively participate in the labor market with high-skilled jobs, then that participation offers them an opportunity to become economic actors who gain the ability to invest in their own health and education, as well as that of their children. They can also participate in the decision-making process related to the determination of family size, education of children, overall welfare of the household, as well as the career they want to pursue. Their earning capability, capacity, and control over money and other resources can not only change their self perceptions and help build their self esteems and confidence but also enable them to take independent decisions. They can participate in decision-making in social, political, and economic spheres. This can help alter the patriarchal gender contract.

Kabeer [33] points out that women with relatively regular and secure work assignments, who operate in reasonable working conditions outside the home, stand to gain in indicators that matter to women and the society. Kabeer [13] further points out the spillover effects of participation in the labor market. She says, "These largely positive macro-level findings are supported by a wealth of micro-level evidence to suggest that not only does women's access to employment and education opportunities reduce the likelihood of household poverty but resources in women's hands have a range of positive outcomes for human capital and capabilities within the household [15, 34–36]. Such findings suggest a strong instrumental rationale for ensuring women's participation in the processes of growth. It will contribute to the inclusiveness of growth, not merely because women constitute 50% of the world's population, but also because women's access to economic resources improves distributional dynamics within the household."

Literature on women's empowerment provides sufficient evidence that there can be significant macroeconomic gains from the development of women's full labor-market potential. Gender gaps have led up to 27% of GDP per capita losses in labor market in certain regions. If the female labor force participation rate is increased to the country-specific male levels, then according to Aguirre and others [37], it could increase GDP of the USA by 5%, Egypt by 34%, the United Arab Emirates by 12%, and Japan by 9%. ILO data shows that of about 865 million women who have the potential to contribute more to their nations' economies, 812 million live in developing nations [37].

An ICRW publication made the case that empowering women economically is essential to realizing women's rights as well as to achieving broader development goals such as economic growth, poverty reduction, health, education, and welfare [38]. According to its authors, "A woman is economically empowered when she has both the ability to succeed and advance economically and the power to make and act on economic decisions."

UNDP [39] sought to extend the five components outlined in the UN Task Force definition, quoted earlier, to the economic sphere "where women's economic empowerment can be achieved by targeting initiatives to expand women's economic opportunity; strengthen their legal status and rights; and ensure their voice, inclusion, and participation in economic decision-making." The OECD–DAC Network on Gender Equality defined women's economic empowerment as their

1 As has been pointed out by Kabeer (2012), education and employment are the measures of economic resources most often available for macro-level analysis. Micro-level analysis has pointed out the relevance of a range of other resources that might have similar impacts, including finance, land, and housing.

"capacity to participate in, contribute to, and benefit from growth processes in ways that recognize the value of their contributions, respect their dignity, and make it possible to negotiate a fairer distribution of the benefits of growth" [40].

Finally, a paper by SIDA on women's economic empowerment defined it as "the process which increases women's real power over economic decisions that influence their lives and priorities in society. Women's economic empowerment can be achieved through equal access to and control over critical economic resources and opportunities, and the elimination of structural gender inequalities in the labor market including a better sharing of unpaid care work" [41].

There are clear overlaps in these various efforts to conceptualize women's economic empowerment, with the agency, choice, and decision-making in relation to markets featuring as common themes. However, there also are some important differences. First of all, there are differences in the extent to which economic empowerment is seen primarily as an end in itself or a means to other developmental goals. Second, there are differences in whether empowerment is defined in purely economic terms, as in the World Bank and ICRW definitions, or whether there is scope for spillover effects in other domains of women's lives. And finally, there are differences in the role allocated to market forces in the achievement of women's economic empowerment. The World Bank definition suggests that it is primarily about improving women's competiveness in the market.

It has been argued in OECD [26] also that productive employment and decent work in developing countries, including in fragile contexts, are the main routes out of poverty for both women and men. Women's participationin the labor market can be increased by addressing the constraints and barriers that women face in accessing work, including public employment programs; and by providing well-focused vocational training. Social protection measures can enhance the productivity and participation of poor women in the labor market by reducing their vulnerability to livelihood risks and economic shocks.

How can employment and control over economic resources help?

If the female participation rate increases in various developing countries, it can help them in the following ways: [42]

Macroeconomic gains can be realized with full labor-market potential of women: According to Cuberes and Teignier [43], certain regions see a GDP per capita loss of up to 27% due to gender inequality in labor market. A rise in FLFP rate up to the country's level of male participation could raise GDP in Japan by 9%, the USA by 5%, Egypt by 34% and UAE by 12%. Aguirre and others [37] also estimate that 812 million women out of the 865 million women worldwide who can potentially contribute more to the national economies, live in developing countries.

Higher FLFP can offset shrinking workforce in rapidly aging economies: In Japan, if female participation rates were to reach the average for G7 countries, annual potential growth rate could rise by 4%. Higher female participation would not only result in a permanent rise in per capita GDP by 4% (compared to baseline) but would also lead to a more skilled workforce, due to women's higher education levels [44, 45].

Better work opportunities for women mean broader economic development in developing countries: Women are more inclined than men to spend a large part of household income in

education of children. Paid or unpaid work for women, according to ILO, can be the single-most vital poverty reducing factor in developing economies [46]. Accordingly, higher FLFP, and better opportunities for women to earn and control income and to earn a higher income could lead to higher expenditure on school enrolments of children, including girls. This could create a virtuous cycle, where educated women become role models [37, 47]. It has been argued that lack of opportunities for women in developing countries hinders economic growth, while economic growth leads to improvements in their disadvantaged conditions [48].

Equal access to inputs can lead to rise in productivity of female-owned companies: Differences in access to productive inputs have been majorly responsible for productivity differentials among companies owned by men and women [49]. Equal access to productive inputs can increase output gains and reduce productivity gaps greatly [15].

Employment of women and men on equal basis; optimum use of available talent pool, and other positive growth implications: The presence of women on boards and in senior managements of companies has been found to have a positive impact on the companies' performances, though such evidence is controversial. This is especially true in cases of companies that serve consumer markets dominated by women, as they are better positioned in such markets [50–51]. Gender-diverse boards can offer wider range of perspectives, enriching the corporate governance process [26, 52]. Reports also suggest that greater female involvement in decision-making processes can decrease risks of financial transactions normally undertaken by males [53]. Dezso and Ross [54], in their analysis of companies with focus on innovation, found that female representation in top management can lead to better performance. McKinsey [55] shows that companies having involvement of three or more women in senior management score higher on all nine organizational dimensions, including leadership, coordination, and control, which indicate higher operating margins. An earlier study by Catalyst [56] supplemented this evidence, and found that there was a positive correlation between financial performance and gender diversity.

1.3 Conceptualizing Women's Economic Empowerment

While it can be seen that definitions of women's empowerment have, from the outset, encompassed an economic dimension, this dimension has become increasingly visible within the international policy discourse in recent years. As has been brought about by Kabeer [13], the Beijing Platform for Action spoke of the need to promote women's economic independence, including employment, and 'ensuring equal access for all women to productive resources, opportunities, and public services.' The Millennium Development Goals on gender equality and women's empowerment adopted an increase in women's share of non-agricultural employment as one of its indicators of women's empowerment. 'Full and productive employment and decent work for all, including for women and young people' was later added as a target in relation to the overarching MDG on halving extreme poverty. While neither of these documents attempted to define women's economic empowerment, their formulations paved the way for a greater equation between women's economic empowerment and their access to productive resources, including paid work.

Difficulties in Conceptualizing Women's Work

There is no denying the fact that women play a significant role in the care sector as they perform reproductive work of bearing, rearing, and nurturing of children, apart from household maintenance. However, this sector falls outside the national accounting system of India. No doubt, these activities are very important for the well being of children and other household members as these enable them to participate in social, political, and economic spheres. However, these are not monetarily

valued and are, therefore, considered to be non-economic activities that amount to gross underestimation of women's work. Despite the fact that the situation has been changing in India because of spread of literacy, the historically derived gender roles and stereotypes of male as the breadwinner and female as the caregiver are espoused even now.

Studies point out that women are discriminated in pre-market and post-market phases, and work for longer hours than men. As per Human Development Report 1995, if both paid and unpaid labor is taken into account, then women perform more work than men in not only developing countries but developed countries as well [59]. The important gender difference in the type of work is that men spend more time on paid work while women spend more time on unpaid work. In recent years, the concept of unpaid work has drawn the attention of many feminist scholars as unpaid work is overwhelmingly women's work and invisible as it is performed in the private sphere of the household. There are difficulties in conceptualization of women's work as there is lack of statistical evidence on unpaid work and time-use patterns that lead to underestimation of women's capabilities and status as workers [60].

In Indian context, conventional statistics collected by the Ministry of Statistics and Programme Implementation (MOSPI), through tools such as the census of population, and labor force and enterprise surveys, are expected to give us information on the productive time used by people in economic activities. However, there is a lot of work like household maintenance and care of the children and the elderly that is performed by women in the private sphere of the household but is invisible and performed without a wage. The unpaid work done by women and the intensity of the effort and its drudgery, though not acknowledged in a country's GDP, is necessarily required for and contributes to the wellbeing and continuity of the society and the economy.

In the contemporary world, there is a growing emphasis that the statistical invisibility of unpaid work should be unmasked. Recognizing the fact that the unpaid non-market activities are as important for human welfare as the paid activities, the need has been felt for collecting information on the unpaid activities that are not captured by the conventional data collection tools cited above.

The Beijing Platform for Action at the Fourth United Nations World Conference on Women highlighted the need for better gender statistics, particularly those that capture and document the true magnitude of women's work and its contribution to the world economy. Time use survey is an emerging and useful tool that provides information on how an individual spends one's time on a daily or a weekly basis and also reveals the details of an individual's daily life with specificity and comprehensiveness, not captured by other social surveys. Highlighting the importance of such surveys, Gross and Swirski [61] write, "Time use studies can help to raise awareness of the fact that women do at least half of the work in any particular country. They can aid in pointing out which women do more unpaid work and to what extent men are beginning to share the burden of unpaid work. The next step is to calculate the economic value of unpaid work, as has been done in at least eight OECD countries, Australia, Canada, Denmark, Finland, France, Germany, New Zealand, and Norway. At the same time, an analysis needs to be done of the ways in which doing unpaid work disadvantages women economically. Finally, analyses based on data from time use surveys can be utilized to promote social policies that acknowledge women's household work, especially care work, through benefits that compensate for the disadvantages suffered by women engaged in work without pay."

Time use studies in India have some benefits. They are likely to add to the value of GDP in two ways. One, by addition of the value of products covered under SNA activities but not covered

under the present GDP, and by addition of the value of services both domestic and voluntary provided. Two, they can modify the estimates of income of some sectors by providing the correct data on the number of workers in these areas [62].

In case of India, first time use survey of 18,600 households was conducted between June 1998 and July 1999 in six selected states throughout the country. Respondents in the age group of six years and older were included. Since illiteracy was one of the hurdles, the one-day recall method was used and maintaining a 24-hour diary as a survey instrument was optional (see Table 2-1).

TABLE 2-1

AVERAGE TIME SPENT ON ACTIVITIES BY INDIAN FEMALES VERSUS MALES

Terminology	Average time spent on activities	
	Indian females	Indian males
System of National Accounts (SNA) activities	19 hours a week/ 2.7 hours a day	42 hours a week/six hours a day
Extended SNA activities	34 hours and 63 minutes pw/4 hours and 94 minutes a day	Three hours and 65 minutes per week/52 minutes a day
Non-SNA activities	114 hours and 58 minutes a week/16 hours and 36 minutes	122 hours and 42 minutes per week/17 hours and 48 minutes

Note: SNA included activities like farming, animal husbandry, fishing, gardening, hunting, mining, quarrying; construction, manufacturing; trade and business services. Extended SNA comprised unpaid activities like household maintenance and care for children, sick, elderly and disabled individuals from one's own household. Non-SNA included activities like community services and help to other households, learning, social and cultural events, mass media consumption, personal care and self-maintenance.

Source: Pandey [63]

Table 2-1 reveals that on an average, males spent more time (about 42 hours) on SNA activities as compared to females (who spent 19 hours). However, in case of extended SNA activities, females spent approximately 31 hours more than males. In case of non-SNA activities pertaining to learning, leisure, and personal care, males spent about eight hours more as compared to females [65].

It has been pointed out by Hirway that "India has also developed a system of classification of activities for time use studies in a way that it has the following characteristics:

1. There is a conceptual framework of SNA as well as a comprehensive coverage of activities done by people.
2. It is relevant and valid at a methodological level.
3. It is flexible, adaptable, and consistent with other time use classifications.

Women contribute more labor but they get smaller share of goods and services produced by the total labor [61]. It is a matter of choice whether a family member is working outside the household or contributing through unpaid labor. But if invisible work of women is recognized then the implication would be that husbands would share their incomes with wives as an act of entitlement rather than benevolence. On this basis, a wide range of changes can be expected to take place. For example, the entitlement to income and wealth would change radically, and would lead to overhauling of the legal system. Accordingly, rights to property and inheritance, access to credit based on collateral, direct entitlement to social security benefits, tax incentives for child care, and terms of divorce settlements would change.

Further, UNDP 1995 emphasizes: "women's vital social functions for maintaining families and communities, which become only too visible when juvenile delinquency rates rise, the elderly are left to die alone or cultural traditions wither, would gain full recognition. Now considered largely women's responsibility in many societies, these functions would be recognized as the responsibility of both men and women as well as of society. For public policy, this implies incentives, investments and other measures to provide quality childcare and care for the elderly, to do community work, and so on. It means taking measures to ensure that men share more equally the burden of family life and community service" [63].

Studies highlight that there are different routes for empowering women. These include reducing gender gaps in human capital endowments by spending on education and health of women; giving women control over assets; removal of sociocultural barriers; and releasing women's time. However, we argue in this paper that economically empowering women by ensuring their labor market participation can have several spillover effects. As is evident from micro-level evidences cited in various studies, resources in women's hands have a range of positive outcomes for human capital and capabilities and improve distributional dynamics within the households. This can lead to macroeconomic gains like boosting economic growth and development by countering the problem of shrinking workforce in aging societies.

The paper also points out that there is gross underestimation of women's work as only paid work is included in the national income accounting. The unpaid work done by women, though not acknowledged in a country's GDP, is necessary for the wellbeing and continuity of the society and the economy. Therefore, there is a growing emphasis that the statistical invisibility of unpaid work should be unmasked. In case of India, two time use surveys have been done so far. However, skeptics have expressed their doubts about the utility of the time use approach for data collection in a country. It is important to point out here that the problems of data collection are common, irrespective of the method used. Since this method has been used just twice in India, we can expect that over a period of time the situation will improve with improved data and more experience.

2. Labor Force Participation Rate

2.1 Demographic Scenario of India

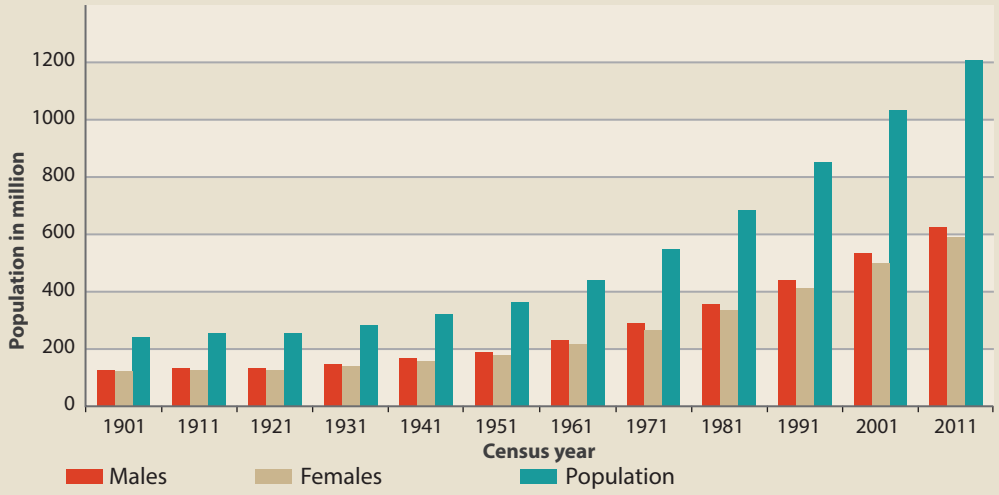
India accounted for 2.4% of the total world surface area but 17.6% of the total world population in 2010. The country's population stood at about 350 million at the time of its Independence in 1947. Having grown at an unprecedented rate, the population had crossed the one-billion mark at the turn of the millenium. As per the Census of 2001, the population was 1,027 million while the Census of 2011 put the figure at 1,211 million.

It would be highly appropriate if we discuss the demographic characteristics of India to provide an overview of its population size, sex-ratio and its vital statistics, which include indicators such as birth rate, death rate, life expectancy at birth, and mortality and fertility rates.

Sex-ratio in India declined from 972 females per thousand males in 1901 to 940 females per thousand males in 2011 (Figure 2-1). Several reasons are attributed to the decline in the number of females. These include preference for the male child and neglect of the girl child, intra household disparities in allocation of resources, high maternal mortality, female infanticide, female feticide, and sex-selective abortions. The age-specific death rate by gender was higher for females than for males in the age group below one year in both rural and urban areas and also at an all-India level in the year 2013 [64].

FIGURE 2-1

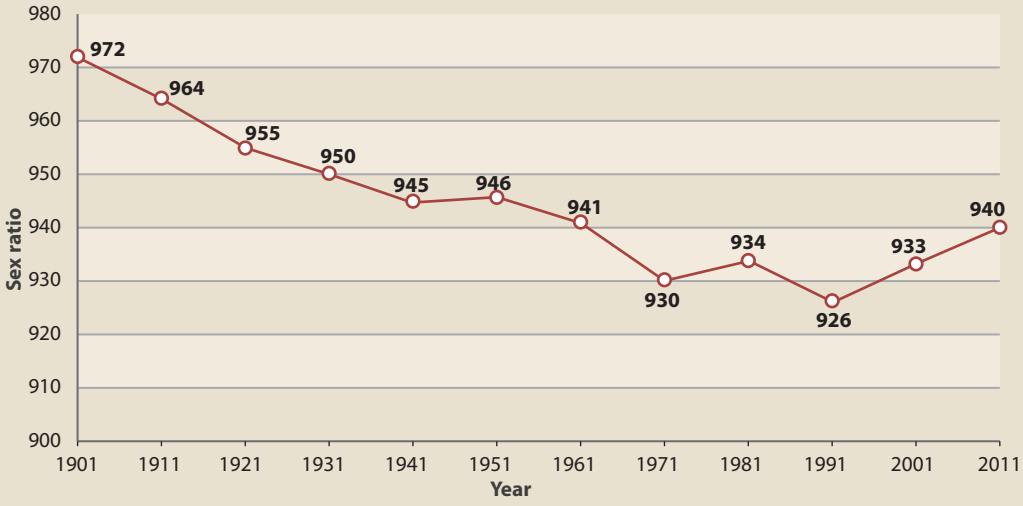
POPULATION IN MILLION



Source: Selected Socio-Economic Statistics 2011; and GOI, SRS Statistics Report 2013, Ministry of Home Affairs, Office of the Registrar General and Census Commissioner

FIGURE 2-2

DECLINING SEX RATIO IN INDIA



Source: Selected Socio-Economic Statistics 2011 and GOI, SRS Statistics Report 2013, Ministry of Home Affairs, Office of the Registrar General and Census Commissioner.

Figures 2-3 and 2-4 clearly show that birth and death rates have been declining per 1,000 population in India.

Since death rate has been declining because of improvement in medical and health facilities in the country, therefore, life expectancy has been increasing which is shown in the following figure.

FIGURE 2-3

CRUDE BIRTH RATE

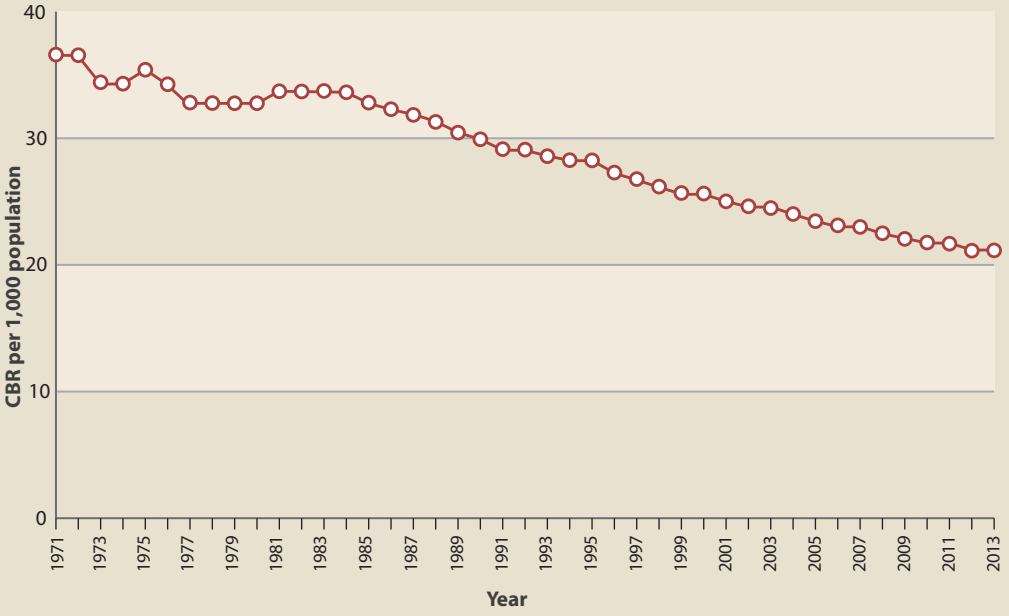
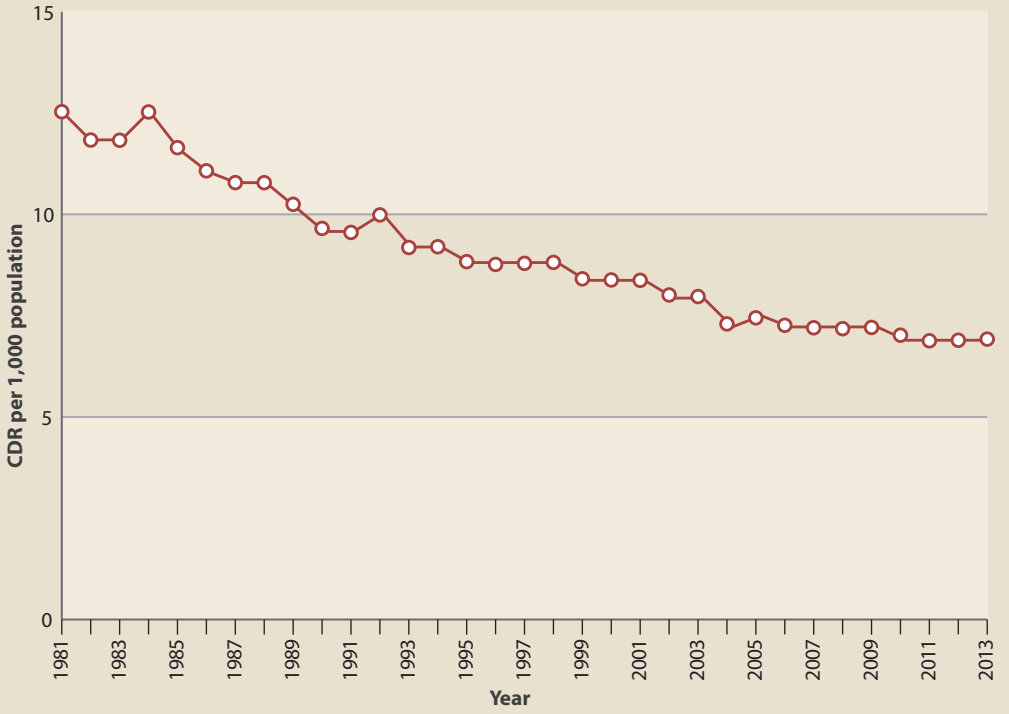


FIGURE 2-4

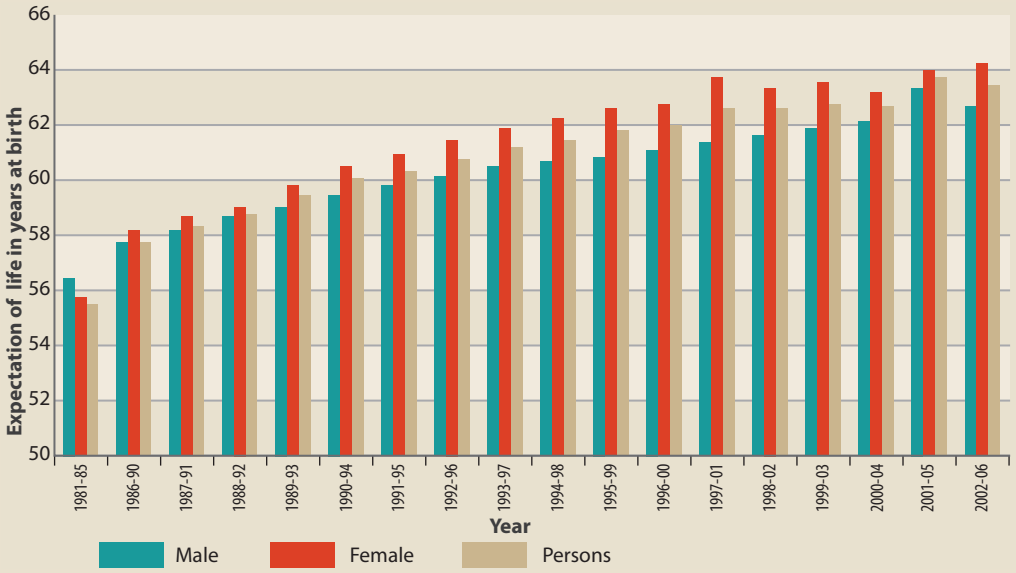
CRUDE DEATH RATE



Source: Selected Socio-Economic Statistics 2011; and GOI, SRS Statistics Report 2013, Ministry of Home Affairs, Office of the Registrar General and Census Commissioner

FIGURE 2-5

LIFE EXPECTANCY IN YEARS AT BIRTH

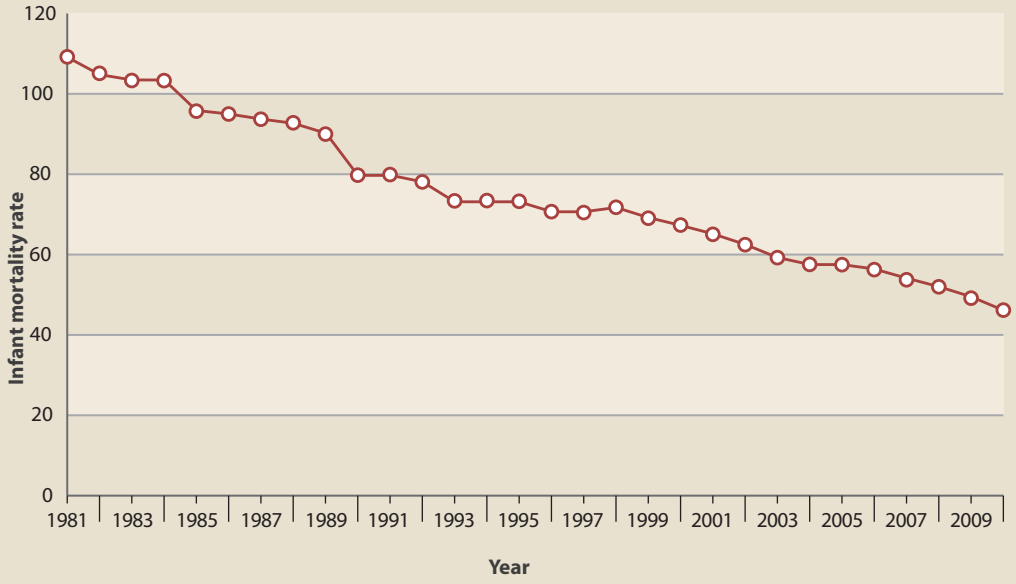


Source: Selected Socio-Economic Statistics 2011; and GOI, SRS Statistics Report 2013, Ministry of Home Affairs, Office of the Registrar General and Census Commissioner

Since infant mortality rate (IMR) is declining, as shown in Figure 2-6, the total fertility rate (TFR) is also registering a decline (see figure 2-7). This is because high IMR means slow infant survival rate, which had earlier motivated couples to have large-size families.

FIGURE 2-6

INFANT MORTALITY RATE IN INDIA



Source: IBID (2011)

TABLE 2-2

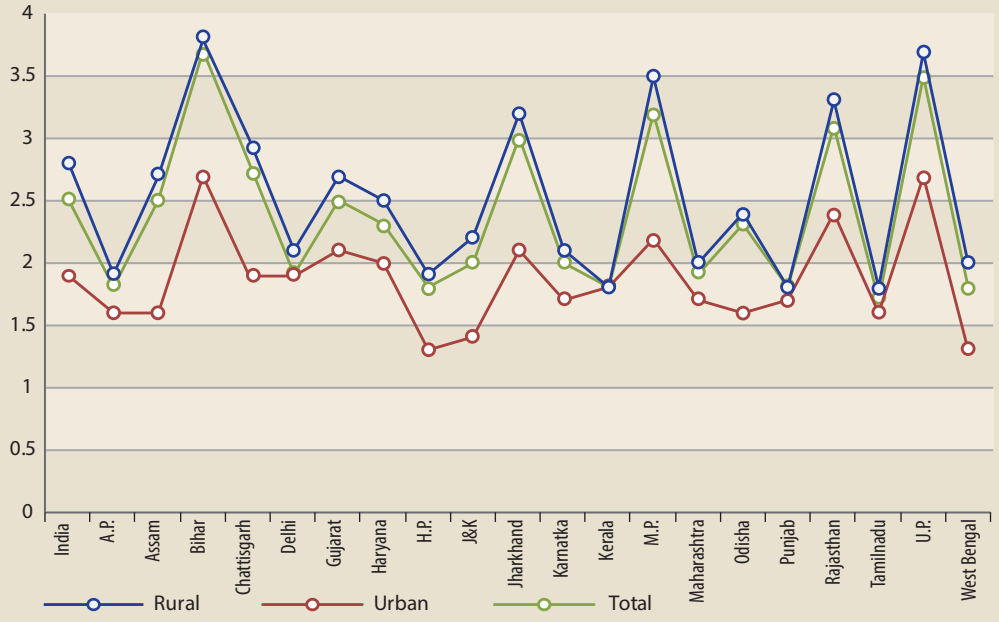
TFR BY COUNTRY AND MAJOR STATES

India and Its Bigger States	Total fertility rate		
	Rural	Urban	Total
India	2.8	1.9	2.5
AP	1.9	1.6	1.8
Assam	2.7	1.6	2.5
Bihar	3.8	2.7	3.7
Chattisgarh	3	1.9	2.8
Delhi	2.1	1.9	1.9
Gujarat	2.7	2.1	2.5
Haryana	2.5	2	2.3
HP	1.9	1.3	1.8
J&K	2.2	1.4	2
Jharkhand	3.2	2.1	3
Karnatka	2.1	1.7	2
Kerala	1.8	1.8	1.8
MP	3.5	2.2	3.2
Maharashtra	2	1.7	1.9
Odisha	2.4	1.6	2.3
Punjab	1.8	1.7	1.8
Rajasthan	3.3	2.4	3.1
Tamilnadu	1.8	1.6	1.7
UP	3.7	2.7	3.5
West Bengal	2	1.3	1.8

Source: IBID, 2011

FIGURE 2-7

TOTAL FERTILITY RATE



Source: IBID, 2011

As per the estimates shown in Figure 2-4, the crude death rate in India has registered a decline from about 12.5 per 1,000 in 1981 to seven per 1,000 in 2013. Meanwhile, the expectation of life at birth has increased from about 55.4 years in 1981–85 to about 63.4 years in 2002–06. The life expectancy is further expected to improve for both males (69.8 years) and females (72.3 years). It can also be observed from the table that the expectation of life at birth has increased somewhat faster for females than for males. The estimates presented in Figure 2.7 show that the fertility levels in India have been falling in India across states. The TFR has shown a steady fall from 5.2 in 1971 to 2.3 in 2013. Table 2.1 clearly brings out that generally speaking, TFR is higher in rural areas than in urban areas.

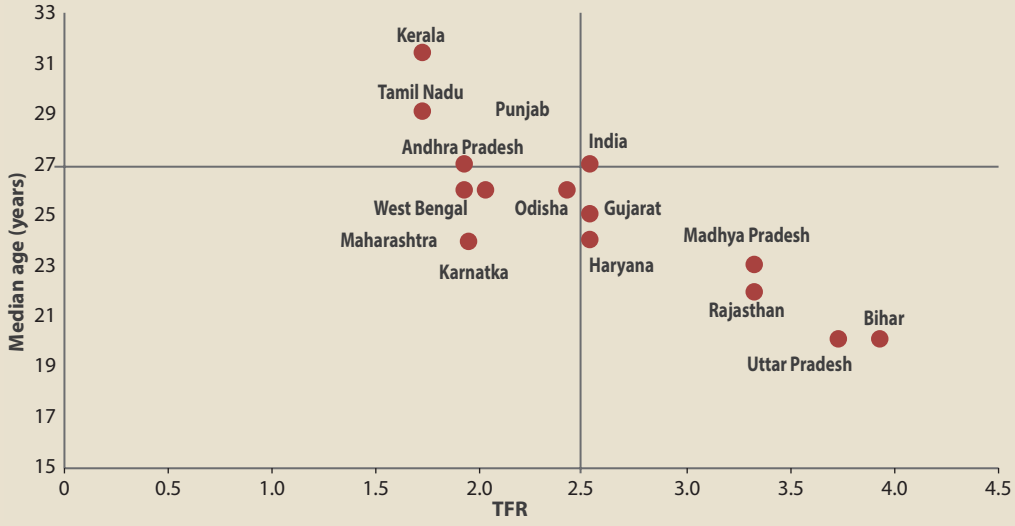
India's Two-speed Demography

India is having the largest cohort of young people in the world (825 million), with approximately 66% of its population under the age of 35. The country is having a competitive advantage over China and other Asian countries. In other words, it is enjoying a demographic dividend, as the median age of the country is just 27 years, much below 37 of the USA and 46 of Japan. However, while India indeed has favorable demographics at present, it does not mean that India is not aging at all. As per the estimates of the United Nations Population Division, by 2050, the median age will rise to 37 years, and the number of elderly (over 60 years of age) will go up from 100 million now to 300 million then, which is equivalent to the current population of the USA. It is estimated that the old-age dependency ratio in India will go up from 13% in 2000 to 32.8% in 2050. Three Indians in the working age population will have to take care of one elderly by 2050 as compared to eight-versus-one today. A closer look reveals that within India itself, some states are aging faster than others, thus amounting to a two-speed demography [66].

As one knows, TFR is defined as the average number of children that would be borne by a woman of a child-bearing age. While the average TFR for India is 2.5, for nine Indian states it is below 2.1 (see Figure 2-8). A TFR of 2.1 is considered to be the replacement level, i.e., the average number

FIGURE 2-8

TFR AND MEDIAN AGE IN INDIAN STATES



Source: IBID (2011); [66]

of children born to a woman to ensure that the level of population remains constant). A TFR above 2.1 means that the median age of the population will go down, while that below means that the median age will increase.

It is important to emphasize here that there are 29 states in India with large regional differences in demographic parameters [65]. Bhat [65] noticed that several states in south India have already reached, or are about to attain, the replacement level of fertility (a TFR level of 2.1–2.2), which, if maintained, would ensure a zero-growth rate of population in the long run. He also noticed that many north Indian states, with TFRs above four births per woman, would take several decades to reach the replacement-level fertility rates. There are also similar differentials in levels of mortality, especially in infant and child mortalities. In the discussion, north India comprises Uttar Pradesh, Bihar, Orissa, Madhya Pradesh, Rajasthan, and the newly formed states of Uttaranchal, Jharkhand, and Chhatisgarh, whereas south India comprises Kerala, Tamil Nadu, Andhra Pradesh, and Karnataka.

Priya and Aggarwal [66] write that the four southern states of Kerala, Tamil Nadu, Andhra Pradesh, and Karnataka account for 21% of India's population and are having a TFR below 2.1, which is comparable with fast-aging countries such as Norway, Australia, Sweden, Germany, and Canada. On the contrary, states such as Bihar, Uttar Pradesh, and Rajasthan have TFRs of more than three, which is also reflected in their young population. The proportion of people below 30 years of age in the four southern states is only 53%, which is much lower than India's 59%. The median age of Kerala is the highest in India at 31, followed by Tamil Nadu at 29, Andhra Pradesh at 27, and Karnataka at 26, while for the whole of India it is 27 years. The proportion of people above the retirement age of 60 years in southern states is 11%, again, above the all-India average of 9%. Thus, with the current scenario and low TFR, south India is likely to age faster than the rest of India. Population aging is a byproduct of rising median age of a country or region due to rising life expectancy on account of declining mortality, or declining fertility rates, or both. In two of the south Indian states, the median age is more than the national average, and the TFR is falling.

Population aging and its socioeconomic consequences drew attention from policymakers and researchers worldwide [67]. ADB [68] points out that inter alia population aging would impact the labor markets also, as it would imply an older and relatively smaller workforce with a higher preference for the services sector and a diminished inclination toward industry and agriculture. This would require workplaces to be adapted to the elderly, while organizations would face difficulties in finding workers for certain types of jobs that demand greater knowhow and higher productivity. Population aging, therefore, implies shrinking labor forces and labor shortages in coming decades.

To deal with the challenge of population aging, one of the remedial measures is to promote the participation of women in the labor market through mainstreaming the gender perspective in human capital-related policies.

2.2 FLFP and Quality of Data

Labor force refers to those people who are working or are employed and also those who are seeking work or are unemployed. Labor force participation rate (LFPR) is the proportion of labor force to the total population, while the work participation rate (WPR) is the proportion of working people to total population. Female labor force participation rate (FLFP), likewise, implies the proportion of female labor force to the total population.

Now, in India, data on employment and unemployment is provided by National Sample Survey Organization (NSSO), Ministry of Statistics and Programme Implementation, Government of India (GOI). The NSSO carries out three kinds of rounds, namely, the quinquennial round (after every five years); annual rounds; and special rounds of employment and unemployment surveys[2]. The NSSO sample covers both informal and formal work. The formal sector comprising workers with social security benefits covers less than 10% of total employment. The alternative sources of employment data include the Population Census of India conducted every ten years; the annual employment and unemployment surveys of Labor Bureau (the survey of 2012–13 being the latest one), Ministry of Labor and Employment, GOI; and Key Indicators of Labor Market (KILM) prepared by the ILO. One of the shortcomings of the NSS data is that it does not provide the district-level data, which, however, is provided by the Population Census data. So regional-level analysis can be done using Census data. But the Population Census division of GOI does not have adequate manpower to collect all data. In addition, different methodologies are used by NSS and Population Census for collecting data. Nevertheless, the trends of low and declining FLFP are similar with different data sources.

Since the next section discusses the trends in LFPR in case of 'usual status' in India over different rounds, it would be highly appropriate to briefly discuss here the measures of unemployment in India. It is important to point out that the persons surveyed were classified into various activity categories: working (employed); not working but seeking work (unemployed); and neither working nor seeking work (outside the labor force), on the basis of the activities pursued by them during certain specified reference periods of one year, one week, and each day of the week.

The NSSO provides three different estimates of employment and unemployment based on different approaches and reference periods used to classify an individual's activity status, as detailed below:

Usual status approach: This has a reference period of 365 days preceding the date of the survey. Usual status of a person comprises his or her principal and subsidiary activity status (PS + SS). The activity status on which a person spent relatively long time (the major time criterion) during the 365 days preceding the date of survey is considered as the usual principal status (UPS) of the person. A person whose UPS was determined on the basis of the major time criterion could also have pursued some economic activity for a shorter time (not less than 30 days) throughout the reference year of the 365 days preceding the date of survey for a minor period during the reference year. The status in which such economic activity was pursued becomes the subsidiary economic activity status (SS) of that person.

Current weekly status approach: This has a reference period of seven days preceding the date of the survey.

Current daily status approach: Here, each of the seven days preceding the date of the survey form a reference period.

2.3 Key Trends and Influencing Factors in FLFP and FWFP

The LFPR as per usual principal and subsidiary status (UPSS) is defined as the number of persons in the labor force per 1,000 persons. Table 2-3 represents LFPRs as estimated from five different

2 NSS (Eighth) quinquennial survey on Employment and Unemployment (66th Round) was done during July 2009–June 2010. NSS 68th Round (July 2011–June 2012) on Employment and unemployment and Household Consumer Expenditure is the latest round on employment and unemployment.

rounds of NSS corresponding to five different years. In 2011–12, considering all (PS+SS) workers, about 55.3% of rural males and 25.3% of rural females were 'usually' available for employment. The corresponding figures for the urban areas were 56.3% and 15.5%, respectively. As seen for the 18-year period beween 1993–94 and 2011–12, the usual status LFPRs in rural areas declined for both males and females. In the urban areas, during that period, an increase in male labor force participation was noticed contrary to FLFP, which declined from 253 per 1,000 to 155 per 1,000.

The decline in FLFP in recent years has been a cause of concern. However, the inadequacy of the concepts and definitions used in measuring female employment offer a partial statistical explanation. The rising enrolments of women in education, the income effect of households, and lack of opportunities may provide more valid and realistic explanations for declining FLFPRs [69–73]. On the other hand, the increase in female LFPR, as also in the WFPR shown later, during the first half of the decade of 2000 might be attributed to agricultural distress which led to declines in incomes of households and might have pushed women into the labor force. Sen and Sen, as cited in Singh and Singh [74] pointed out that "in a country like India where a significant portion of the population is below poverty line, it is expected that large proportion of rural women participate in the labor force due to economic pressure."

TABLE 2-3

LABOR FORCE PARTICIPATION RATE AS PER USUAL STATUS (PS+SS)

Year and survey rounds	Number of persons in labor force			
	Male	Female	Male	Female
	Rural		Urban	
1993–94 (50th round)	561	330	543	165
1999–00 (55th round)	540	302	542	147
2004–05 (61st round)	555	333	570	178
2009–10 (66th round)	556	265	559	146
2011–12 (68th round)	553	253	563	155

Source: NSS reports

2.3.1 Age-pecific Labor Force Participation Rates

In Table 2-4, the LFPRs based on usual status approach (PS+SS) are presented for different age groups and different rounds of NSS. The table reveals that as compared to rates in 1993–94, among the younger age groups of ages less than 25 years, LFPR declined for both rural males and rural females in 2009–10. This trend is in keeping with our expectation as most of the individuals in these age groups may be pursuing their education and were, therefore, outside the labor force. A similar trend is noticed in case of urban males and females. Next, LFPRs for males of age 25 years and above in both rural and urban areas remained almost invariant during the period. However, for the age group 60 years and above, LFPR declined in both rural and urban areas for males. Moreover, the FLFPRs in both rural and urban areas for age groups 25 years and above declined between 1993–94 and 2009–10.

Table 2-4 shows that there were declines in FLFPR and rural FLFPRs across all age cohorts. As is evident from Table 2-4 and Figure 2-9, the younger-age cohorts for both women and men, except for the urban women, recorded the lowest LFPRs. This is mainly because of the fact that this cohort comprises students pursuing education and is outside the labor force. However, the FLFPR is lower as compared to MLFPR during the period under consideration, as evident from the last two columns of Table 2-4. As rightly observed by Rustagi [96], the distance between the female and male LFPRs is steep for all ages and is wider among those in the age groups of 30–44

years and 45–49 years. The table clearly shows that FLFPR in urban areas has been increasing for younger age cohorts, but has declined from 25 in 1999–2000 to 22 in 2011–12 for the age group 45–59 years.

TABLE 2-4

DECLINE IN FLFPR (UPSS) ACROSS AGE GROUPS

	15–29		30–44		45–59		Total (15–59)	
	1999–2000	2011–12	1999–2000	2011–12	1999–2000	2011–12	1999–2000	2011–12
RFLFPR	40.5	27.1	57.2	46.4	51.6	44.6	48.5	37.8
RMLFPR	77.1	64.9	98.7	99	95.8	96.8	88.2	83.5
RPersons	59	46.4	77.9	72	74.2	71.7	68.5	60.9
UFLFPR	17.3	18.1	27.1	27.3	25.1	21.9	22.2	22.2
UMLFPR	66.7	60.7	98.3	98.9	92.4	94.2	82.4	81
UPersons	43.3	40.5	64	63.6	61.4	59.6	53.9	52.7
TFLFPR	34.3	24.4	49.1	40.7	45	37.8	41.5	33.1
TMLFPR	74.1	63.6	98.6	98.9	94.9	96	86.5	82.7
TPersons	54.6	44.6	74	69.4	70.9	68	64.5	58.3

Source: Rustagi [96]

FIGURE 2-9

DECLINING FLFPR FOR ALL AGE GROUPS

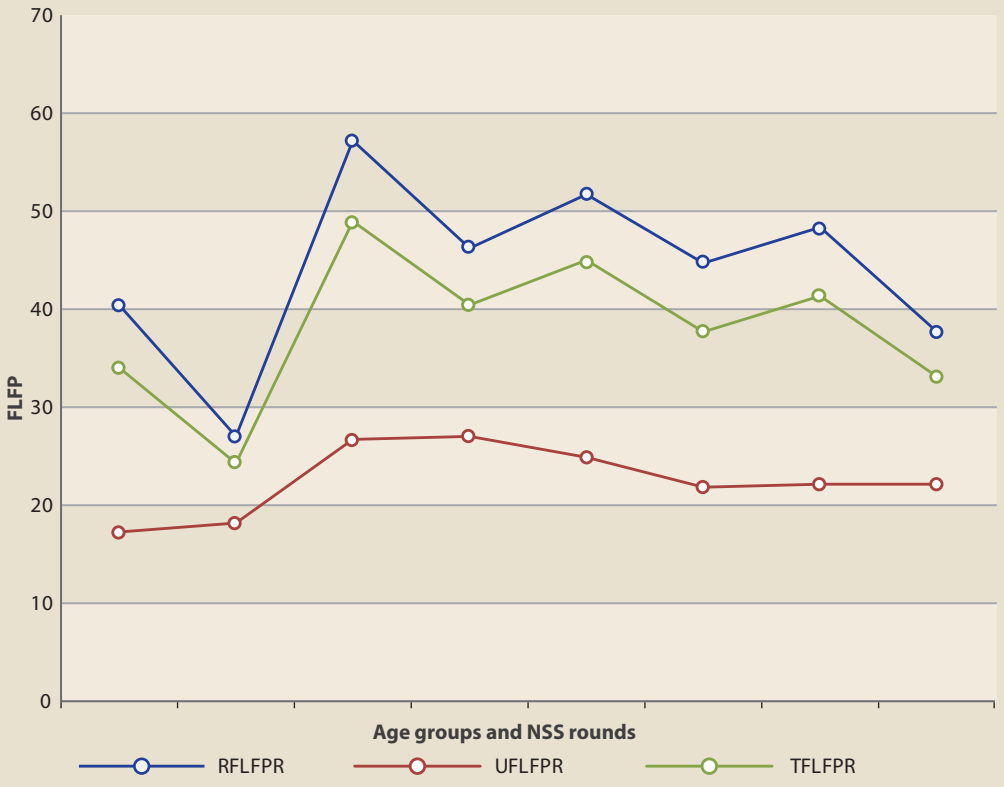


FIGURE 2-10

LFPR BY EDUCATIONAL LEVELS, 2011–12

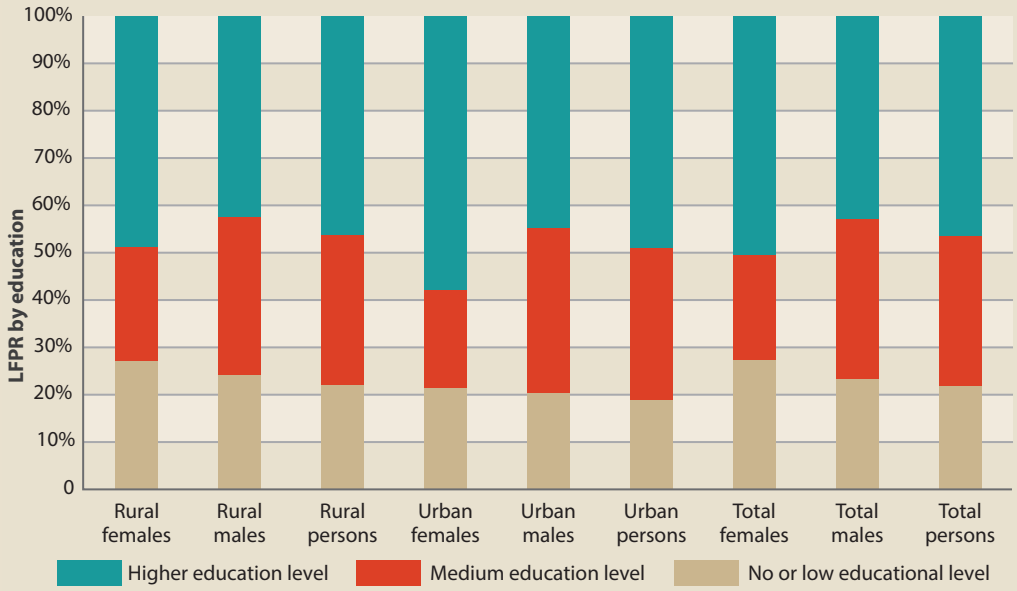


TABLE 2-5

FLFPR (UPS) BY EDUCATIONAL LEVELS, 2011–12

	No or low educational level	Medium education level	Higher education level
Rural females	18	16	32
Rural males	47	66	83
Rural persons	32	46	67
Urban females	11	11	30
Urban males	38	65	83
Urban persons	24	41	62
Total females	17	14	31
Total males	45	66	83
Total persons	30	44	63

Source: Rustagi [96]

Studies point out that educational attainments do impact the LFPR. Figure 2-10 and Table 2-5 show that the MLFP increased with the education level whereas FLFP increased only in the case of higher-educated women. The FLFP for the no-or-low education category was 17 versus a high corresponding MLFP of 45, but droped to 14 in case of medium-educated women even as the corresponding MLFP increased to 66. The FLFP increased to 31 only for the higher-educated women but then the corresponding MLFP was very high at 83. Whether the low FLFP for no-or-low education or medium education categories is indicative of the phenomenon of discouraged dropouts or withdrawal from the labor market (due to the income effect of the spouses' income), needs to be explored further.

2.3.2 Workforce Participation Rate

Table 2-6 provides the workforce participation rate (WPR), also known as work population ratio obtained for all the eight quinquennial surveys conducted by NSSO. The table clearly shows that WPR for males increased marginally from 543 per 1,000 in 1977–78 to 545 per 1,000 in 1993–94 and to 547 per 1,000 in 2004–05, but declined to 544 per 1,000 in 2011–12. In urban areas, MWPR increased from 501 in 1972–73 to 549 in 2004–05 but declined to 546 in 2011–12. However, FWPR in rural areas increased from 318 in 1972–73 to 340 in 1983 but kept declining thereafter till 1999–2000. It again rose to 327 in 2004–05 but declined to 248 in 2011–12. In urban areas, FWPR was lower than FWPR in rural areas from 1972–73 onwards. Also, it has been highly fluctuating during the period under consideration. It stood at 166 in 2004–05 and declined to 147 in 2011–12. This, however, is to be seen in the light that WPR for all usually employed persons in rural and urban areas taken separately or together has registered a decline from 2004–05 onward.

TABLE 2-6

WORKFORCE PARTICIPATION RATE AS PER UPSS

Round (year)	Rural			Urban			All		
	Male	Female	Person	Male	Female	Person	Male	Female	Person
68th (2011–12)	543	248	399	546	147	355	544	219	386
66th (2009–10)	547	261	408	543	138	350	546	228	392
61st (2004–05)	546	327	439	549	166	365	547	287	420
55th (1999–00)	531	299	417	518	139	337	527	259	397
50th (1993–94)	553	328	444	521	155	347	545	286	420
43rd (1987–88)	539	323	434	506	152	337	531	285	412
38th (1983)	547	340	445	512	151	340	538	296	420
32nd (1977–78)	552	331	444	508	156	341	543	297	423
27th (1972–73)	545	318	*	501	134	*	*	*	*

Table 2-7 and Figure 2-11 show the unemployment rates as obtained from the eight quinquennial surveys of NSSO. The table clearly shows that compared to 2004–05, in 2009–10 the unemployment rate for usual status (adjusted) remained almost the same for rural males and females at 2%, while in urban areas, the male unemployment rate decreased from 4% in 2004–05 to 3% in 2009–10 and the female unemployment rate decreased from 7% to 6%. However, this is contrary to what the FWFPR has indicated. While a decline in unemployment rate should get reflected in a higher FWFPR, Table 2-6 shows declines in overall WFPR and FWFPR.

TABLE 2-7

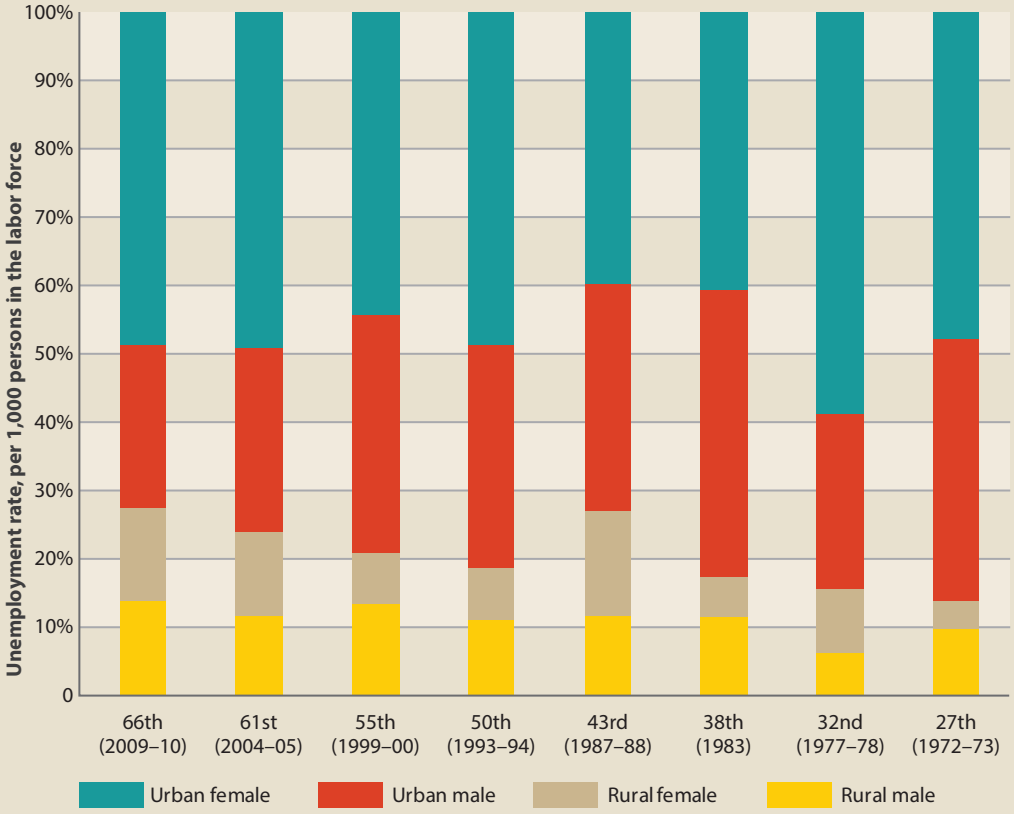
UNEMPLOYMENT RATE PER 1,000 PERSONS IN THE LABOR FORCE, AS PER USUAL STATUS (ADJUSTED)

Round (year)	Rural		Urban	
	Male	Female	Male	Female
66th (2009–10)	16	16	28	57
61st (2004–05)	16	18	38	69
55th (1999–00)	17	10	45	57
50th (1993–94)	14	9	41	61
43rd (1987–88)	18	24	52	62
38th (1983)	14	7	51	49
32nd (1977–78)	13	20	54	124
27th (1972–73)	12	5	48	60

Source: NSSO reports

FIGURE 2-11

UNEMPLOYMENT RATE



Source: NSSO reports

Table 2-6 brings out very clearly that WFPR declined from 2004–05 to 2009–10 for both male and female workers. The declines in unemployment rates shown in Table 2-7 point at problems that could be posed by categorizing workers into principal status and subsidiary status. As per the usual principal status, a non-worker is one who has spent a major part of her or his time in the preceding year as unemployed or outside the labor force. However, s/he could still be involved in some subsidiary economic activity and could be termed as subsidiary status worker. Therefore, inclusion of subsidiary status workers in usual status (adjusted) may be leading to an underestimation of prevalent unemployment in the economy. As per this definition of usual status (PS+SS), a person is classified as usually working even when one is either underemployed or engaged in a subsidiary activity (not < 30 days) with no principal activity.

Table 2-7 on unemployment rate also reflects the employment discrimination against women in the labor market as the unemployment rate is higher among women than among men. Table 2-8 on education-level specific usual status (PS+SS) unemployment rate for persons in the age group 15–29 years bears the testimony to the pre-entry human capital discrimination against women, particularly in secondary and tertiary education. Among educated youths, the unemployment rate was higher for females than males. Unemployment rates were 22.5% and 17.8% for females in urban and rural areas, respectively, whereas the rates for males in urban and rural areas were 10.3% and 8.3%, respectively.

TABLE 2-8

INCIDENCE OF UNEMPLOYMENT FOR PERSONS AGED 15 YEARS AND ABOVE, BY LEVEL OF EDUCATION

Level of education	2004–05 (%)	2009–10 (%)
Not literate	0.3	0.3
Literate without formal schooling	1.2	0.3
Below primary	1.2	0.7
Primary	1.4	1.2
Middle	2.7	2.1
Secondary	4.8	2.7
Higher secondary	6.4	5.2
Diploma/certificate	10.4	9.6
Graduate	8.8	6.9
Post graduate and above	8.1	6.7
All levels of education	2.3	2

Source: Planning Commission, Government of India. Twelfth Five-Year Plan 2012–17, Volume – II, 2013.

Table 2-9 shows that the unemployment rate was the lowest for the illiterates. As the level of education rose, the unemployment rate too went up. The unemployment rate was the highest for diploma and certificate holders. However, the decline in unemployment rates can be observed in case of graduates, post graduates, and above.

TABLE 2-9

ALL-INDIA UNEMPLOYMENT RATE FOR AGE GROUP 15–29 YEARS BY EDUCATION LEVELS IN 2009–10, SPECIFIC USUAL STATUS (PS+SS)

General education level	Unemployment rate for age group 15–29 years			
	Rural		Urban	
	Male	Female	Male	Female
Not literate	22	0	38	26
Literate up to primary	29	14	41	20
Middle school	40	39	54	81
Secondary	50	68	59	205
Higher secondary	78	222	109	191
Diploma/certificate	214	466	128	179
Graduate and above	166	304	138	247
Secondary and above	83	178	103	225
All	47	46	75	143

Source: NSS 66th Round survey

Table 2-10 below shows that equally educated women earned less than men and the uneducated among them earned much less than the educated.

TABLE 2-10

AVERAGE WAGE IN INR PER DAY, BASED ON REGULAR WAGED EMPLOYEES AGED 15–59 YEARS

General educational level	Rural		Urban	
	Male	Female	Male	Female
Not literate	135.72	65.47	156.6	92.56
Litrate up to middle	160.04	80.32	183.8	114.38
Secondary and higher secondary	267.14	151.54	293.26	237.61
Diploma/certificate	355.48	291.01	481.26	369.73
Graduate and above	403.05	285.98	634.92	499.98
All	249.15	155.87	377.16	308.79

Source: NSS 66th round survey

Declines in FWFP could be due to marriage, which inhibits women from entering the labor market, whereas FWFPR may be affected by their marital status as they have to perform reproduction and caregiving responsibilities. Table 2-11 shows the populations of women by their participation in the workforce as per their marital status. Table 2-11 brings out that the proportion of currently married women in the workforce is less than their population, which may be due to their caregiving responsibilities. In fact, 60.3% of divorced or separated women were in the workforce, as compared to 32.5% in case of currently married women. These figures point out that the forces of compulsions to work for different categories of women differ, just as they differ for men and women too.

TABLE 2-11

PROPORTION OF WOMEN BY MARITAL STATUS, 2011–12

	In the population		In the workforce (UPSS)	
	No. in millions	%	No. in millions	%
Never married	245	41.2	15	6.1
Currently married	300	50.5	98	32.5
Widowed	47	7.8	15	32.1
Divorced/separated	2	0.4	1	60.3

Source: Rustagi [96]

The declines in LFPR for women and increases in the WFPR for men are suggestive of increases in the wages. Table 2-12 given below shows that the wages of regular salaried male workers and casual workers increased by 51% and 56%, respectively, in real terms. The table also brings out that increases in the consumptions both in rural and urban areas by 17.4% and 34%, respectively, during the period 1993–93 to 2009–10 were caused by increases in wages, theoretically.

TABLE 2-12

UNEMPLOYMENT, WAGES, AND CONSUMPTION EXPENDITURE, 1993–94 TO 2009–10

NSS rounds	Unemployment rate (%) (CDS)	Salaries and wages		Consumption	
		Regular	Casual	Rural	Urban
		Rs per day, for male rural workers		Monthly per capita (in Rs)	
50th (1993–94)	6.06	58.48 (33.23)	23.18 (13.17)	281.4 (159.9)	458.04 (264.8)
55th (1999–2000)	7.31	127.32 (46.98)	45.48 (16.78)	-	-
61st (2004–05)	8.2	144.93 (45.93)	55.03 (17.25)	558.78 (175.2)	1052.36 (311.3)
68th (2009–10)	6.6	249.15 (50.44)	101.53 (20.55)	927.7 (187.8)	1785.81 (355.0)

Source: GOI (2013)
Note: The figures in parentheses are at constant prices, derived from CPI for agricultural laborers with base 1986–87=100 for rural areas, and from CPI for urban non-manual employees with base 1984–85=100 for urban areas.

Another aspect of self-employed workers (SEWs) is that among the three categories of SEWs, namely own-account workers (OAWs), employers, and unpaid family workers, the number of unpaid workers has declined whereas that of OAWs has slightly increased. It reflects, to some extent, the women entrepreneurship, even if the women are involved in very small and petty businesses. The employment status of women is changing from unpaid family workers to OAW. A shift away from self employment and casual work to regular employment is another healthy trend in women's employment (see Table 2-13).

TABLE 2-13

PERCENTAGE DISTRIBUTION OF WORKERS (UPSS) BY EMPLOYMENT STATUS

Status of employment	Self employed		Regular employees		Casual workers	
	2004–05	2011–12	2004–05	2011–12	2004–05	2011–12
Rural males	58	54	9	10	33	35
Rural females	64	59	4	6	33	35
Total	60	56	7	9	33	35
Urban males	45	42	41	43	15	15
Urban females	48	43	36	43	17	14
Total	45	42	40	43	15	15
Males	55	51	17	20	28	29
Females	61	56	8	13	30	31
Total	57	52	14	18	29	30

Source: Rustagi [73]

According to the 68th round survey, 52% of the overall workers and 56% of the rural workers are self-employed while 30% of the overall workers and 35% of the rural workers are casual workers. Notably, an overwhelming large percentage of the self-employed and casual workers are in the informal sector. An increase in casual employment in rural areas for both male and female workers is a cause of concern as an increase in female participation in the workforce is poverty induced [75]. Casualization of employment implies lack of social security benefits for workers and feminization of agriculture.

Rustagi [73] shows that the overall student population increased from 271 million in 2004–05 to 341 million in 2011–12, whereas the female student population rose from 118 million to 151 million and the male student population went up from 152 million to 190 million over the same period. The increase in population has been affecting the workforce too. Table 2-14 and Figure 2-12 show that an additional 15 million people with higher education levels of graduation and beyond were in the workforce between 2004 and 2012. A noteworthy fact is that though FWFP is declining, the share of educated women is gradually increasing. In other words, the workforce is becoming more educated over time.

TABLE 2-14

MAGNITUDE AND DISTRIBUTION OF WORKFORCE BY EDUCATIONAL LEVEL AND CHANGES OVER TIME (UPSS WORKERS)

Education level	2004–05	2011–12	% (2004–05)	% (2011–12)	Change (in million)
No or low FE	119	93	81	72	26
Medium FE	24	28	16	22	4
Higher FE	5	8	3	6	3
Total FE	148	129	100	100	-20
No or low ME	172	163	56	48	-9
Medium ME	114	144	37	42	30
Higher ME	23	36	8	10	12
Total ME	309	343	100	100	34
No or low (persons)	291	256	54	54	-35
Medium	138	172	37	37	34
Higher	28	43	9	9	15
Total persons	457	472	100	100	15

Source: Rustagi [73]

Rustagi in her paper notes that there has been a decline in employment in the rural economy for women, with nearly seven million workers no longer being in agriculture and related activities (see Figure 2-13) while manufacturing too generating very few jobs. Women gained marginally in manufacturing in rural areas. However, in urban areas, about 2.5 million jobs became available. The gains in employment in rural areas in construction and services are attributed to infrastructure development and increase in investments through public spending. The services sector registered some gains in employment for women, both in rural and urban areas[3].

3 Within services sector, women have gained employment mostly in education, health, and public administration. In rural areas, the decentralized governance structure and government programmes like Sarva Shiksha Abhiyan, Mid-day Meals, Integrated Child Development Services and National Rural Health Mission, etc. generated jobs. The urban activities are more diverse.

FIGURE 2-12

DISTRIBUTION OF WORKFORCE BY EDUCATIONAL LEVEL

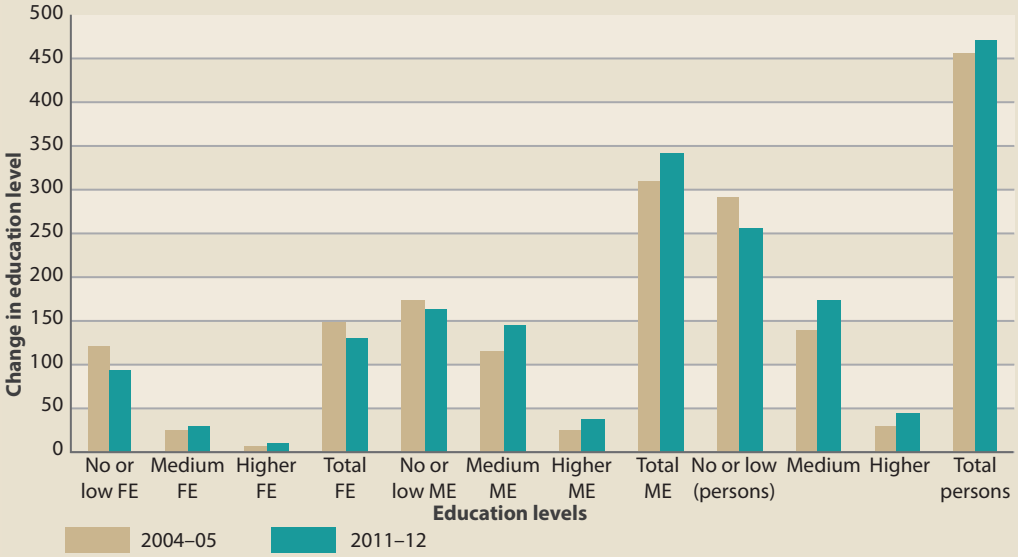
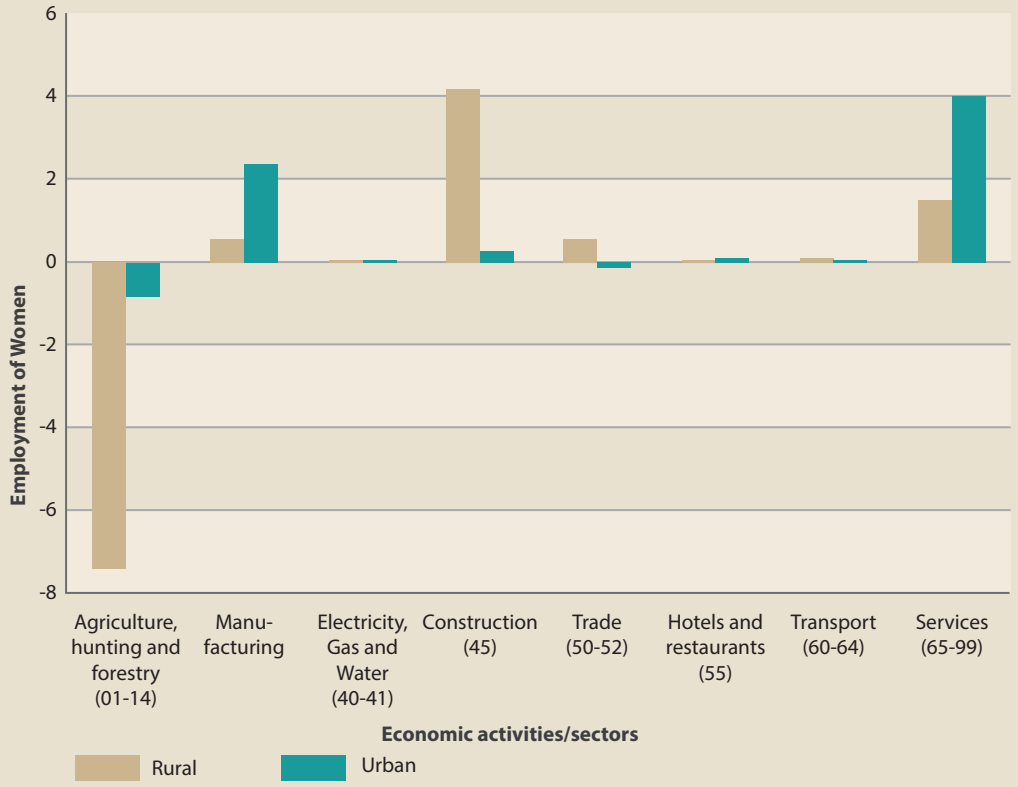


FIGURE 2-13

EMPLOYMENT CHANGES FOR THE PERIOD 1999–2000 TO 2009–10



Source: Based on Rustagi [73]

Empirical evidence presented in this section highlights some aspects of women employment in India, such as the declines in FLFP and FWFP during the period 1993–94 to 2011–12 under consideration. FWFP declined for all age cohorts. While MLFP increased with educational levels, FLFP increased only in case of highly educated women (2011–12). However, while FWFP declined, the share of educated women gradually increased during the period 2004–05 to 2011–12. Also, there was a decline in the number of self-employed and casual workers but the share of regular workers increased for the period 2004–05 to 2011–12. Among SEWs, a decline in the share of unpaid family workers and a slight increase in the share of OAWs for the period 2004–05 to 2011–12 is reflective of a growing women entrepreneurship, though maybe in petty businesses. Also noted were a decline in employment in the primary sector, a slight increase in manufacturing-sector jobs, and an increase in service-sector jobs both in rural and urban areas (1999–2000 to 2009–10).

3. Determinants of FLFP

Studies emphasize that female labor force supply is both a driver and an outcome of development. Therefore, it is important to identify the determinants of FLFP. "As more women enter the labor force, economies can grow faster in response to higher labor inputs. At the same time, as countries develop, women's capabilities typically improve, while social constraints weaken, enabling women to engage in work outside the home" [76]. The determinants of FLFP are a relatively less researched area in India. This section assumes importance because of the research gap.

It is difficult to understand women's work in India and elsewhere as the issues related to their work and employment are different from those of the male workers [77]. As has been recognized in various studies [78], women's decision to participate in the labor market is determined not only by their education levels or skillsets but also by caste, religion, marital status, and sociocultural norms. These constraints often force them to either remain out of labor force or to take up non-wage employment [79–82]. It has further been recognized in studies [76] that female participation may be poverty-induced as in case of the informal-sector employment in India; be an outcome of higher educational attainments and opportunities available as is noticeable in modern economies; or be crisis- or economic-shock induced as was the case in Indonesia due to the East Asian financial crisis of 1997–98. There are several supply-side and demand-side factors that influence the participation rates of women.

Few studies have attempted to identify the potential determinants of FLFP in India. This study identified thirteen variables that are expected to influence the FLFP. These variables are: the level of economic growth, infant mortality rate, total fertility rate, sex ratio, marriage of girls under 18, mean age of marriage, female education above secondary level, female literacy rate, rural gender wage gap, male wages in casual work other than public works, ratio of female wages to male wages, urbanization, and incidence of crime against women. The data on these variables was collected from multiple sources. However, some of the variables were dropped as those were found to be insignificant.

A model has been specified to analyze the factors that are anticipated to influence FLFP in India. There are a number of supply- and demand-side factors that could be expected to influence FLFP. Keeping in view the availability of data, a few important explanatory variables have been identified for analyzing the impact of these variables on the dependent variables.

These are as follows:

A) Supply-side factors:

- Education (EDU)
- Age at marriage/marriage of girls under (GMB)
- Fertility/total fertility rate (TFR)
- Sex ratio (SR)
- Gender gap in wages in rural areas or wage differentials (GWG)
- Male wages (MWCW)

B. Demand-side factors

- Economic growth (PCnSDP)
- Urbanization (URB)
- Sectoral changes/changes in the composition of employment denoted by the percentage of labor force engaged in agricultural, industrial, and services sectors (EMPAgr, EMPInd, and EMPSer), respectively.

A model has been specified to analyze the factors that are anticipated to influence the FLFP. The relationship between variables has been formalized as below:

FLFP = f(EDU, GMB, MAM, TFR, SR, GWG, RGWG, MW, URB, PCnSDP, EMPAgr, EMPInd, EMPServ) giving the following model:

FLFP = b0+b1EDU+b2GMB+b3MAM+b4TFR+b5SR+b6GWG+b7RGWG+b8MW+b9URB+b10 PCnSDP +EMPAgr+EMPInd+EMPServ, where b0 is the intercept term and all the 'b's are slope coefficients. We have worked out the estimated numerical values of these coefficients. For example, b1 gives the partial effect of explanatory variables on FLFP while holding other variables constant. Each slope coefficient gives the rate of change in the dependent variable for a unit change in the value of the explanatory variables.

3.1 Description of Explanatory Variables

Supply-side Factors

Education: The variable education has been included in various studies [76, 78]. Studies postulate that an individual's decision to participate in the labor market is affected by educational attainments [83]. It has been observed by various studies [83–85] that a greater educational attainment leads to higher participation in the labor force and also amounts to an increased productivity. According to some studies [86–88], return-to-education for women is higher than that for men. Higher levels of human capital lead to higher wages, thereby increasing women's participation in the labor market.

Studies [89–91] suggest that rising education and growth in white-collar employment opportunities could induce women to join the labor market by increasing their earning capacities and diminishing the impact of social stigmas that discourage them from working. Increase in education has also been associated with stronger preferences for white-collar jobs [92].

It is rightly assumed that an increase in school enrolments would reduce the supply of labor. However, it would also be fair to expect that female education at secondary and higher levels would induce women to participate in the labor market. The expected sign of the coefficient of this variable is uncertain. With the spread of literacy, there has been a significant change in perceptions

about jobs among the educated women, even in rural areas. As a natural corollary to the spread of education and the social change that is underway, an increased number of women now aspire for salaried jobs, preferably the government jobs or even the economically less rewarding private jobs, as compared to getting employed in either fields or factories [93].

Studies also show that "education pays a critical role in determining the nature of employment taken up by women. It raises the reserved wage (lowest wage at which a person would accept a particular job) and changes the preferences of jobseekers" [76, 94]. In view of these different arguments, the sign of the variable is, therefore, uncertain. It would depend on the variable being chosen, i.e., whether the education level is primary, upper primary or secondary.

We have tried two education variables in the equation, viz., female education level of secondary and above (FEDUSECA), and female literacy rate (FLR), alternatively.

Age at marriage: It is an explanatory variable included in the model because the studies show that marital status of women influences their labor force participation rates significantly [95–96]. Panda and Rustagi bring out in their studies that single women participate in the labout market more than men. Sorsa [97] too found that there is a robust negative impact of marriage on female labor force participation in both rural and urban areas. As per OECD estimates [19], marriage decreases the probability of female labor force participation by 7.8% in rural areas and more than twice as much in urban areas. Therefore, girl's age at marriage (GMB) and mean age of marriage (MAM) are potential determinants of the FLFP, and if under 18, thse are expected to bear a negative relationship with the dependent variable FLFP. The data on both the variables has been gathered from various 'District Level Household & Facility Survey' studies conducted by the International Institute for Population Sciences (IIPS), Mumbai.

Fertility: Total fertility rate (TFR) is defined as the average number of children expected to be born per woman during her entire span of reproductive period. Studies [97–101] recognize that the presence of young children in a household has a negative impact on women's participation in labor force. The probability of being in the labor force gets reduced by 3.8 pp for urban women if a woman is having a child younger than six years old on an average. This may be because of lack of childcare facilities in urban areas. The results of Edward Bbaale study [102] done in Uganda by using the Demographic and Health Survey 2006 confirms the hypotheses that female education, especially at the secondary and post-secondary levels, reduces fertility and increases their likelihood of being engaged in the labor force. She hypothesized in her study that female education led to higher labor force participation and wages, which in turn led to higher opportunity costs of time, leading to higher contraceptive usage and lower fertility rates.

Also, female education increases the child survival rate. A negative coefficient of the variable is expected from the analysis. In other words, lower the TFR, higher the FLFP. Lower fertility levels, by way of lowering the burden of bearing and rearing children, encourage increased workforce and labor force participation of women.

Sex ratio: Sex ratio is used to describe the number of females per 1,000 males. Sex ratio is low in most of the states except Kerala where females outnumber males. The sex ratio, considered a proxy for how society values its women, has increased from 933 to 940 between 2001 and 2011 [103]. It was as high as 1,084 in Kerala to as low as 877 in Haryana as per the 2011 Census. When the total population of females is higher than that of males, FLFP rate can be expected to be higher. The data

on sex ratio has been taken from the Health and Familiy Welfare Statistics in India 2013, published by Statistics Division, Ministry of Health and Family Welfare, Government of India.

Gender gap in wages in rural areas or wage differentials: "Large wage differentials with men can reduce female labor force participation by increasing the relative value of women's home good production compared to market work" [97]. Studies highlight the role played by The National Rural Employment Guarantee Act (NREGA) in case of India in raising FLFP and wage equality.

Since the expected wage of women is the opportunity cost of her time, once she is in paid employment, Mammen and Paxson [90] say that increases in wages for women can exert substitution effects and lead to an increase in labor force participation of females who initially opt out of the labor force [78].

It is also important to look at the nature of women's employment. In general, when women work, they tend to be paid less as they are employed in low-productivity jobs. Since in rural areas women are engaged in low-productivity agricultural activities, we have included a variable on rural gender wage gap (RGWG), in addition to gender wage gap, i.e., the ratio of female to male wages.

Data on gender wage differentials have been extracted from various NSS reports for 2011–12. Since data on average daily wages for casual labor was not available for urban areas, data with respect to rural areas was used as a proxy. A negative coefficient of this variable is expected from the analysis.

Male wages: Research on FLFP and economic development postulates that rising household incomes could lead to a withdrawal of women from the labor market [91, 95–96]. Therefore, with the rise in household incomes, women tend to drop out of the labor force. The expected sign of the coefficient is negative. We have included the variable on male wages in casual work other than public works (denoted by MW).

Demand-side Factors

Level of economic growth or per capita net SDP (PCnSDP): Though the Indian economy witnessed structural changes and experienced a high national income growth during the period 1999–2000 to 2011–12, there was a decline in the FLFP rate as observed in section 2 of this report. The question therefore arises: is there any relationship between the level of economic growth and FLFP? Studies suggest that with economic development, female labor force participation registers a decline initially, then plateaus at a certain stage of development before rising again. This phenomenon is attributed to structural shifts in the economy, changing influence of income and substitution effects, and an increase in education levels of women in the population [76]. In this section, the per capita state domestic product has been used as a proxy for the level of economic growth. The answer for the question above is explored using state-level employment data spanning the last 11-year period of 1999–2000 to 2011–12.

Much research has been attributed to discuss the U-shaped relationship between economic development and female labor force participation rates [78, 83, 90–91, 104–108]. However, the U-shaped hypothesis is highly debated [109]. Empirical studies bring out that in case of India, the U-shaped relationship is not yet evident [70, 109].

Urbanization: This indicates the percentage of total population living in urban areas in a state. There occurs a shift of population from dispersed (rural) settlements to concentrated (urban)

settlements mostly due to rural-urban migration. The share of population living in urban areas has been increasing in India. The proportion of people living in urban areas compared to rural areas increased from 27.81% in 2001 to 31.16% in 2011.The extent of urbanziation varied between 10.04% in the state of Himachal Pradesh to 62.17% in Goa.

Urbanization everywhere in the world has its own problems. Rentals are relatively higher and almost all the services, whether educational, health or transport, are available at higher prices in urban areas. Therefore, there arises the need for female participation in labor force to supplement the family's income. It is expected that as the process of urbanization gains momentum, FLFP would also increase. Therefore, a positive coefficient of this variable is expected from this analysis. The data on urbanization has been drawn from the Health and Familiy Welfare Statistics in India 2013, published by Statistics Division, Ministry of Health and Family Welfare, Government of India.

The test procedure is pooled regression. The regression technique has been used to test the relationship between the dependent variable, i.e., the female labor force participation and other explanatory variables discussed above. The sample comprised 20 states of India, out of which 15 were major states with population more than 20 million and the remaining five were smaller states. The study made use of multiple data sources.

Sectoral changes/changes in the composition of employment: Studies point out that the changing composition of the labor force away from agriculture towards non-agricultural activities impacts FLFP [110]. In fact, changes in economic activities and labor demand have helped expand female labor force activities [111]. Thevenon [112] points out that a shift away from agriculture and manufacturing sectors toward the services sector, along with the emergence of new production activities and different working conditions, have opened up new possibilities for women.

There is a large body of literature [113–116] that focuses on the relationship between LFP and tertiary-sector employment in general and FLFP and tertiary-sector employment in particular [112, 117]. Similarly, studies also reveal that industrialization leads to modernization and hence to an increased participation of women in the labor market. On the contrary, the other class of literature suggests that women's role in agriculture is enormous. Hence, economies characterized by a dominant agriculture sector may reveal a higher participation rate for women. The three explanatory variables, namely percentage of labor force engaged in agricultural, industrial, and services sector (EMPAgr, EMPInd, and EMPSer), respectively, have been introduced in different regression equations to assess their impacts on the dependent variable FLFP separately.

It is important to point out here that the relationship between labor force participation rate and the percentage of labor force engaged in the tertiary sector is a controversial issue, as pointed out by Nord [116]. As per the Thompson–Black hypothesis [113], there is an inverse relationship between the labor force participation rate and the percentage of labor force employed in the tertiary sector. However, Warren and Gilory [114], who were later supported by Wheat [115], refuted the Thompson–Black hypothesis on the ground that there is a positive relationship between workforce participation rate and the percentage of labor force employed in the tertiary sector, as this sector offers greater opportunities for women and teenage workers. The sign of the variable is, therefore, uncertain in view of the above controversy [118].

3.2 Empirical Results

The above hypotheses were tested for the three quinquennial NSS rounds of 1999–2000, 2004–05, and 2011–12. For statistical analysis of the determinants of FLFP, pooled regression technique was used. The hypotheses were tested for 20 states of India by working out various alternative versions of the specified model, the results of which with six different permutations and combinations are presented in Table 2-15.

In the first equation, when FLFP was regressed on eight explanatory variables namely, GMB, MAM, SR, TFR, FEDUSECA, GWG, PCnSDP, URB, the value of R2 turned out to be 41%, thus implying that on the whole 41% of the movements in the dependent variables were explained by the independent variable. The partial regression coefficients of three variables, namely, GMB, MAM, and FEDUSEA were statistically significant at 5% while SR was highly significant at 1%. These variables bore correct signs, while the regression coefficients for GWG and URB bore incorrect signs.

In Equation 2, when FLFP was regressed on seven explanatory variables of Equation 1, with GWG being dropped and the variable RGWG taken in its place, the value of R2 increased to 50% and five variables were found to be statistically significant. Three variables, namely, GMB, MAM, and SR were highly significant at 1% while two variables, FEDUSEA and RGWG, were significant at 5%. With the exception of one variable, URB, all other variables bore the signs in accordance with our expectations.

In Equation 3, FLFP was regressed on seven explanatory variables of Equation 2, with RGWG being dropped and MW taken in its place. This time, the value of R2 dropped to 49% and four (instead of five) variables were statistically significant. The explanatory variables GMB, MAM, and MW were significant at 5% while SR was found to be highly significant at 1%.

When FLFP was regressed on eight explanatory variables namely, GMB, MAM, SR, TFR, GWG, PCnSDP, URB, FLR in Equation 4, the value of R2 declined to 41% but five variables turned out to be significant. Of these, SR, TFR, and FLR were highly significant, while two other variables GMB and MAM had significances of 5% and 10%, respectively.

When the variable GWG was dropped and RGWG included in Equation 5, the value of R2 improved to 51%. In all, six variables turned out to be significant. The regression coefficients of three variables GMB, SR, and RGWG emerged highly significant while those of three other variables, MAM, TFR, and FLR were at significance of 5% each. All the partial regression coefficients bore the expected signs. FLR bore negative signs, thus indicating that higher female literacy would hinder females from entering the labor market as they could be attending educational institutes.

In Equation 6, the regression was run after dropping RGWG from Equation 5 and including MW and all other remaining variables. The variables included in the equation jointly explained 0.53% of variation in FLFP. The six variables turned out to be significant; four of them for the first time at 1% level of probability. These variables were GMB, MAM, SR, and MW. The remaining two variables, TFR and FLR, were found to be significant at 5% level of probability. These variables bore the signs as per our expectation. MW bore the negative sign, thus providing support to the hypothesis that the income of the head of a household could cause women to withdraw from labor force. The negative relationship between gender gap in wages and FLFP indicated that the removal of gender gap in wages could lead to increase in FLFP, which is so essential for boosting the

growth rate of the economy and tapping into the demographic dividend, given that women constitute approximately 50% of the total labor force in India.

Our study did not find any relationship between PCnSDP and FLFP. There are studies that have tried to explore the relationship between the economic growth and women's economic activity in case of India. They too haven't found a significant relationship between the level of economic development and women's participation rates in the labor force. Using the pooled regression model, this paper too found that there did not exist a significant relationship between the level of economic development and women's participation rates in the labor force. This is in keeping with the result of Lahoti and Swaminathan [109]. We fully agree with Lahoti and Swaminathan who suggested that growth by itself is not sufficient to increase women's economic activity, and that the dynamics of growth matter. These findings raise many pointers for policy makers for more effective and sustainable policies to improve women's labor force participation rates so that India could take complete advantage of its upcoming demographic dividend.

In Table 2-15, we have reported six regression equations working out six alternative versions of the specified model. In Table 2-16, we introduced alternatively two important explanatory variables namely EMPAgr and EMPSer in each of the six equations taken in Table 2-15. Though the variable EMPInd too was taken, it turned out to be insignificant in all alternative equations tried, so the results have not been reported in the table.

In Equation 1(a) of Table 2-15, when a new variable EMPAgr was introduced while keeping other variables of Equation 1 the same, the value of R2 shot up to 64% and the regression coefficient of EMPAgr not only bore the expected sign but also turned out to be highly significant.

Alternatively, the introduction of EMPSer and dropping of EMPAgr in Equation 1(b) too improved the value of R2 as compared to equation 1, but the coefficient of the variable bore the negative sign, thus supporting the Thompson–Black hypothesis of inverse relationship between EMPSer and LFPR. However, the variable turned out to be significant at 1% level of probability. Similarly, in other equations reported in Table 2-16, the introduction of these two variables alternatively improved the value of R2 to as high as 70.93%, with the inclusion of EMPSer while keeping other variables of Equation 6 unchanged. Also, five variables turned out to be significant in Equation 6(b). Similarly, in Equation 6(a), the value of R2 was 69% when the variable EMPAgr was included in Equation 6 of Table 2-15.

In other equations too, it can be noticed that the value of R2 improved significantly with the introduction of either of the two variables, EMPAgr and EMPSer, when other variables of equation 1-6 shown in Table 2-15 were kept the same. Both the variables turned out to be highly significant in all the equations where they were included. In all the equations in which the variable EMPSer has been included, the Thompson–Black [113] and Thompson (1977) hypotheses have been supported, with evidence demonstrating that EMPSer reduces FLFP, given other variables in the equation. This indicates that the greater concentration of labor force in low-productivity service activities may lead to "the phenomenon of discouraged dropouts from the labor force because prolonged or persistent work in low productivity activities reflect mainly the bleak prospects of graduating to a high-productivity job." [119].

In the foregoing pooled regression model, with the variables GMB, MAM, SR, TFR, FEDUSECA, FLR, RGWG, and MW, the percentage of labor force enganged in agriculture and services, EMPAgr and EMPSer, respectively, turned out to be significant variables.

Since the variables on age at marriage, i.e., GMB and MAM, are highly significant and the coefficients on these variables bear the expected signs, the age of marriage is an important variable impacting FLFP. Keeping in view the negative relationship of GMB and MAM with FLFP, steps should be taken by the government through awareness campaigns about raising the age of marriage. The amendments to the Indian Majority Act 1875 and the Child Marriage Restraint Act need to be amended to raise the legal age of marriage of girls to 21 years so that the girls could get educated and also acquire the social and psychological maturity that would enable them to take decisions on marriage and size of the family.

The variables on education (FEDUSECA and FLR) and health (TFR, SR) turn out to be significant and bear negative signs, implying that the government must increase resource allocation for education and health sub-sectors of the social sector. Also, the government should ensure proper utilization of such funds as an improvement in the social-sector outcomes would help build human capital that is so essential for putting the economy on a high-growth trajectory.

The study highlights that steps should be taken by the government to reduce TFR through education and awareness campaigns. Premarital contraception counseling provided by trained general physicians and conducted prior to marriage would better inform couples with choices of contraception. Since sex-ratio emerged to be a highly significant variable, efforts should be intensified to implement a multi-pronged strategy comprising schemes, programs, and awareness generation and advocacy measures. The goal should be to build a positive environment to save and protect the girl child through gender sensitive policies, provisions, and legislations. The latest program of the government, Beti Bachao, Beti Padhao, meaning save the girl child, educate the girl child, is a step in the right direction. It aims to generate awareness and improve the efficiency of welfare services meant for women. Such programs need a boost to address the issue of declining child sex ratio (CSR).

The negative association between RGWG and FLFP is having a policy relevance. First, there must be strict implementation of the policy of ‘equal pay for equal work.’ Second, minimum wages should be revised. Third, RGWG indicates the employment of women workers in the agricultural sector, which suffers from the problem of low productivity because there is excessive labor force engaged in this sector despite the fact that it has reached its limit to provide additional employment. Therefore, it implicitly points at the need for initiating policy measures to shift workers from farm to non-farm sectors to ensure better wages on one hand and increase productivity on the other hand.

The positive and significant relationship between EMPAgr and FLFP points at the need for development of the rural economy to create more quality jobs to absorb the bulging economically active female population. The negative and highly significant relationship between EMPSer and FLFP also calls for policy interventions to check the phenomenon of ‘discouraged dropouts’ from the labor market. Since jobs matching the preferences of women may not be available or available in limited numbers, they get absorbed in low-productivity informal service sector jobs. The study did not find a significant relationship between levels of economic development and women’s participation rates in the labor force. These findings offer many pointers for policy makers for developing more effective and sustainable policies to improve women’s labor force participation rates so that India could take complete advantage of its upcoming demographic dividend.

TABLE 2-15

REGRESSION RESULTS FOR FLFP

Equations	Intercept	GMB	MAM	Sex-Ratio	TFR	FEDUSECA	GWG	PCnSDP	URB	RGWG	MW	FLR	R2	Adj R2
Eq. 1	1.7485	-4.22	-1.4381	0.1035	-2.7675	-1.0043	2.7269	0.0000706	-0.1093				0.4139	0.3219
	(0.965)	(0.013)**	(0.049)**	(0.006)*	(0.134)	(0.022)**	(0.816)	(0.798)	(0.362)					
Eq. 2	-29.9838	-0.4303	-1.7791	0.1402	-1.8094	-0.9309		0.0003	-0.0668	-1.3952			0.5065	0.429
	(0.326)	(0.005)*	(0.009)*	(0)*	(0.284)	(0.016)**		(0.244)	(0.538)	(0.003)*				
Eq. 3	-3.3185	-0.3895	-1.6992	0.1113	-2.5752	-0.5306		0.00013	-0.1212		-0.067		0.4917	0.412
	(0.907)	(0.011)**	(0.014)**	(0)*	(0.128)	(0.202)		(0.6)	(0.268)		(0.007)*			
Eq. 4	11.7324	-0.2928	-1.1799	0.1097	-5.2701		-2.9044	-0.000223	0.06662			-0.5077	0.4123	0.3202
	(0.764)	(0.031)**	(0.091)***	(0.005)*	(0.005)*		(0.797)	(0.288)	(0.576)			(0.024)**		
Eq. 5	-34.0048	-0.3299	-1.6029	0.1601	-4.1159			0.00006	0.1241	-0.14602		-0.525	0.5137	0.4374
	(0.263)	(0.008)*	(0.015)**	(0)*	(0.018)**			(0.749)	(0.23)	(0.002)*		(0.011)**		
Eq. 6	-6.987	-0.3913	-1.7548	0.1399	-4.2473			0.00008	0.0051		-0.0759	-0.4724	0.5295	0.4556
	(0.799)	(0.002)*	(0.008)*	(0)*	(0.013)**			(0.693)	(0.96)		(0.001)*	(0.019)**		

Notes:
Adj. implies adjusted.
The figures in the parentheses are probability estimates.
*1% level of significance; **5% level of significance; *** 10% level of significance.

TABLE 2-16

REGRESSION RESULTS WITH INCLUSION OF EMPAGR AND EMPSER

Equations	Intercept	GMB	MAM	Sex-Ratio	TFR	FEDUSECA	GWG	PCnSDP	URB	EMPagr	EMPSer	RGWG	MW	FLR	$R2^-$	$R2^-$
Eq. 1	1.7485	-4.22	-1.4381	0.1035	-2.7675	-1.0043	2.7269	0.0000706	-0.1093						0.4139	0.3219
	(0.965)	(0.013**)	(0.049**)	(0.006*)	(0.134)	(0.022**)	(0.816)	(0.798)	(0.362)							
Eq. 1a	-51.2973	-0.289	-0.82	0.0884	-2.1743	-0.6234	-2.5488	0.0003	0.9893	0.8833					0.6445	0.5805
	(0.119)	(0.032**)	(0.157)	(0.003*)	(0.136)	(0.074***)	(0.784)	(0.123)	(0.329)	(0.000*)						
Eq. 1b	27.7023	-0.3504	-0.9451	0.0838	-1.9309	-0.6159	-0.2907	0.000057	0.0375		-0.8135				0.604	0.5327
	(0.406)	(0.014**)	(0.122)	(0.008*)	(0.21)	(0.095***)	(0.976)	(0.804)	(0.717)		(0.000*)					
Eq. 2	-29.9838	-0.4303	-1.7791	0.1402	-1.8094	-0.9309		0.0003	-0.0668			-1.3952			0.5065	0.429
	(0.326)	(0.005*)	(0.009*)	(0.000*)	(0.284)	(0.016**)		(0.244)	(0.538)			(0.003*)				
Eq. 2a	-73.5032	-0.3213	-1.1338	0.1196	-1.5209	-0.658		0.0004	0.1108	0.7867		0.88			0.6785	0.6207
	(0.007)	(0.011**)	(0.045**)	(0.000*)	(0.27)	(0.038**)		(0.026**)	(0.246)	(0.000*)		(0.025**)				
Eq. 2b	-6.0258	-0.3705	-1.2871	0.1203	-1.1072	-0.6062		0.0002	0.0682		-0.757	-0.1177			0.6694	0.6099
	(0.814)	(0.004*)	(0.024**)	(0.000*)	(0.429)	(0.061***)		(0.212)	(0.467)		(0.000*)	(0.003*)				
Eq. 3	-3.3185	-0.3895	-1.6992	0.1113	-2.5752	-0.5306		0.00013	-0.1212				-0.067		0.4917	0.412
	(0.907)	(0.011**)	(0.014**)	(0.000*)	(0.128)	(0.202)		(0.6)	(0.268)				(0.007*)			
Eq. 3a	-60.594	-0.2881	-1.0983	0.1028	-1.9391	-0.3346		0.0004	0.0841	0.8209			-0.051		0.6885	0.6324
	(0.017)	(0.019**)	(0.046**)	(0.000*)	(0.148)	(0.311)		(0.053***)	(0.37)	(0.000*)			(0.010*)			
Eq. 3b	15.785	-0.3213	-1.2424	0.0977	-1.5515	-0.09121		0.0001	0.0404		-0.8628		-0.0763		0.705	0.6519
	(0.478)	(0.007*)	(0.2)	(0.000*)	(0.235)	(0.78)		(0.445)	(0.646)		(0.000*)		(0.000*)			

CONTINUED ON NEXT PAGE

CONTINUED FROM PREVIOUS PAGE

Equations	Intercept	GMB	MAM	Sex-Ratio	TFR	FEDUSECA	GWG	PCnSDP	URB	EMPagr	EMPSer	RGWG	MW	FLR	$R2^-$	$R2^-$
Eq. 4	11.7324	-0.2928	-1.1799	0.1097	-5.2701		-2.9044	-0.0002232	0.06662					-0.5077	0.4123	0.3202
	(0.764)	(0.031**)	(0.091***)	(0.005*)	(0.005*)		(0.797)	(0.288)	(0.576)					(0.024**)		
Eq. 4a	-43.3136	-.1751	-.5888	.0808	-3.4327		-6.6272	.0001	.1878	.8846				-.1931	0.6289	0.5621
	(0.192)	(0.113)	(0.299)	(0.11)	(0.026**)		(0.467)	(0.481)	(0.060***)	(0.000*)				(0.300)		
Eq. 4b	35.7998	-.2371	-.7143	.0760	-3.1627		-4.3326	-.0001	.1249		-.8163			.1872	0.5885	0.5145
	(0.286)	(0.040**)	(0.230)	(0.024**)	(0.054***)		(0.650)	(0.361)	(0.222)		(0.000*)			(0.346)		
Eq. 5	-34.0048	-0.3299	-1.6029	0.1601	-4.1159			0.00006	0.1241			-0.14602		-0.525	0.5137	0.4374
	(0.263)	(0.008*)	(0.015**)	(0.000*)	(0.018**)			(0.749)	(0.23)			(0.002*)		(0.011**)		
Eq. 5a	-74.4243	-0.2194	-0.956	0.1237	-2.88			0.0002	0.2239	0.7651		-0.0936		-0.2542	0.6635	0.603
	(0.007)	(0.039**)	(0.089***)	(0.000*)	(0.05**)			(0.133)	(0.014)	(0.000*)		(0.02**)		(0.154)		
Eq. 5b	-8.448	-0.2751	-1.1167	0.1239	-2.3644			0	0.1742		-0.7422	-0.1219		-0.2339	0.6568	0.595
	(0.748)	(0.01*)	(0.047**)	(0.000*)	(0.115)			(0.659)	(0.052***)		(0.000*)	(0.002*)		(0.198)		
Eq. 6	-6.987	-0.3913	-1.7548	0.1399	-4.2473			0.00008	0.0051				-0.0759	-0.4724	0.5295	0.4556
	(0.799)	(0.002*)	(0.008*)	(0.000*)	(0.013**)			(0.693)	(0.96)				(0.001*)	(0.019**)		
Eq. 6a	-59.6217	-0.2691	-1.116	0.1137	-2.811			0.0003	0.1405	0.7784			-0.0583	-0.2108	0.6918	0.6363
	(0.019)	(0.011**)	(0.041**)	(0.000*)	(0.045**)			(0.065***)	(0.113)	(0.000*)			(0.002*)	(0.213)		
Eq. 6b	13.9572	-0.3384	-1.301	0.1087	-2.0792			0.0001	0.0678		-0.8244		-0.0774	-0.1505	0.7093	0.657
	(0.528)	(0.001*)	(0.014**)	(0.000*)	(0.132)			(0.355)	(0.408)		(0.000*)		(0.000*)			

4. Impact of FLFP on Productivity

Empirical studies indicate that there are broad business benefits of having a larger female workforce as it brings valuable skills, diversity of thought, and higher productivity since women waste less time. There is an opportunity cost of losing qualified women from the workforce. In a developed country like Australia, $8 billion is lost each year as undergraduate and postgraduate women do not enter the workforce. There is a need to achieve stronger growth by promoting a more gender-balanced economy [120]. Greater economic participation of women can be a source of inclusive growth and wellbeing [97].

Currently, FLFP is among the lowest in the emerging markets and declining. OECD calculations [121] show that growth could be boosted up to 2.4% with a package of pro-growth and pro-women policies. Barrington et al. [122] attempted to examine the relationship between diversity and productivity using a recently constructed employer-employee matched database, the NWECD, and by constructing a unique measure of workforce diversity. They found that diversity is either positively associated with establishment level productivity, or there is no significant relationship between diversity and establishment level productivity. The empirical weight, however, appears to lean more heavily on the side of a positive association, at least for manufacturing.

Petersen, Trond et al. [123] in their study tried to find an answer to the question, "Are female workers less productive than male workers?" The study found that the gender wage gap is smaller under piece-rate work than under time-rate work. Second, in age groups where women on average have extensive family obligations, the wage gap is larger than in other age groups. Third, under time-rate work, the wage gap is more or less independent of supposed occupation-based productivity differences between men and women, while under piece-rate work, the wage gap mirrors quite closely assumed productivity differences. In the latter case, women receive a wage premium in female-advantageous settings and a penalty in male-advantageous settings. Fourth, in contrast with Sweden, in Norway and the USA, women sort more often into piece-rate work than men.

Shaw [124] points out in her study that women have also contributed indirectly to increases in productivity and long-run economic growth through unpaid work, both at home raising children and in their communities. Women are still disproportionately responsible for the valuable activity of caring for children, and the economic changes associated with the increase in trend productivity suggest that it has become more valuable than ever to raise children who are problem-solvers and who can think for themselves. There is a substantial body of research suggesting that investing in children has a high rate of return. Women have traditionally also been important in investing in the community, and in what Robert Putnam has called 'social capital,' i.e., the neighborhoods, clubs, and civic associations that help communities work. Some observers have argued that as women entered the paid labor force and withdrew their traditional participation in these organizations, communities have weakened. Shaw suggests that women played an important role in this productivity increase, both directly as workers and indirectly in their roles in raising children and investing in their communities. She suggests that there are gains for the society in having well-educated children and these gains may not be fully taken into account within families.

Woytek [125] too recognizes that women contribute substantially to the economic welfare through large amounts of unpaid work, such as child-rearing and household tasks, which often remain unseen and unaccounted for in GDP.

Erstwhile Norwegian Finance Minister Sigbjoern Johnsen[4] had pointed out that high FWFP had decisively affected the country's performance because of multiple reasons. "Firstly, choosing

4 http://www.oecdobserver.org/news/fullstory.php/aid/3898/Women_in_work:_The_Norwegian_experience.html#sthash.M3alBZAB.dpuf

workers from a pool of male and female workers, as opposed to choosing from a pool where half of the potential talent is excluded, leads to productivity gains. Secondly, higher female labor participation has led to productivity gains through a higher degree of specialization. And finally, female employment has added more workers to the work force at a time when average work hours per employed person have been declining. Decreasing work hours for the employed has in part been a natural consequence of higher prosperity; people's priorities have changed as they no longer need to work as hard to make a living. But with women entering the workforce, the contribution to growth from the work effort can be maintained. This contributes significantly to raising the national income." He further noted that the increase in female employment in Norway took place at a time when there was a rise in demand for labor, and alongside a remarkable boost in educational attainment among women. Also, employment among women was stimulated by comprehensive parental provisions and subsidized day-care for children[5].

As also referred to in Section 1, Tansel [21] highlights the importance of educational attainments in impacting decision to participate in the labor market. The literature on human capital reveals that greater educational attainments also lead to higher labor market participation and higher productivity [20, 22–23]. Moreover, studies also show higher returns to education for women than for men [24–26]. Studies recognize that when women become economic actors from being economic dependents they tend to invest in education and health facilities of their children. It is important to mention that early childhood development is the foundation of human capital formation, with the highest rate of return toward economic development and the most cost-effective way to reduce poverty and foster economic growth [126–27].

As per Nobel laureate economist James Heckman, "The complementarity or synergism between investments at early ages and investments at later stages suggests that early investment has to be complemented by later investment to be successful." [128]. Friedman [129] also notes that Heckman makes "a strong case for a higher return on human capital when dollars are spent on the young rather than the old." Heckman has said, "The returns to human capital investments are greatest for the young for two reasons: (a) skill begets skills, and (b) younger persons have a longer horizon over which to recoup the fruits of their investments." [130]. Therefore, women contribute to the overall productivity of the nation directly through their economic contributions and indirectly via ensuring better future returns to the nation through investment of their time and resources in the development of children.

Further, it has been pointed out in a study done by IMF [42] that differences in access to productive inputs are majorly responsible for differences in productivity differentials among companies owned by men and women. Equal access to productive inputs can increase output gains and reduce productivity gap greatly [15].

4.1 Interdependence of Overall Productivity on Various Indicators

It would be worthwhile to identify the variables that are closely associated with overall productivity, as discussed below.

4.1.1 Female Labor Participation

As more and more women become educated and are integrated into the labor force, there is a possibility that productivity and growth may increase [131]. Empirical studies fully acknowledge the fact that educated women allocate a higher share of household resources to education and

5 IBID

healthcare, which are the two factors expected to boost productivity and growth in the long run. "A few studies have attempted to examine the impact of increased female participation on productivity growth in advanced economies. These studies provide mixed empirical evidence about the importance of female labor participation for productivity growth. McGuckin and Van Ark [132] find that higher female participation may lead to productivity losses when the new entrants are older women reintegrating into the workforce on a part-time basis and after a period of inactivity. However, these effects are likely to disappear over time. De Jong and Tsiachristas [133] argue that higher female participation may lead to productivity growth if workers can adapt to innovations. Overall productivity in an economy is likely to be associated with FLFP. Increase in FLFP would lead to an increase in overall productivity" [133].

4.1.2 ICT Penetration:

The role of ICT in labor productivity growth is captured by the ICT penetration that has been calculated by taking the ratio of broadband subscribers to the populations of the respective states. The impact of ICT is positive and significant [134]. This finding is in consonance with the earlier findings of Oliner and Sichel, and Gust and Marquez [135–137].

4.1.3 Education

The impact of education on productivity is expected to be positive and significant, and enables us to explain the differences in productivity between high-income economies and low-income economies. We have included variables like net enrolment ratio at upper-primary level, net enrolment ratio at secondary level, gross enrolment ratio for classes one to eight, female literacy, and human development index. Education, and consequently the human capital, are also important factors impacting the overall productivity in general and female productivity in particular [102].

4.1.4 Infrastructure

It has been observed through various studies that infrastructure and technology can influence time use patterns of women, i.e., the division of time between home and work. Even though huge investments have been made on infrastructural development in India, the infrastructural gaps are still noticeable. If improved infrastructure, including paved roads and access to water, is made available, it can save women of drudgery and save them the time that may be reallocated to other productive tasks by them along with child rearing and learning [138].

In the wake of a rising incidence of crime against women, safety concerns have risen for women. Safer public transport can improve their opportunities to work. Therefore, a positive association is expected between infrastructural index and overall productivity as this would improve women's productivity as reasoned above.

4.1.5 Urbanization:

Studies provide good evidence that there is a positive relationship between urbanization and income or productivity levels. As pointed out by Miller [139], this relationship is a function of the ability of cities to share fixed costs by efficiently matching supply and demand of specialized goods, services, and workers, (network effect); and to spread and use knowledge (knowledge spillover effect). The economies of agglomeration are generally accepted to work through the three channels of thick markets, shared infrastructure and other services, and knowledge spillovers. Mitra [140] also writes that "within the urban areas, large cities, because of agglomeration economies, manifesting themselves in terms of higher levels of productivity and technical efficiency, are again considered better than the medium-sized or small towns."

4.1.6 Financial Depth and Breadth

Financial depth has been measured as the ratio of bank credit to state domestic product (SDP) of each state and financial breadth as deposit to SDP ratio. Both the variables should have positive and significant impact on labor productivity as these promote efficient allocation of financial resources in productive channels. As studies reveal, an access to financial services promotes women's independence and enables them to participate in the labor market [15]. Financial depth and breadth are hypothesized to positively affect the female labor force participation [15, 19] and productivity.

4.1.7 Wage differentials

Large wage differentials with men can reduce the female labor force participation by increasing the relative value of women's non-wage work at home compared to market work [102]. Studies highlight the role played by The National Rural Employment Guarantee Act (NREGA) in case of India in raising female labor force participation and wage equality. Understandably, higher the wage equality, higher the incentive and motivation to work hard, which adds to productivity. The variables, rural wage gap in case of casual labor other than public work, and gender wage gap measured as the ratio of female wages to male wages (FW:MW), are expected to be negatively associated with overall productivity. Klasen says, "On the supply side, we find that rising male incomes and education contributed to a withdrawal of women from the labor force, shows that the classic income effect is at work in urban India." [94]

4.1.8 Fertility and Mortality

As noted earlier in this chapter, total fertility rate (TFR) is defined as the average number of children expected to be born per woman during her entire span of reproductive period [97]. It is recognized that the presence of young children in a household has a negative impact on FLFP. The probability of being in the labor force gets reduced by 3.8 pp for urban women if a woman is having a child younger than six years old on an average. This may be because of lack of childcare facilities in urban areas. Lower fertility levels, by lowering the burden of bearing and rearing of children, encourages greater workforce and labor force participation of women. Therefore, availability of childcare options could increase productivity of women. Lower the TFR and infant mortality rate (IMR), higher the productivity. IMR is the number of deaths of infants less than a year old per 1,000 live births. This rate is often used as an indicator of the level of health in a country. Lower the IMR, higher the productivity.

4.1.9 Sex Ratio

Sex ratio, as also mentioned earlier, affects workforce participation. Sex ratio is used to describe the number of females per 1,000 males. Sex ratio is low in most of the states except Kerala where females outnumber males. The sex ratio, considered a proxy for how a society values its women, has increased from 933 to 940 between 2001 and 2011 [141]. It was as high as 1,084 in Kerala to as low as 877 in Haryana as per the 2011 Census. The data on sex ratio has been taken from the Health and Familiy Welfare Statistics in India 2013, published by Statistics Division, Ministry of Health and Family Welfare, Government of India.

4.1.10 Sectoral composition of Employment

A number of empirical studies have found that a transition of economic activity from agriculture to nonagricultural sectors would lead to stronger productivity growth, as it implies a shift from lower- to higher-productivity sectors [142–143]. These studies also found that countries with a higher value-added share of high-productivity growth sectors also have higher aggregate productivity growths. We use the percentage shares of agricultural and manufacturing sectors in employment.

4.2 Analysis of Interdependencies among Selected Indicators

An analysis of interdependencies among selected indicators has been presented in this subsection. The basic purpose is to identify the variables that are having very close association with overall productivity. The analysis has been attempted by constructing correlation matrices.

Cross-section data on 24 variables and 17 observations, i.e., states, was collected from multiple sources with periods varying between 2007–08 and 2011–12. The correlation coefficients of variables were ranked as per their 'r' values and the correlation among 12 variables was found to be significant with the exception of one variable, FLFP (Table 2-17). A positive correlation was found between overall productivity and FLFPR.

TABLE 2-17

CORRELATION BETWEEN LABOR PRODUCTIVITY AND OTHER VARIABLES

Variable	Value of 'r'	Rank order
Index of infrastructure	0.6284**	I
Urbanization	0.6079**	II
HDI	0.5906**	III
% of employment in industry	0.5654**	IV
TFR	-0.5355**	V
IMR	-0.5021**	VI
ICT penetration	0.4629**	VII
Rural male wages	0.4559**	VIII
Female literacy rate	0.4559**	IX
Financial depth	0.417**	X
GER	-0.3733**	XI
Rural gender wage gap	0.3064**	XII
FLFP	0.2478	XIII

Note: ** denotes 5% level of significance.

The value of correlation coefficient ('r') was as high as 0.6284 in case of index of infrastructure and as low as 0.2478 in case of FLFP. But the correlation coefficients of all the variables bore the expected signs. The table shows the ranking of the variables as per the value of correlation coefficients. Out of the 13 variables reported in Table 2-17, correlation coefficients of the 12 variables other than FLFP turned out to be significant with 5% level of significance. It is to be noted that FLFP impacted overall productivity positively, albeit marginally. The reason for non-significance of the value of the correlation coefficient may be that a large proportion of women at present are engaged mainly in low productivity activities. Since the 'r' values of FLR, GER, and HDI were highly significant, it could be inferred that more investments in education and health in general and for females in particular could enhance the overall productivity level.

4.3 Quality of Employment

In a developing country like India, the availability of employment or FWFP does not capture the whole labor market scenario, so it is the quality of employment that should be taken into account.

If we consider unemployment in India as per the UPSS criterion, it was as low as 2.2% (adjusted for usual status) for all age groups in 2011–12, as per the NSS 68th round report. However, the percentage of population below the poverty line was as high as 21.9% in 2011–12 [144]. The problem is that for the working poor the productivity of employment is very low, which may be attributed to low education and low skill levels of the workers. As per NSS 66th round, of the labor force of 431 million on UPSS basis, about 29% were not literate and about 24% were having education up to primary level. Only 1.4% had done diploma or certificate courses.

As per the Twelfth Five Year Plan document, the total number of those received or receiving vocational training in the labor force, i.e., in the age group of 15–59, was 43 million in 2009–10, which constituted just 10% of the labor force in the age group. The figure compares poorly with that of developed countries and with several developing countries. Studies report that there has been deterioration in the quality of employment, especially since 1991. The quality of employment can be assessed from the status of employment and from the informalization of employment as also from the labor market flexibility, which is indicated by minimum wages, hiring-and-firing regulations, and centralized collective wage bargaining.

FWFP has declined during the period 2004–05 to 2011–12, both in rural and urban areas, as earlier shown in Table 2-6. Even male WFPR registered a decline, and therefore, the overall WFPR declined over this period. This may be because of decline in the proportion of self-employed workers. The share of regular female workers, however, increased in rural and urban areas. There was a 5% decrease in the proportion of self-employed workers, and increases of 4% and 1% in the proportion of regular workers and casual workers, respectively, during the period 2004–05 to 2011–12. Among the females, the number of self-employed and casual workers declined and that of regular workers increased. Decline in the share of casual female workers, however, doesn't imply security of employment.

TABLE 2-18

DISTRIBUTION PER 1,000 WORKERS BY BROAD EMPLOYMENT STATUS, USUAL STATUS (PS+SS)

NSS rounds	Self employed	Regular workers	Casual labor
Rural males			
68th (2011–12)	54.5	10	35.5
61st (2004–05)	58	9	33
55th (1999–2000)	55	8.8	36.2
50th (1993–94)	57.7	8.5	33.8
43rd (1987–88)	58.6	10	31.4
38th (1983)	60.5	10.3	29.2
Rural females			
68th (2011–12)	59.3	5.6	35.1
61st (2004–05)	64	4	33
55th (1999–2000)	57.3	3.1	39.6
50th (1993–94)	58.6	2.7	38.7
43rd (1987–88)	60.8	3.7	35.5
38th (1983)	61.9	2.8	35.3

CONTINUED ON NEXT PAGE

CONTINUED FROM PREVIOUS PAGE

NSS rounds	Self employed	Regular workers	Casual labor
Urban males			
68th (2011–12)	41.7	43.4	14.9
61st (2004–05)	45	41	15
55th (1999–2000)	41.5	41.7	16.8
50th (1993–94)	41.7	42	16.3
43rd (1987–88)	41.7	43.7	14.6
38th (1983)	40.9	43.7	15.4
Urban females			
68th (2011–12)	42.8	42.8	14.3
61st (2004–05)	48	36	17
55th (1999–2000)	45.3	33.3	21.4
50th (1993–94)	45.8	28.4	25.8
43rd (1987–88)	47.1	27.5	25.4
38th (1983)	45.8	25.8	28.4

Source: NSS reports

It is quite noticeable from Table 2-18 that in rural India, more than half of the usually employed ('all' workers) were self-employed from 1983 to 2011–12. The corresponding proportions in urban India varied between 40.9% to 41.7% for males and between 42.8% to 48% for females. Proportion of regular employees was relatively lower among females as compared to males in both rural and urban India. On the other hand, proportion of casual labor was higher among female workers than among male workers. This casualization of work for females points at the deterioration in the quality of employment as it is characterized by vulnerabilities and risks of irregularity, uncertainty of work, low earnings, unfair treatment by employers, and lack of social security [145]. The casual workers are worst placed among the three categories of workers as the incidence of poverty is relatively higher for them. In 1999–2000, 55% of casual workers in rural areas and 50% in urban areas belonged to households below poverty line; while in the case of the self-employed, the percentages below poverty line in rural and urban areas were 22.5% and 26%, respectively. In case of the regular wage earners, the corresponding percentages were 15% and 11%, respectively. However, it is important to point out that the increase in casualization in the 1990s [145] and even in the decade of 2000 in rural areas was associated with a rise in the daily wages. Both male and female wages considerably increased over the two decades.

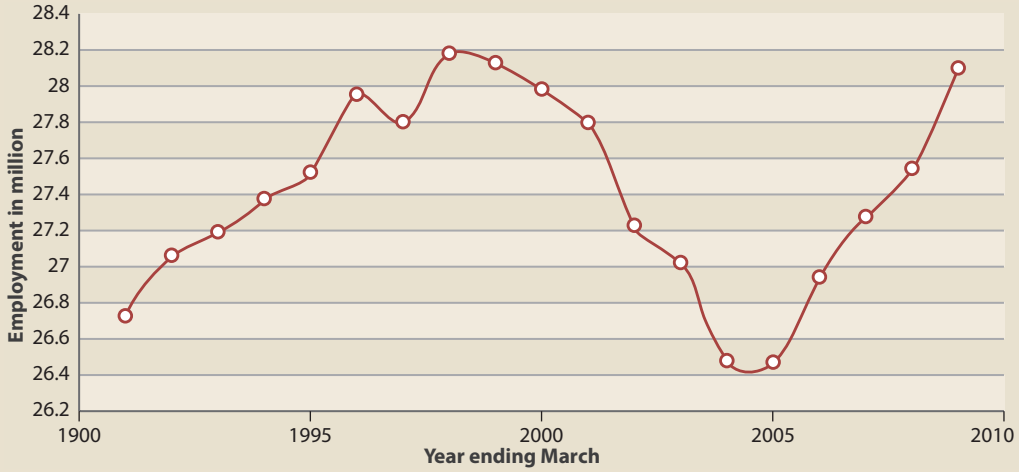
4.3.1 Increasing Informalization

The deterioration in quality of work can be captured by knowing the extent of informalization of an economy. The formal-sector workers enjoy better wages and salaries, have decent working conditions, and above all, enjoy social security. On the other hand, the informal-sector jobs are low in quality in terms of wages, regularity of employment, and work environment. Also, there is a lack of social security against such risks as sickness, injury, disability, and death arising out of hazards at work, separation, and old age. The unorganized-sector workers don't have access to any of the social security measures and therefore, an increase in the share of unorganized employment implies deterioration in the quality of work.

The organized sector, characterized by relatively higher salaries and job security, provided employment to 28.09 million workers in the fiscal year ended March 2009. Figure 2-14 clearly shows that the employment in the organized sector increased from 26.73 million in 1991 to 28.19 million in 1998. Thereafter, it registered a decline from 28.11 million in 1999 to 27.27 million in 2007. It started increasing once again after that and reached 28.09 million in 2009.

FIGURE 2-14

EMPLOYMENT IN ORGANIZED SECTOR



Source: Directorate General of Employment and Training, Ministry of Labour

Women accounted for just about 20% of employment in the organized sector (Figure 2-14). However, their employment share in the organized sector increased consistently from 14.1% in 1991 to 19.9% in 2009.

Coming to the unorganized sector, employment declined from 393.5 million (86%) in 2004–05 to 385.08 million (84%) in 2009–10. This implies an increase in the share of the organized sector from 14% in 1999–2000 (and also in 2004–05) to 16% in 2009–10. However, it is to be noted that the increase in the organized-sector employment is mainly in the informal category. The informal employment in the organized sector registered an increase from 46.4% in 2004–05 to about 57.8% in 2009–10. The informal employment in the unorganized sector remained about the same at 93% of the workforce in 2009–10, as against 91% in 1999–2000.

TABLE 2-19

FORMAL AND INFORMAL EMPLOYMENT IN ORGANIZED AND UNORGANIZED SECTORS (IN MILLION)

Sectors	Employment		
	Informal	Formal	Total
	2009–10		
Unorganized	385.08	2.26	387.34
Organized	42.14	30.74	72.88
Total	427.22	33	460.22

CONTINUED ON NEXT PAGE

CONTINUED FROM PREVIOUS PAGE

Sectors	Employment		
	Informal	Formal	Total
	2004–05		
Unorganized	393.5	1.4	394.9
Organized	29.1	33.4	62.6
Total	422.6	34.9	457.5
	1999–2000		
Unorganized	341.3	1.4	342.6
Organized	20.5	33.7	54.1
Total	361.7	35	396.8

Source: GOI, 2013

The above trend indicates that there was a movement of workers from informal agricultural-sector employment to informal non-agricultural sectors.

Second, there is a shift from informal employment in the unorganized sector to informal employment in the organized sector. This can be seen in Table 2-19, which shows that there was a decline of 8.4 million informal workers in the unorganized sector along with an increase of 13 million informal workers in the organized sector.

The table highlights that formal employment in the organized sector is not increasing, which points at the fact that the organized-sector employers are increasingly hiring workers on contractual terms due to labor laws and other concerns. Informalization of organized sector is on rise and there has been a drop in formal employment in the organized sector.

TABLE 2-20

RELATIVE SIZE OF THE INFORMAL SECTOR IN %, ALL INDIA (2009–10)

Sector	Agriculture			Non-agriculture		
	Male	Female	Person	Male	Female	Person
Rural	90.6	95	93.4	73	64.1	71.3
Urban	88.3	97.7	92.5	68.3	60.1	66.9

Source: Mitra [146]

It can be observed from Table 2-20 that the incidence of informal-sector employment defined as the proportion of informal sector employment to total employment is high both in the rural and urban areas. This is because in the agriculture as well as non-agriculture sectors, informalization of jobs is dominant. Mitra [146] points at a large proportion of women in the agriculture sector as compared to the non-agriculture sector. As observed by Mitra from NSS 66th round report, 2009–10, the option of diversification to non-agricultural employment is limited for women, which supports Unni's observation [147] with regard to NSS 50th round survey for 1993–94, implying that there has been no change in ground realities even after 17 years.

It would be highly relevant if we highlight the relationship between poverty and vulnerability and the type of employment that the unorganized-sector workers engage in. Table 2-21 and Figure 2-15 bring out that among the unorganized-sector workers, the 21% belonging to middle- and high-income groups were mostly self-employed or regular workers whereas 90% of casual workers belonged to the group of poor and vulnerable.

TABLE 2-21

PERCENTAGE DISTRIBUTION OF UNORGANIZED WORKERS BY EXPENDITURE CLASSES

Status	Total	Self-employed	Regular wage workers	Casual workers
Poor and vulnerable	78.7	74.7	66.7	90
Higher income group	21.3	25.3	33.3	10
Total	100	100	100	100

Source: Report on Conditions of Work and Promotion of Livelihoods in the Unorganised Sector, August 2007; National Commission for Enterprises in the Unorganized Sector
Note: The data has been for NSS 61st Round 2004–05, Employment-Unemployment Survey.

Since small and medium enterprises generally belong to the unorganzied sector and employ informal workers, it would be appropriate if qualitative dimensions of employment are also understood by analyzing employment by the size of enterprises.

FIGURE 2-15

STATUS OF WORKERS

FIGURE 2-16

NUMBER OF WORKERS BY SIZE OF ENTERPRISES IN INDUSTRY AND SERVICES

Source: Based on Planning Commission, Government of India's Twelfth Five Year Plan 2012–17, Volume 3

4.3.2 Employment by Size of Enterprises

Figure 2-16 on size of enterprises by the number of workers that they employ shows an occurrence of shift in non-agricultural employment in the 2000s. There has been a decline in the number of workers, in absolute as well as relative terms, in the enterprises with less than six employees between 2004–04 and 2009–10. These micro enterprises accounted for 152.5 million workers in 2004–05 or 75% of all non-agricultural workers. In 2009–10, their share declined to 65.6% of all non-agricultural workers. Correspondingly, the share of workers employed in enterprises with six and above but less than 10 workers increased from 7.5% (15.2 million) in 2004–05 to 10.5% (24 million) in 2009–10. A similar increasing trend in the share of workers employed in enterprises with 10 and more but less than 20 workers and those with 20 and above workers was noticed for the period under consideration. This shift is for the betterment of workers as it enables them to organize by reducing fragmentation [18].

4.4 Vulnerabilities and Entitlements of Informal-sector Women Workers

It was recognized by National Commission for Enterprises in the Unorganized Sector (NCEUS) [148] that women workers in general constitute a marginalized category within the class of workers. Rural women workers occupy a lower position as compared to urban women workers while the lower-most category of workers is that of scheduled castes (SCs) and scheduled tribes (STs).

The peculiarity of the condition of women workers as a whole is that they have a double burden of work, covering both productive and reproductive responsibilities. Women's time use patterns reveal that compared to men they spend less time on economic activities that bring return and more time on economic activities that add to the economic output of the household (called extended SNA). They spend on an average 17% more time than men, when the two activities are taken together. A micro-level study done by Sriram and Ganapathy [149] compared women's activity patterns in the four states of Gujarat, Meghalaya, Mizoram, and Kerala. The study found that women spent nearly 22% of their time in a day on household activities, either indoor or outdoor, and 9–10% of the time on leisure during which they engaged in community activities.

In Section 2 of this chapter, we noted that female work participation rate was lower than that of men, though workforce participation rate of rural women was higher as compared to their urban counterparts. NCEUS report very clearly says that higher WFPR does not mean a higher level of welfare. However, it points at the economic compulsion that drives women to engage in whatever work comes by to make a living. The report further emphasizes that higher WFPR becomes meaningful when it is accompanied by higher educational capabilities or assets and income.

The lower WFPRs conceal in good measure the subsidiary status of the work of women. In 2011–12, in rural areas, the WPR (subsidiary staus) for rural females was higher (at 110 per 1,000) as compared to urban females (31 per 1,000). However, the figures for rural and urban males (subsidiary status) stood at 12 per 1,000 and six per 1,000, respectively. Althogh women worked for longer hours, they were available for additional work, preferably for home-based work, as it offered them the flexibility to combine income earning activities with household responsibilities.

The conditions of women's work in numerous occupations are very poor and often hazardous. They are subjected to various forms of discrimination, including lower wages, as compared to men across all occupations, ranging from agricultural laborers to informal-sector workers and factory-sector workers.

The wage discrimination cannot be fully explained by differences in education and skill levels. For example, in the agricultural sector, men often do ploughing and harvesting and women undertake weeding work which is a back-breaking work. The gender discrimination is noticeable from the fact that minimum wages are fixed separately for ploughing and harvesting, but most often no minimum wages are fixed for weeding.

There is a clearcut sexual division of labor. In a study of the garments industry in Tirupur done by Vijyabhaskar [150], it was found that women were concentrated mainly in the lowest paid category of workers. They were concentrated in embroidery, cleaning, finishing, tagging and packaging, and stitching. On the other hand, with the introduction of machines, the fashion masters were the most skilled, and the category was exclusively reserved for male workers. Female workers were mostly helpers in these units, with only a little chance of upward mobility from helpers to attendants. The NCEUS visit to garment factories in Tirupur confirmed these characteristics of the industry. Studies noted that male–female wage differentials appeared to have widened after liberalization.

It has been pointed out in various studies that women and working girls also run the risk of sexual abuse by employers and contractors. Breman [151] highlights in his study that male members often make discreet inquiries before a woman accepts a job at particular workplace. Roy [152] points out that bonded Kol tribals working in Shankargarh quarries lock up their women in homes often because of the fear of contractors' sexual oppression on them.

Among the women wage workers, 54% were reported to be regular workers. NCEUS report says that ii no way it indicates a higher labor status since more than half of them work as domestic servants in private households for longer hours, and get very few holidays and lower wages.

The commission said that the overall picture was that of disadvantage for women workers in general and the rural as well as SC and ST women workers in particular. It is necessary to identify the vulnerabilities of women workers in the informal sector across occupations and regions so that interventions could be made by the government to provide them a decent living [153]. In addition to livelihood security, the government must ensure that women workers in the informal sector have access to nutritional security. The interventions of promotional nature are long overdue with a strong emphasis on education and skills development. Since a large percentage of women are engaged in informal work, which is of low quality, their productivity is also low. But spending on education and skill development of women is critical for economic resilience and growth. As OECD [26] says, GDP in India could rise by 8% if the female-male ratio of workers went up by 10%. Therefore, there is an urgent need for such interventions to raise the role of women in the economy. This may be ensured though higher FWFPR by providing an enabling and supportive environment in the form of educational and health facilities, formal childcare facilities, and tax incentives, among other things. In addition, sociocultral norms need to be evolved through social transformation, which could be achieved by improved information diffusion.

It is clear that that there are broad business benefits of greater female workforce as they bring valuable skills and diversity of thought, and by wasting less time, are more productive. Differences in access to productive inputs have been majorly responsible for differences in productivity differentials among companies owned by men and women. Equal access to productive inputs can increase output gains and reduce productivity gap greatly. This section also highlights that FLFP and overall productivity are positively related.

The evidence on correlation of FLFP and overall productivity with ICT penetration, education, and financial access suggests that the role of the government should be to as far as possible encourage the spread of education and digitization of the economy, and to ensure the availability of infrastructure. It is important that the enabling environment is supported not just for overall growth of the economy but also for ensuring that women are engaged in employment that is not vulnerable. This would ensure that they are truly economically empowered, since their economic empowerment alone would allow them to operate efficiently and effectively.

5. Government Policies for Women's Development[6] and Limitations

The extent of gender mainstreaming into an economy can be judged from indicators like the participation of women in the workforce, the quality of work allotted to them, and their contribution to the GDP. On all these parameters, women in India fare worse than men, and the challenge is to bridge the inequality. Although a separate section on gender equity was included for the first time in the Draft Approach Paper to the Eleventh Five Year Plan [154], the paper had not given enough focus to women empowerment issues in the country. However, in the Twelfth Five Year Plan there was a separate chapter on Women's Agency and Child Rights. Women's agency and engendering of development planning were the focus areas of this plan. The strategies for women's agency in the Twelfth Plan [18] were identified as: economic empowerment, social and physical infrastructure, enabling legislations, inclusiveness of all categories of vulnerable women, and engendering national policies and programs.

It has been very appropriately pointed out in OECD Report that "reducing persistent gender inequalities is necessary not only for reasons of fairness and equity but also out of economic necessity. Greater economic opportunities for women will help to increase labor productivity, and higher female employment will widen the base of taxpayers and contributors to social protection systems which will come under increasing pressure due to population aging. More gender diversity would help promote innovation and competitiveness in business" [155].

Table 2-22 highlights the government policies for women development in general undertaken in India and some of the policies such as mid-day meal scheme, and provision of leave for childcare mainly try to create an enabling environment for women so that they can participate in the labor market.

TABLE 2-22

GOVERNMENT POLICIES FOR WOMEN'S DEVELOPMENT UNDERTAKEN IN INDIA

1. Enabling legislations and laws to promote gender equality and gender balance	• The Pre-Conception and Pre-Natal Diagnostic Techniques ACT (PC-PNDT Act) • Maternity Benefit Act • Equal Remuneration Act, 1976 (ERA) • Domestic Violence Act (PWDVA) And Dowry Prohibition Act (DPA) • The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act 2013 • Unorganized Workers' Social Security Act 2008
2. Provision of leave	• Maternity leave • Paternity leave • Child care leave

CONTINUED ON NEXT PAGE

6 This section is based on various plan documents of GOI.

CONTINUED FROM PREVIOUS PAGE

3.Gender budgeting	• A scheme on gender budgeting (GB) was introduced in 2007 with a view to building capacity so that a gender perspective was retained at all levels of the planning, budget formulation and implementation processes. Both central and state-level officers have been trained under this scheme and as a direct consequence of these training efforts a number of ministries as well as state governments have taken GB initiatives. • Gender audits of public expenditure, programs and policies at national, state and district levels proposed in the 11th Plan. • The Plan envisaged the strengthening of the gender budget cells set up in the various ministries and departments.
4. Expenditure on education of women	• For the year 2015–16, the government allocated Rs 26,855 crore to the department of higher education under the human resource development (HRD) ministry, compared to Rs 23,700 crore in 2014–15, registering an increase of 13.31%, a little over last year's 12.9%. Women enrolment in higher education was 41.5% in 2010–11. • Sakshar Bharat Abhiyan, Sanitation Scheme, Mid-day Meal Scheme, Beti Bachao, Beti Padhao (BBBP) program.
5. Expenditure on health	• National Rural Health Mission, National Urban Health Mission, and High Level Expert Group on Universal Health Coverage, aimed at improving access to health services for women, girls and other vulnerable genders (going beyond maternal and child health). • Budgetary support for the departments of Ministry of Health and Family Welfare registered an increase of 335% in the Twelfth Five Year Plan over the previous Plan allocations.
6. Expenditure on infrastructure	• The Hostels for Working Women scheme aims to promote greater mobility for women in the labor market by providing safe and cheap accommodation to those from the lower income strata living away from home. • Provision and improvement of sanitation facilities in educational institutions.
7.Availability of flexible work arrangements	• Especially in the private sector and that too in the services sector.
8. Availability of part time work	• Especially in services sector like education, health services.
9. Information diffusion through media	• Increasing the awareness of legal rights to equal treatment. • Increasing the awareness about equal treatment to girl child under the Save Girl Child program. • Awareness of laws prohibiting gender-based discrimination.
10. Programs for women development	• The Swyamsiddha, and Swa-Shakti programs. • The Rashtriya Mahila Kosh (RMK)* • Inclusion and mainstreaming of women als o received special attention under programs such as the MNREGA, the Right to Free & Compulsory Education, National Rural Health Mission, National Rural Livelihood Mission, and National Skill Development Mission. • Gender budgeting initiatives also led to the development of new schemes in supposedly gender-neutral sectors like Department of Telecommunications, and Ministry of Petroleum and Natural Gas.

Note: i) Pregnancy leave of 180 days: Admissible only for employees with less than two surviving children.
ii) Miscarriage or abortion (induced or otherwise): Total of 45 days in the entire service.
iii) Paternity leave: Admissible for male central government employees with less than two surviving children for a period of 15 days to take care of the wife and the new born.
iv) * indicates that The Swyamsiddha program, a recast version of the Indira Mahila Yojana (IMY), organizes women into self-help groups (SHGs) for income-generation activities. It also facilitates access to services such as literacy, health, non-formal education, water supply, etc. Swa Shakti involves the setting up of women SHGs in rural areas, especially among farmers and agricultural laborers, and ensuring them access to credit for income-generation activities. The Rashtriya Mahila Kosh (RMK), or the National Credit Fund for Women, was established in 1993 to extend micro-credit to SHGs

Source: GOI, various Plan documents

5.1 Inadequacy of Government Policies: Problems and Corrective Measures

Table 2-23 brings out the inadequacies of government policies undertaken for women development and suggests some corrective measures, which if implemented effectively, could lead to higher FLFP by providing women an enabling environment.

TABLE 2-23

INADEQUACY OF GOVERNMENT POLICIES UNDERTAKEN FOR WOMEN'S DEVELOPMENT: PROBLEMS AND CORRECTIVE MEASURES

Enabling legislations	Problems faced in implementation	Corrective measures
The Pre-Conception and Pre-Natal Diagnostic Techniques ACT (PC-PNDT Act)	Technology (sonography machine) is used for foetal sex determination, leading to female foeticide.	Review of the provisions of the PC-PNDT Act. Sex selection practices should be made punishable. Registration/regulation of sonography machines must be ensured. It should be mandatory for all registered centers to maintain all records.
Maternity Benefit Act (MBA)	i) Length of leave is less. ii) Sometimes choice of availing this leave is not given to women employed in factories, mines, planatations, shops, and so on. iii) The existing Maternity Benefit Act, 1961 does not cover a vast majority of women working in the informal sector.	Increase the length of leave. The choice of utilizing leave should be the prerogative of a woman. The Act must cover informal sector too.
Paternity leave	Just for 15 days for central government employees.	Measures should be taken to ensure that men share more equally in the burden of family life and community service.
Child Care leave	Employers create hassles.	i) There is a need for creating awareness among male employers about the relevance and need for CCL and the role that it plays in the child's development. ii) There is a need for holding more training programs for employers and employees to sensitize them to the fact that economic empowerment of women through labor market participation is essential for broader economic development of developing countries like India and also for a pro-poor and inclusive growth. In addition, they should be made to understand that paid maternity leave should not be perceived as a burden by them (the employers) as this investment (of time and resources by parents) on children and youth today can ensure better and greater future returns to society through higher economic growth via promoting human capital formation and social well-being of future generations. It is high time that employers changed their attitudes, as working women should be rewarded rather than asked to pay a penalty for their separation from labor market to perform care-giving roles.

CONTINUED ON NEXT PAGE

CONTINUED FROM PREVIOUS PAGE

Enabling legislations	Problems faced in implementation	Corrective measures
Factories Act, 1948	Makes a compulsory provision of crèche in factories.	Not only is the enforcement poor, there is no consolidated data either available with the Central Labor Commissioner on compliance. Therefore, there is an urgent need that it should be made mandatory for all establishments to ensure that employees have access to crèches in or near the workplaces.
Equal Remuneration Act, 1976 (ERA)	Existence of discrimination against women workers in payment of wages.	Implementation and monitoring of the compliance should be strictly enforced.
Protection of Women from Domestic Violence Act (PWDVA) And Dowry Prohibition Act (DPA)	Various forms of domestic violence exist, and dowry deaths still take place.	i) Improvement in the implementation of these laws is needed. ii) There is a need for appointing protection officers. iii) Training and capacity building of law enforcement agencies and the judiciary on dowry-realted harassment of women and dowry deaths. iv) One-stop crisis centers for providing shelter, police desk, legal, medical and counseling services, and women's helpline. v) Misuse of both the Acts by women is to be prevented.
The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act 2013	i) Poor policies at workplace. ii) Lack of trained manpower to handle cases of sexual harassment. iii) Lack of commitment of organizations.	Implementation of the Act in letter and spirit is to be ensured.

CONTINUED ON NEXT PAGE

CONTINUED FROM PREVIOUS PAGE

Enabling legislations	Problems faced in implementation	Corrective measures
Unorganized Workers' Social Security Act 2008	i) The Act is more in the nature of an enabling legislation because it states in Section 3(1), "The Central Government shall formulate, from time to time, suitable welfare schemes for unorganized workers..." ii) It has not accepted the proposal of the NCEUS and the PSC for creating a national fund but states that schemes notified by the government may be fully or partly funded. iii) By providing for notification of schemes as and when the government deems necessary, the Act provides for specifications of such implementation mechanisms in the concerned schemes as may be necessary, thus providing for no common implementation system. iv) In the light of the above, the Act does not provide for an empowered implementing body but provides for the constitution of national and state-level social security boards that are basically advisory in character. v) While the Act states, "State Governments may formulate and notify, from time to time, suitable welfare schemes," it is indeed a superfluous one because the state governments do have the power to legislate on social security for workers, including the unorganized workers, since the subject of labor is in the Concurrent List of the Constitution. vi) Given the illiteracy and low level of education among a majority of unorganized workers and their general state of poverty and vulnerability characterised by a range of economic and social deprivations, the NCEUS and PSC proposals provided for the creation of workers facilitation centers (WFCs), which could be designated agencies such as trade unions, organizations working among unorganized workers, labor cooperatives, or other similar organizations. In the absence of such organizations, it was proposed to designate the Panchayat institutions at the local level as the WFCs. The Act merely states, "The State Government may set up such Workers Facilitation Centers as may be considered necessary from time to time to perform the following functions." As such, a crucial hand-holding mechanism has been left to the goodwill and discretion of state governments. While this national legislation is an important first step, it has indeed made further progress towards universalization (i.e. coverage of all unorganized workers with limited economic means) not only a difficult but complicated task. [156]	"These three measures, i.e., a National Minimum Social Security, Minimum Conditions of Work and a National Minimum Wage contribute, along with the provisioning of BSS, to the creation of what the NCEUS called a 'social floor.' Such a social floor would not only be a poverty reducing one but would also contribute to growth and development through its effects on lessening vulnerability, improving health and education, and a measure of livelihood security. These would certainly, in the view of this report (NCEUS), contribute to enhancing the productivity of the working poor and thereby to the aggregate output that would contribute to the creation of a virtuous cycle of growth with development" [157].

CONTINUED ON NEXT PAGE

CONTINUED FROM PREVIOUS PAGE

Enabling legislations	Problems faced in implementation	Corrective measures
Expenditure on education.	i) Still low ii) Mid-day Meal Scheme saves the time of mothers so that they can participate in labor market but the time of teachers (two to three hours) is spent on supervising the implementation of this scheme. iii) Cases of unhygeneically cooked, and undernutritious food served under the scheme, along with huge corruption has been reported in some states like Bihar.	i) It needs to be increased. ii) There is a need to increase the number of women teachers in rural, remote, and inaccessible areas by providing housing and transportation facilities to them. iii) There is a need for child tracking system to address the issue of school dropouts. iv) More scholarships, hostels and non-traditional vocational trainings for girls for engendering the education strategy are required. iv) Provision of more toilets in the schools and anganwadis is required. v) Quality of education should not suffer because of supervisory roles of the teachers in case of schemes like Mid-Day Meal.
Expenditure on health.	Low healthcare expenditure. Inadequate healthcare services. Quality of healthcare services. Affordability of healthcare.	There is a need to recognize the gender dimension of health problems Aspects such as high anaemia, unregonized care burden, differentials in morbidity and mortality, and access to care need more attention. Sex disaggregated data on disease burden and access to treatment should be made available.
Infrastructure for women.	Not much has been done. Reservation of coaches and seats for women in Delhi metro and buses.	i) Overall improvements in infrastructure services, especially water and electricity to reduce the drudgery of women are required. ii) An increased spread of ICT should be achieved for reducing the time and mobility constraints that women face in accessing markets and participating in the labor markets. iii) A national level assessment of transport requirements of women should be carried out. iv) Dedicated exclusive services such as ladies special buses and trains should be introduced. v) There should be a provision of increased services for women during peak hours. vi) There needs to be an increased provision of special buses and services for women travelling during off-peak hours or on less travelled routes. vii) Security of women needs greater attention. viii) There is a need to undertake gender audits of transport terminals and introduce improved safety measures for women. ix) Rural electrification is a must to increase women welfare and increase their leisure time. x) The Twelfth Five Year Plan (2012–17) recognized that there are women-specific transport needs that every major transport project should recognize. It must undertake a pre-project rapid gender assessment survey to address their needs well at the design and planning stage itself.

Source: Based on various reports of GOI, World Bank, and OECD

5.2 Additional Measures Required for Increasing FLFP

Given the inadequacies in policies pointed out in Table 2-23, the measures discussed below could play a very important role in improving FLFP.

Promoting Gender Equality in Education

1. There is a need to reduce user fees; provide school materials, uniforms, and meals (as under the Mid Day Meal Scheme); make travel to and from the schools safer for girls; and provide for restrooms and trainings of the teachers.

2. There should be financial incentives for families to encourage them for better upbringing of the girl child and to educate her as was visualized in the Dhanlaxmi scheme or the Ladli Social Security Allowance Scheme, launched in 2008 by the state government of Haryana. There should be direct cash transfers through the Jan Dhan Yojana, Aadhaar, and Mobile number (JAM) trinity[7] so as to avoid leakages, corruption, and inefficiencies that eat away large parts of such benefits. While giving such benefits to families, the condition can be laid down that they will have to invest in the education and health of their children. There is also a need to put the basic health structure in place. Since healthcare falls under state list, the primary responsibility for healthcare rests with the states. There is a need to incentivitize the state governments to take effective steps to improve the public healthcare system and regulate the private healthcare system so that together they can work toward the management of preventive, promotive, curative, and rehabilitatory health interventions. There is a need that stringent laws should be enacted and enforced to deal with the abuse of sex selection technologies.

3. There is also a need to involve Panchayati Raj institutions and communities for bringing about sustainable improvements in health standards. States should formalize the role and authority of these PRIs. As the Twelfth Plan [136] recommends, the states should be advised to make village health, sanitation, and nutrition committees as the guiding and operational arms of panchayats in advancing the social agenda.

4. The cash assistance to pregnant women under Jnani Suraksha Yojana needs to be continued to reduce MMR and IMR and for promoting institutional deliveries.

5. Government of India tried to promote sanitation coverage under Nirmal Bhrat Abhiyan in a campaign mode in 2012 to ensure better health and quality of life for people in rural India. Another national campaign named Swachh Bharat Abhiyan or Clean India Mission was started by the the present government, covering 4,041 statutory cities and towns, to clean the streets, roads, and infrastructure across the country. The campaign was officially launched on 2 October 2014, where Prime Minister Narendra Modi himself cleaned the road. World Bank has appreciated the PM's favorite project and has announced a support of US$1.5 billion for the project. The program plans to construct 120 million toilets in rural India by October 2019, at a projected cost of Rs 1.96 lakh crore (US$29 billion). There is a need that more and more of the public and private sector should participate in this program under the 'corporate social responsibility' principle, which can play a very important role in checking dropout rates from schools and ensuring the dignity of girls. Besides, the benefits of the direct relationship that exist between water, sanitation, health, nutrition, and human wellbeing can be tapped.

7 JAM is an acronym used in the GOI, Economic Survey 2016–17. The government is expressing its hopes on these three modes of identification to deliver direct benefits to India's poor.

6. There is a need to reduce intensity of effort and its drudgery through infrastructure improvement. It is essential that GOI should invest more on bringing about infrastructural improvements, especially the roads, transportation, and clean water, in rural areas to reduce the time-consuming aspects of women's and girls' unpaid domestic work. This would enable the girls to attend schools and the women to participate in the labor market or take up self-employment opportunities.

7. The hierarchical social structure, norms, and cultural practices indeed influence the abilities of girls to attend classes and complete the schooling. The overwhelming presence of women in informal sector or in self-employment is partly a derivative of the social values stemming from patriarchal norms that puts limitations on women's mobility and constrain their participation in various spheres, whether political or economic. Therefore, the policy of reservation has been started. There is a need to continue it till the time women, who constitute 50% of total population, realize their true potentials.

8. There is a need for engendering the media as well. The media campaigns need to be increased to encourage parents and teachers to raise self-confidence and motivation among girls to pursue interests in fields such as science and mathematics. Gender messaging is a must. Through different channels, the information should be disseminated to empower women.

9. There is a need to improve curricula, teaching material, and training policies to avoid gender stereotyping, and to encourage girls to engage in science, technology, engineering, or mathematics (STEM) studies.

10. A better balance in the gender composition of teachers and the endorsement of female role models in professions typically dominated by men might also contribute to this objective.

11. Support research to further explore which factors shape gender differences in the choice of field of study.

12. Attention should be paid to maintaining and improving the performance of boys so that they are not left behind, which is a phenomenon increasingly observed in some OECD countries.

Improving Gender Equality in Employment

1. There is a need to improve childcare facilities for women so that they can strengthen their positions in the labor market. There is a need to enhance a continuum of supports throughout the early years of child-related leaves (maternity, parental, and paternity leaves), childcare, and out-of-school-hours care so as to add to the productive capacities of women, which could further lead to higher capital formation and growth.

2. At present, the duration of paternal leave is just 15 days. It needs to be increased to enable women to strengthen their positions in the labor market and to change and improve the perceptions about their labor market commitments among both employers and colleagues. This would also enable to bring in equality in performance of dual roles of work and family as was pointed out by Tinker long back [11] that "the role assigned to each sex must again be made more equal, with men as well as women accepting their dual function of work and family."

3. Since a large percentage of women work in the informal sector, there is a need for childcare facilities and social security benefits to be extended to women in the informal sector. Women's

organizations in informal sector, as well as in the formal sector, can play an important role in protecting rights of women by preventing discriminatory practices and spreading awareness about their rights, existing rules, and laws. Further, a monitoring mechanism needs to be incorporated to ensure the implementation of the law on inheritance.

4. There is a need to check informalization of the formal sector by improving the employment conditions, access, and quality of jobs to ensure that both women and men are able to maximize their productivity, earn a living wage, and have access to social security benefits. There is also a need to ensure that women move away from the vulnerable forms of informal employment into formal employment. Women's organizations in informal employment can be highly useful for the protection of their rights and can give them required support in challenging discriminatory social institutions that hinder women's equal access to assets such as land, technology, financial service, or information. The Self-Employed Women's Association (SEWA) in India founded in 1972 by the noted Gandhian and civil rights leader Dr Ela Bhatt is a well-known example of a women's union that is actively engaged in collective bargaining and leveraging influence over the environment in which women work.

5. The Twelfth Plan recognized the need to improve job quality within the informal sector and ensure that women move away from the most precarious and dangerous forms of informal employment, like bidi (a variant of cigarette) making, bangle making, etc. There is a need for scaling up of women, from traditional skills to emerging skills, as it would help them break gender stereotypes and move into employments requiring higher skillsets. This could lead to their transition to the formal sector. Example would be training of women as BPO employees, electronic technicians, electricians, plumbers, sales persons, auto drivers, taxi drivers, masons, and so on.

6. There is a need to take strict action against employers who indulge in discriminatory practices.

7. Since entrepreneurship is one of the drivers of economic development, therefore, a spirit of entrepreneurship needs to be inculcated among women and the gender gap in entrepreneurship needs to be plugged.

8. There is a need for reliable gender disaggregated statistics to be made available so that effective polices could be formulated on the basis of evidence and combat discriminations against women.

6. Conclusion

Empirical studies reveal that FLFP and FWFP have been declining in India. Women's work in India is not only invisible, unrecognized, and unremunerated, there also is feminization of occupations [2]. However, analysis of data in some studies [73] also brings out certain noticeable trends in women's employment that are emerging in India. Although FWFP has declined, the share of educated women gradually increased during the period 2004–05 to 2011–12. There was a decline in the number of self-employed and casual workers but the share of regular workers increased for the corresponding period. Among SEWs, the share of unpaid family workers declined but a slight increase in the share of OAWs was noted, thus reflecting growing women's entrepreneurship, albeit maybe more in petty businesses.

Besides, there has been a decline in employment in the primary sector and a slight increase in manufacturing-sector jobs in the period from 1999–2000 to 2009–10. Moreover, there has been

an increase in service-sector jobs, both in rural and urban areas during the period. A large number of variables falling into the social, cultural, demographic, and economic aspects of life affect FLFP and FWFP. Empirical studies also indicate that there are broad business benefits of having a greater female workforce, as women bring valuable skills, diversity of thoughts, and add to the productivity by wasting less time. Studies [123] also suggest that women played an important role in this productivity increase, both directly as workers and indirectly through their roles in raising children and investing in their communities.

India boasts of a large youth population, with 66% of its population at present being in the age bracket of 18–24 years. The median age of the country is just 27 years, much below 36.8 years in the USA and China; 40 years in the UK, and 46 years in Japan and Germany. Favorable demographics thus point at the prospect of India enjoying a 'demographic dividend.' However, favorable demographics do not at all mean that the country is not aging. It is important to emphasize here that there are 29 states in India having large regional differences in demographic parameters. Mari Bhat, a renowned demographer, noted [65] that several states in south India have already reached, or are about to reach, the replacement level of fertility. In contrast, north Indian states would take several decades to reach the replacement-level fertility. Similar differentials in levels of mortality, especially in infant and child mortality and fertility can be noticed in case of south versus north Indian states. The four southern states of Kerala, Tamil Nadu, Andhra Pradesh, and Karnataka that account for 21% of India's population, have TFRs below 2.1. A TFR below 2.1 is comparable to the fast-aging countries such as Norway, Australia, Sweden, Germany, and Canada. On the contrary, states such as Bihar, Uttar Pradesh, and Rajasthan have TFRs of more than three, which is also reflected in their young populations. Population aging is a phenomenon that occurs when the median age of a country or region rises due to a rising life expectancy, declining fertility rates, or both. In two of the south Indian states, median age is more than the national average and TFR is falling. So these would be aging at a faster rate as compared to the north Indian states.

Population aging implies shrinking labor forces and labor shortages in coming years. Now the question is how to deal with the challenge of population aging. Inter alia, one of the remedial measures is to promote the participation of women in the labor market by mainstreaming the gender perspective in human capital-related policies to deal with the challenges of aging societies. International organizations like the APO are carrying out research in this area so that the policy recommendations of such research can help in mainstreaming the gender perspective in human capital-related policies. This would result in a higher productivity performance through national programs that could reduce the negative factors that hinder FLFP, thus also effectively dealing with aging societies in the long run.

Studies reveal that there are different alternative pathways to empower women. These pathways are: reducing gender gaps in human capital endowments by spending on education and health of women; giving women control over assets; removal of sociocultural barriers; releasing women's time, and above all, economically empowering them by ensuring their labor market participation, which in turn could have several spillover effects. Employment among women could be stimulated through comprehensive parental leave provisions and subsidized daycare centers and crèches for children. There is a need to improve childcare facilities for women so that they could strengthen their position in the labor market. There is also a need to enhance a continuum of supports throughout the early years of various child-related parental leaves, childcare, and out-of-school-hours care so as to add to the productive capacities of women. This would lead to higher human capital formation and higher economic growth later.

The duration of paternal leave is just 15 days. It needs to be increased to enable women to strengthen their position in the labor market and change or improve perceptions about their labor market commitments among both employers and colleagues. This would also enable to bring in equality in performance of dual roles of work and family as was pointed out by Tinker [11], who noted, "The role assigned to each sex must again be made more equal, with men as well as women accepting their dual function of work and family."

Recently, the Ministry of Women and Child Development proposed that the maternity leave (ML) should be increased to eight months. However, Ministry of Labor has agreed to increase paid ML to 26 weeks, which is comparable to countries like Poland, Venezuela, and Vietnam. With this step, India will join a league of 16 nations among the 186 members of the ILO that offer the highest duration of paid ML. In addition, the Ministry of Labor is expected to introduce a new provision in the Maternity Benefit Act, 1961, which would mandate all establishments (public or private), such as call centers, media houses, IT firms, and shops with 30 women or 50 employees, whichever is less, to ensure that employees have access to crèches in the vicinity. The firms could either set up crèches in their premises or join hands with two or more firms within 500 meters to create community crèches. Since a large percentage of women (approximately 93%) work in the informal sector, there is a need that the childcare facilities like crèches, paternal leaves, and social security benefits are extended to women in the informal sector as well. The existing Maternity Benefit Act, 1961 does not cover a vast majority of women working in the informal sector. Also, while the Factories Act, 1948 makes a compulsory provision for crèche in factories, it has been observed that not only the enforcement is poor but also that no consolidated data is available with the Central Labor Commissioner on compliance. Therefore, there is an urgent need to make it mandatory for all establishments to ensure that temployees have access to crèches in or near the workplaces.

Besides, there is a need for holding more training programs for employers and employees to sensitize them to the fact that economic empowerment of women through labor market participation is essential for broader economic development of developing countries like India and also for pro-poor and inclusive growth. In addition, the employers should be made to understand that maternity leaves are not to be perceived as burdens, as the investment of time and resources by parents on children today could ensure better and greater future returns to the society. Higher economic growth would come by way of promoting human capital formation and social well-being of future generations. It is high time that employers changed their attitudes and working women got rewarded rather than asked to pay penalties for separation from labor market while performing care roles.

The UNDP Human Development Report pointed out long back [12]: "Women's vital social functions for maintaining families and communities, which become only too visible when juvenile delinquency rates rise, the elderly are left to die alone or cultural traditions wither, would gain full recognition. Now considered largely women's responsibility in many societies, these functions would be recognized as the responsibility of both men and women as well as of society. For public policy, this implies incentives, investments, and other measures to provide quality care for children and the elderly, to do community work, and so on. It means taking measures to ensure that men share more equally the burden of family life and community service."

A number of steps have been taken by the GOI to ensure gender mainstreaming into the economy through legislative measures, introduction of gender budgeting, programs for women education, health, spending on infrastructure, information diffusion through media, etc. Given the positive and significant relationship between ICT penetration and overall productivity, there is a need for

promoting use of information technology in different sectors such as education and health to increase the productivity of women. It is important to emphasize that through the introduction of various programs. There is a need to not only monitor various policies and programs relating to women development and empowerment that create a conducive environment for FLFP but also an urgent need to ensure their effective implementation with a sense of commitment.

Undeniably, the empowerment of women by ensuring their participation in the labor market is not only a prerequisite for sustainable development and pro-poor and fair growth but is also an economic necessity now. Greater economic opportunities for women could lead to an increase in labor productivity, and widen the base of taxpayers and contributors to social protection systems that come under increasing pressure due to population aging. More gender diversity would help promote innovation and competitiveness, which are so essential for promoting sustainable businesses and ensuring the achievement of sustainable development goals.

References

[1] UNDP, Human Development Report. New York: Oxford University Press; 2003.

[2] Joshi S. Gender Discrimination in South Asia. In: Arunachalam J., Kalpagam U., eds., Rural Women in South Asia. Jaipur: Rawat Publications; 2007.

[3] Kabeer N. Reversed realities. Gender hierarchies in development thought. London: Verso 60; 1994

[4] Carr, et al. Speaking Out: Women's Economic Empowerment in South Asia. New Delhi: Vistaar Publications; 1996

[5] Sudarshan R.M. Enabling Women's Work. International Labor Organisation, Asia-Pacific Working Paper Series, October; 2014.

[6] Asia South Pacific Bureau of Adult Education (ASPBAE). Women's empowerment in South Asia: Concepts and practices, New Delhi: ASPBAE, Food and Agriculture Organization (FAO); 1993.

[7] Batliwala S. When rights go wrong. Seminar 2007; 569: 89–94.

[8] Cornwall A, Edwards J. Introduction: Negotiating empowerment, IDS Bulletin 2010; No. 2, 41.

[9] Kabeer N. Contextualizing the economic pathways of women's empowerment. Findings from a multi-country research programme Pathways Policy Paper. Brighton: Institute of Development Studies; 2011.

[10] Samanta R.K. Empowering Women: Key to Third World Development;1999. https://books.google.co.in/books/about/Empowering_Women.html?id=2MPcElWGWO4C&redir_esc=y. Accessed on 8 December 2015.

[11] Tinker I. Adverse Impact of Development on Women. In: Tinker I., Bo M., eds., Women and World Development. Washington D.C.: American Association for the Advancement of Science, Overseas Development Council; 1976.

[12] UNDP. Human Development Report 1995. New York: Oxford University Press.

[13] Kabeer N. Women's Economic Empowerment and Inclusive Growth: Labour Markets and Enterprise Development, SIG Working Paper 2012/1, http://www.idrc.ca/EN/Documents/NK-WEE-Concept-Paper.pdf. Accessed on 2 December 2015.

[14] Alsop and Heinsohn. Measuring empowerment in practice: structuring analysis and framing indicators World Bank Policy Research Working Group Paper 3510. Washington: World Bank; 2005.

[15] World Bank. World Development Report, 2012. Gender equality and Development Washington: World Bank; 2012.

[16] Inter-American Development Bank.Operational Policy on Gender Equality in Development. Washington: Inter-American Development Bank; 2010.

[17] United Nations. Guidelines on women's empowerment for the UN Resident Coordinator System. Secretariat of the UN Inter-Agency Task Force on the Implementation of the ICPD Program of Action. New York: United Nations; 2001.

[18] Planning Commission, Government of India (GOI). Twelfth Five Year Plan 2012–2017, Volume III. New Delhi; 2013.

[19] OECD. Women's Economic Empowerment, The OECD DAC Network on Gender Equality (GENDERNET); 2012. Available on http://www.oecd.org/dac/povertyreduction/50157530.pdf. Accessed on 2 December 2015.

[20] Tansel A. Economic development and female labor force participation in Turkey: Time-series evidence and cross-province estimates, ERC Working Papers in Economics, Economic Research Centre. Ankara: Middle East Technical University; 2001.

[21] Ejaz M. Determinants of female labor force participation in Pakistan: An empirical analysis of PSLM (2004–05) Micro Data, The Lahore Journal of Economics 2007; 2, Special Edition: 204–35.

[22] Psacharopoulos G., Tzannatos Z. Female labour force participation: An international perspective, World Bank Research Observer 1989; 4, No. 2: 187–201.

[23] Duraisamy P. Changes in returns to education in India, 1983–94: By Gender, age-cohort and location, Centre Discussion Paper, No. 81. Connecticut: Economic Growth Centre, Yale University; 2000.

[24] Psacharopoulos G. Returns to investment in education: A global update, World Development 1994; 22, No. 9: 1325–43.

[25] Schultz T.P. Human capital Investment in women and men: Micro and macro evidence of economic returns, Occasional Papers, No. 44. San Francisco: International Centre for Economic Growth; 1994.

[26a] OECD. Women's economic empowerment. Issues paper Paris: OECD-DAC GENDERNET; 2011. Available on http://www.oecd.org/dac/povertyreduction/50157530.pdf

[26b] OECD. Poverty Reduction and Pro-Poor Growth: The Role of Empowerment. OECD Publishing; 2012.

[27] Aggarwal B. Gender Challenges: Property, Family, and the State, Vol. 2. New Delhi: Oxford University Press; 2016.

[28] Mies, M., K. Lalita, and K. Kumari. 1986. Indian Women in Subsistence and Agricultural Labor. Geneva: International Labor Organisation.

[29] Aganon M.E. Survey Report (Integrated), Changing Labour Market and Women Empowerment, Japan: Asian Productivity Organisation; 2000.

[30] B.M.B. and Femconsult. Thematic Evaluation on the Integration of Women in Rural Development: Report on Field Mission to the Rural Water Supply Program. Brussels: Swaziland Directorate General for Development, European Community; 1990.

[31] Clever K., Schreiber G. Reversing the spiral: the population, agriculture and environmental nexus on sub-sahara Africa. The World Bank. 1994.

[32] Department for International Development (DFID). Key messages from the consultation on women's economic empowerment, 2010. (Unpublished. as cited in OECD 2012).

[33] Kabeer N., Kabir A.H., Huq T.Y. Quantifying the impact of social mobilization in rural Bangladesh IDS Working Paper No. 333. Brighton: IDS; 2009.

[34] Quisumbing A. Household decisions, gender and development. A synthesis of recent research Washington: IFPRI; 2003.

[35] Kabeer N. Mainstreaming gender in poverty eradication and the Millennium Development Goals London: Commonwealth Secretariat/IDRC Publication; 2003.

[36] Dwyer D., Bruce J., eds. A home divided: women and income in the Third World Stanford University Press; 1988.

[37] DeAnne A., Hoteit L., Rupp C., et al. Empowering the Third Billion. Women and the World of Work in 2012. Booz and Company.

[38] Golla. et al. Understanding and measuring women's economic empowerment. Definition, framework, indicators. Washington DC: International Centre for Research on Women; 2011

[39] UNDP. Innovative approaches to promoting women's economic empowerment. New York: UNDP; 2008.

[40] OECD. Report on the Gender Initiative: Gender Equality in Education, Employment and Entrepreneurship, Meeting of the OECD Council at Ministerial Level Paris, 25–26 May 2011.

[41] Tornqvist A., Schmitz C. Women's economic empowerment: scope for Sida's engagement Working Paper December. Stockholm: SIDA; 2009.

[42] Woytek K. E., et.al. Women, Work, and the Economy: Macroeconomic Gains from Gender Equity, IMF Discussion Note, SDN/13/10, September 2013.

[43] Cuberes D., Teignier M. Gender Gaps in the Labor Market and Aggregate Productivity. Sheffield Economic Research Paper SERP 201201; 2012.

[44] IMF. Country Report No. 12/208. Japan (Washington); 2012.

[45] Steinberg C., Nakane M. "Can Women Save Japan?" IMF Working Paper 12/48 (Washington); 2012.

[46] Heintz J. Globalization, Economic Policy and Employment: Poverty and Gender Implications. Geneva: International Labour Organization; 2006.

[47] Miller, G. Women's Suffrage, Political Responsiveness, and Child Survival in American History. The Quarterly Journal of Economics 2008 (August): 1287–326.

[48a] Stotsky J. Gender Budgeting, Washington: IMF; 2006, Working Paper 06/232.

[48b] Stotsky J. Gender and Its Relevance to Macroeconomic Policy: A Survey. Washington: IMF; 2006, Working Paper 06/233.

[49] Blackden M., Hallward-Driemeier M. Ready to Bloom? Finance & Development ;. International Monetary Fund; June 2013

[50] Committee for Economic Development (CED). Fulfilling the Promise: How More Women on Corporate Boards Would Make America and American Companies More Competitive. Washington; 2012.

[51] Center for Advanced Human Resource Studies (CAHRS). Re-Examining the Female Path to Leadership Positions in Business. Cornell University; 2011.

[52] Lord Davies of Abersoch. Women on Boards 2013: Two Years On. Government of the United Kingdom; 2013.

[53] Coates J.M., Herbert J. Endogenous Steroids and Financial Risk Taking on a London Trading Floor; 2008, PNAS, 105, No. 15: 6167–172.

[54] Deszo C., Ross D. Does Female Representation in Top Management Improve Firm Performance? A Panel Data Investigation. RHS Research Paper; 2011 06–104.

[55] McKinsey and Company. A Business Case for Women. The McKinsey Quarterly; September 2008.

[56] Catalyst. The Bottom Line: Connecting Corporate Performance and Gender Diversity. Catalyst, New York, San Jose, and Toronto; 2004.

[57] World Bank.World Development Report 2006. Equity and development. Washington: World Bank; 2006.

[58] Fleming R., Spellerberg A. Using Time Use Data, A History of Time Use Surveys and Uses of Time Use Data, Statistics New Zealand; 1999.

[59] UNDP. Human Development Report. New York: UNDP; 1995.

[60] Samantroy E., Khurana S. Capturing Unpaid Work: Labour Statistics and Timeuse surveys. http://www.academia.edu/9987959/Capturing_Unpaid_Work_Labour_Statistics_and_Time_Use_Surveys. Accessed on 5 December 2015.

[61] Gross J., Swirski B. Time Use Surveys and Gender Equality; https://www.google.co.in/search?q=Time+Use+Surveys+and+Gender+Equality%2C&oq=Time+Use+Surveys+and+Gender+Equality%2C&aqs=chrome..69i57.1791j0j7&sourceid=chrome&es_sm=93&ie=UTF-8. Accessed on 5 December 2015.

[62] Indira H. Time Use Studies: Conceptual and Methodological Issues with Reference to the Indian Time Use Survey. http://www.undp.org/content/dam/india/docs/time_studies_conceptual_methodological_issues_reference_indian_time_survey.pdf. Accessed on 5 December 2015.

[63] Pandey R.N. Conducting The Time Use Survey - Indian Experience; 2000. http://unstats.un.org/unsd/demographic/meetings/egm/TUse_1000/india.pdf. . Accessed on 27 December 2015.

[64] Office of the Registrar General and Census Commissioner, Government of India. SRS Statistical Report, 2013. India: Ministryof HomeAffairs; 2013.

[65] Bhat M. Demographic scenario, 2025; 1999. http://planningcommission.nic.in/reports/sereport/ser/vision2025/demogra.pdf. Accessed on 26 February 2015.

[66] Priya P., Aggarwal A. India's two-speed demography, The Financial Express, 16 January 2015.

[67] Joshi S. The Ageing Societies vis-a-vis the Workforce Bulge: A Window of Opportunity for India. In: Alam M., Barrientos A., eds., Demographics, Employment and Old Age Security: Emerging Trends and Challenges in South Asia. New Delhi: Macmillan India; 2010.

[68] ADB. ASEAN and Japan High Level Meeting on Caring Societies. Tokyo; 28 August 2007.

[69] Klasen S., Pieters J. Push or Pull? Drivers of Female Labour Force Participation during India's Economic Boom. IZA Discussion Papers 6395. Germany: Institute for the Study of Labour (IZA); 2012.

[70] Bhalla S., Kaur R. Labour force participation of women in India: Some facts, some queries. Working Paper No. 40. London, Asia Research Centre: London School of Economics and Political Science; 2011.

[71] Mazumdar I., Neetha N. Gender Dimensions: Employment trends in India 1993–94 to 2009–10. Economic And Political Weekly 2011; XLVI, No. 43: 18–26.

[72] Hirway I. Missing Labour Force-An Explanation. Economic and Political Weekly 2012; 47, No.37: 67–72.

[73] Rustagi P. Changing Patterns of Labour Force Participation and Employment of Women in India.The Indian Journal of Labour Economics; 2013, 56, No. 2.

[74] Singh BP., Singh S. Planning and the Plight ofFemale Rural Labour in India. In: Sharma A.N., Singh S., eds. Women and Work: Changing Scenario in India. New Delhi: Indian Society of Labour Economics and B.R. Publishing Corporation; 1992.

[75] Kundu A. New Economic Policy and Urban Poverty in India. In: Rao C.H., Linnemann H., eds. Economic Reforms and Poverty Alleviation in India. New Delhi: Sage Thousand Oaks, London; 1996.

[76] Verick S. Female Labour Force Participation in Developing Countries. International Labour Organisationand IZA World of Labor; 2014.

[77] Beneria L. Accounting for women's work. In: Beneria L., ed. Women and development: The sexual division of labor in rural societies. New York: Praeger;1982, pp. 119–47.

[78] Chaudhary R., Verick S. Female Labor Force Participation in India and Beyond, ILO Asia-Pacific Working Paper Series, October 2014.

[79] Thomas J.J. India's labour market during the 2000s: Surveying the changes. Economic and Political Weekly 2012; 47, No. 51: 39–51.

[80] Das M.B. Do traditional axes of exclusion affect labour market outcomes in India? Social Development Papers, South Asia Series, No. 97. Washington DC: World Bank; 2006.

[81] Sethuraman S.V. Gender, informality and poverty: A global review, ILO Working Paper. Geneva: ILO; 1998.

[82] Ghosh J. Never done and poorly paid: Women's work in globalizing India. New Delhi: Women Unlimited Press; 2009.

[83] Tansel A. Economic development and female labor force participation in Turkey: Time-series evidence and cross-province estimates, ERC Working Papers in Economics, Economic Research Centre. Ankara: Middle East Technical University; 2001.

[84] Ejaz M. Determinants of female labor force participation in Pakistan: An empirical analysis of PSLM (2004-05) Micro Data.The Lahore Journal of Economics; 2007, 2, Special Edition: 204–35.

[85] Psacharopoulos G., Tzannatos Z. Female labour force participation: An international perspective. World Bank Research Observer; 1989, 4, No. 2: 187–201.

[86] Duraisamy P. Changes in returns to education in India, 1983–94: By Gender, age-cohort and location, Centre Discussion Paper, No. 815. Connecticut: Economic Growth Centre, Yale University; 2000.

[87] Psacharopoulos G. Returns to investment in education: A global update. World Development; 1994, 22(9): 1325–43.

[88] Schultz T.P. Human capital Investment in women and men: Micro and macro evidence of economic returns, Occasional Papers, No. 44. San Francisco: International Centre for Economic Growth; 1994.

[89] Goldin C. The U-shaped female labour force functions in economic development and economic history, NBER Working Paper No. 4707. Cambridge: National Bureau of Economic Research; 1994.

[90] Mammen K., Paxson C. Women's work and economic development. Journal of Economic Perspectives; 2000, 14(4): 141–64.

[91] Blau F.D., Kahn L.M. Change in the Labor Supply Behavior of Married Women: 1980–12000. Journal of Labor Economics; 2007, 25(3): 393-438.

[92] Desai S., Dubey A., Joshi B.L., et al. Human Development in India: Challenges for a Society in Transition. New Delhi: Oxford University Press; 2010.

[93] Mazumdar S., Guruswamy M. Female Labour Force Participation in Kerala: Problems and Prospects. Paper to be presented at the forthcoming 2006 Annual Meeting Program Population Association of America Westin Bonaventure, Los Angeles, California, 30 March to 1 April, 2006.

[94] Klasen S., Pieters J. What Explains the Stagnation of Female Labor Force Participation in Urban India? IZA DP No. 7597; 2013.

[95] Panda P.K. Poverty and young women's employment: Linkages in Kerala. Working Paper. Thiruvananthapuram: Centre for Development Studies; 1999.

[96] Rustagi P. Changing Patterns of Labour Force Participation and Employment of Women in India. The Indian Journal of Economics 2013: 56(2).

[97] Sorsa P, et al. Determinants of the Low Female Labour Force Participation in India. Economics Department Working Paper No. 1207, OECD; 2015.

[98] Bardhan P.K. Labour supply functions in a poor agrarian economy. American Economic Review; 1979, 69(1): 73–83.

[99] Cunningham W.V. Breadwinner versus caregiver: Labour force participation and sectoral choice over the Mexican business cycle. In: Katz E.G., Correia M.C., eds. The economics of gender in Mexico: Work, family, state, and market. Washington DC: World Bank; 2001, pp. 85–132.

[100] Dasgupta P., Goldar B. Female labour supply in rural India: An econometric analysis, Working Paper. New Delhi: Institute of Economic Growth; 2005.

[101] Masood T., Ahmad I. An econometric analysis of inter-state variation in women's labour force participation in India, MPRA Paper No. 19297. Munich Personal RePEc Archive. Aligarh: Aligarh Muslim University; 2009. http://mpra.ub.unimuenchen.de/19376/1/MPRA_paper_19376.pdf. Accessed on 10 February 2016.

[102] Baaale E. Female Education, Labour-force Participation and Fertility: Evidence from Uganda.

[103] Statistics Division, Government of India. Health and Family Welfare Statistics in India 2013, New Delhi: Ministry of Health and Family Welfarre; 2013.

[104] Boserup E. Women's Role in Economic Development. New York: St Martin's Press; 1970.

[105] Fatima A., Sultana H. Tracing out the U-shape relationship between female labor force participation rate and economic development for Pakistan. International Journal of Social Economics; 2009, 36,1/2: 182–98.

[106] Pampel F.C., Tanaka K. Economic development and female labour force participation: A reconsideration. Social Forces; 1986, 64(3): 599–619.

[107] Schultz T.P. Women's changing participation in the labour force: A world perspective. Economic Development and Cultural Change; 1990, 38(3): 457–88.

[108] Gaddis I., Klasen S. Economic development, structural change, and women's labor force participation. Journal of Population Economics; 2014, 27(3): 639–81.

[109] Lahoti R., Swaminathan H. Economic Growth and Female Labour Force Participation in India. Working Paper No: 414. Bangalore: Indian Institute of Management Bangalore.

[110] Özsoy C., Atlama S. An Analysis of Trends in Female Labor Force Participation in Turkey. http://www.eco.u-szeged.hu/download.php?docID=40425. Accessed on 26 April 2016.

[111] Pissarides C., et al. "Women in the Labour Force: How Well is Europe Doing?", paper presented at the Fifth European Conference of the Fondazione Debenedetti, www. frdb.org, 2003.

[112] Thévenon O. Drivers of Female Labour Force Participation in the OECD , http://www.oecd-ilibrary.org/social-issues-migration-health/drivers-of-female-labour-force-participation-in-the-oecd_5k46cvrgnms6-en. Accessed in 2016.

[113] Thompson G.R., Black H. "The Relationship between Labour Force Participation and Service Sector Employment," Journal of Regional Science; 1975, vol. 15, No.1.

[114] Warren R.S., Gilory C.L. "The Relationship beween Labour Force Particiaption and Service sector Employment: A Reformulation", Journal of Regional Science; 1976, vol. 16, No. 3.

[115] Wheat L.F. "The Relationahip between Labour Force Particiaption and Service Sector Employment: Empirical Findings," Journal of Regional Science; 1977, vol. 17, No. 3.

[116] Nord S. "The Relationships Among Labour Force Paticipation and Service Sector Employment and Underemployment," Journal of Regional Science; 1989, vol. 29, No. 3.

[117] Rahşan Akbulut Chapman University, Sectoral Changes and the Increase in Women's Labor Force Participation, http://digitalcommons.chapman.edu/cgi/viewcontent.cgi?article=1014&context=business_articles. Accessed on 26 February 2016.

[118] Joshi S. "Human Development and Tertiary Employment in Developing Countries," Indian Journal Of Labour Economics, Oct–Dec; 2004, vol. 47, No. 4, pp. 721–30.

[119] Mitra A. "Rural-to-Urban Migration, Urban Workforce and Tertiary Sector Employment: Inter-Relationship," Arth Vijnana, June; 1992, vol. 34, No. 2.

[120] Anonymous. Achieving stronger growth by promoting a more gender-balanced economy; 2014. http://www.oecd.org/g20/topics/employment-and-social-policy/ILO-IMF-OECD-WBG-Achieving-stronger-growth-by-promoting-a-more-gender-balanced-economy-G20.pdf. Accessed on 8 November 2015.

[121] Barrington L., et al. Workforce Diversity and Productivity: An Analysis of Employer-EmployeeMatchedData, 2001. http://www.researchgate.net/publication/4825660_Workforce_Diversity_and_Productivity_An_Analysis_of_Employer-Employee_Match_Data. Accessed on 8 November 2015.

[122] Petersen T. et al. Are Female Workers Less Productive Than Male Workers? Working Paper 139-06. Berkely: Institute for Research on Labour and Employment, Berkely, University of California; 2006. www.irle.berkeley.edu/workingpapers.

[123] Shaw Kathryn. Women's Contribution to Productivity. Q1 Regional Review 2005. https://www.bostonfed.org/economic/nerr/rr2005/q1/section4a.pdf. Accessed on 8 November 2015.

[124] Woytek K.E., et al. Women, Work, and the Economy: Macroeconomic Gains From Gender Equity. IMF Staff Discussion Note; 2013.

[125] Young M.E., Richardson L.M. Early Child development: From Measurement to Action. Washington D.C: The World Bank; 2007.

[126] Joshi S.What is Youth Bulge Calling for in India? World Sustainable Development Outlook. UK: World Association for Sustainable Development Publishers; 2013.

[127] Heckman J.J., Masterov D.V., The Productivity Argument for investing in young Children: Working Paper 5. Washington DC: Committee for Economic Development, Invest in Kids Working Group; 2004.

[128] Friedman D.E. New Economic Research on the Impact of Preschool. Issue brief prepared on behalf of Smart Start's National Technical Assistance Center for the 2005 Learning Community on Early Childhood Finance Reform. www.earlychildhoodfinance.org/handouts. Accessed on 8 November 2015.

[129] Heckman J.J. Invest in the very young. Chicago: Ounce of Prevention, 2000. www.ounceofprevention.org. Accessed on 8 November 2015.

[130] Loko B., Diouf M.A., Revisiting the Determinants of Productivity Growth: What's New? WP/09/225. Washington: IMF; 2009.

[131] McGuckin R., Ark B.V. Productivity and participation: an international comparison. Research Memorandum GD-78, Groningen Growth and Development Centre; 2005

[132] De Jong A., Tsiachristas A. Can labor force participation growth and productivity growth be combined? Spring review by the SYSDEM correspondent for the Netherlands, European Employment Observatory; 2008.

[133] Choudhary M.T. Determinants of Labor Productivity: An Empirical Investigation of Productivity Divergence; 2009.

[134] Oliner S.D., Sichel D.E. Information technology and productivity: where are we now and where are we going? Finance and Economics Discussion Series 2002–29, Board of Governors of the Federal Reserve System (U.S.); 2002.

[135] Roeger W. The contribution of information and communication technologies to growth in Europe and the United States: a macroeconomic analysis. Economic Papers No. 147. Brussels: European Commission; 2001.

[136] Gust C., Marquez J. International Comparisons of Productivity Growth: The Role of Information Technology and Regulatory Practices. Labour Economics; 2004, vol. 11.

[137] Klasen S., Pieters J. What Explains the Stagnation of Female Labor Force Participation in Urban India? IZA Working paper 7597, IZA, Bonn; 2013.

[138] Agenor P.R., Canuto O. Gender Equality and Economic Growth in Brazil, 2013. Poverty Reduction And Economic Management (Prem) Network; http://siteresources.worldbank.org/EXTPREMNET/Resources/EP109.pdf. Accessed on 27 February 2016.

[139] Miller H. What are the features of urbanisation and cities that promote productivity, employment and salaries? http://r4d.dfid.gov.uk/pdf/outputs/EPS/What_are_the_features_of_urbanisation_and_cities_that_promote_productivity_employment_and_salaries.pdf. Accessed in 2014.

[140] Mitra A. Agglomeration Economies and Wellbeing: Evidence from India, Athens Journal of Health March; 2014.

[141] Statistics Division, Government of India. Health and Family Welfare Statistics in India 2013, New Delhi: Ministry of Health and Family Welfarre; 2013.

[142] Poirson H. Factor Reallocation and Growth in Developing Countries. IMF Working Paper No. 00/94. Washington: International Monetary Fund; 2000.

[143] Jaumotte F., Spatafora N. Asia Rising: A Sectoral Perspective. IMF Working Paper No. 07/130. Washington: IMF; 2007.

[144] Department of Economic Affairs, Economic Division Government of India (GOI). Economic Survey. New Delhi: Ministry of Finance; 2013–14.

[145] Sharma A.N. Recent Trends in Indian Labour Market and Emerging Issues of Employment and Income Security. Paper presented at a National Workshop on Employment and Social Security for unorganized Sector Workers organized by Institute for Human Development, New Delhi, 22–23 June 2006.

[146] Mitra A. Urban Informal Sector in India, Yojana, October; 2014.

[147] Unni J. Women Workers in Agriculture: Some Recent Trends. In: Papola T.S., Alakh N.S. eds. Gender and Employment in India. New Delhi: Indian Society of Labour Economics and Vikas Publishing House; 1999.

[148] National Commission for Enterprises in the Unorganised Sector. Report on Conditions of Work and Promotion of Livelihoods in the Unorganised Sector, New Delhi;2007.

[149] Sriram R., Ganpathy H. The Unresolved Dilemma: Child Care Options in Agricultural Contexts.Economic and Political Weekly, October; 1997, 32(43).

[150] Vijayabhaskar M. Garment Industry in India. In: Joshi G. ed. Garment Industry in South Asia: Rags to Riches: Competitiveness, Productivity and Job Quality in Post-MFA Environment. New Delhi: ILO South-Asia Advisory Team; 2002.

[151] Breman J. Footloose Labour: Working in India's Informal Economy. Cambridge University Press; 1996.

[152] Roy A. Breaking the Shackles: Kol Tribal Labourers. Economic and Political weekly, Feb 5–11; 2000, 35(6).

[153] Kalpagam U. Globalisation, Liberalisation and Women Workers in the Informal Sector. In: Kundu A., Sharma A.N. eds. Informal Sector in India: Perspectives and Policies, New Delhi: Institute for Human Development; 2001.

[154] Planning Commission, Government of India (GOI). Eleventh Five Year Plan 2007–2012, Volume –II. New Delhi; 2008.

[155] OECD. Report on the Gender Initiative: Gender Equality in Education, Employment and Entrepreneurship. Meeting of the OECD Council at Ministerial Level. Paris, 25–26 May 2011.

[156] Kanan K.P. The Long Road To Social Security. Paper 2; Trivandrum: Centre for Development Studies; 2010.

CHAPTER 3

FLFP IN INDONESIA

Dr. Lilis Heri Mis Cicih
Lecturer and Researcher, Faculty of Economics and Bussiness
Universitas Indonesia

Indonesia is well known as a country with the fourth-largest population in the world. Its population stood at 255 million in 2015 [1], having increased around 15 million compared with 239 million in 2010 [2]. The largest part of the population is in the working age of 15–64 years. In 2015, it clocked 184.60 million, having increased by 1.61 million in six months (from 182.99 million) and by 3.43 million in one year (from 181.17 million) [3].

This chapter emphasizes upon the labor status in Indonesia's workforce and the government policies formed in order to enhance their participation and productivity. It also analyzes the female labor force participation (FLFP) and its impact on productivity enhancement, by empowering women both within and outside the household. Desk research method has been used to analyze the data collected from several previous studies and other documents. The report uses both primary and secondary data, and also refers to both national and global literature available on the subject.

There are many sources of labor market information in Indonesia. The common ones include labor force surveys, population censuses, national social economic surveys, establishment surveys, and administrative records. Each source comes with its own strengths and limitations [10]. The secondary data includes data from population census and national-level sample surveys on labor force, employment and unemployment, national accounts data, and sector-specific data such as agriculture and manufacturing.

1. Analytical Framework

1.1 Frameworks of Women's Empowerment

In the Indonesian context, generally women are more vulnerable to chronic poverty due to persistent gender inequalities in areas such as income distribution, access to credit, control over property and natural resources, and access to employment and livelihood opportunities.

With regard to the conditions at work, women's status in the labor market is inferior to that of men in most of the countries in the world, according to key indicators such as occupational distribution, earnings, the natures and terms of employment, and unemployment. In the labor force, women and men typically perform different tasks and are located in different industries and occupational sectors. Occupational segregation by sex is extensive in both developed and developing countries. Approximately half of all workers in the world are in occupations where at least 80% of workers are of the same sex. In many countries, occupational segregation is significantly higher for the least-educated workers than for those having higher education status [16].

Women are also more vulnerable to poverty and the risks associated with economic and other shocks to household livelihoods, especially when programs do not account for these gender differences. For

example, social protection and safety net programs often exclude women by failing to account for gender differences in labor market participation, access to information, unpaid care responsibilities, and property rights. Therefore, one of the highest priorities to improve the conditions of work would be to provide social protection for workers in that sector, particularly for countries with large informal economies [16].

One of the studies examines the overlap of gender, social protection, and decentralization processes [17]. It reviews the extent to which social protection strategies and programs in Indonesia are effectively addressing gender inequities, with a particular focus on the political economy dynamics of implementation at the subnational level. A summary and policy implication of the study is: "That social protection programme in Indonesia has a limited role in addressing gendered risks and vulnerabilities. Given poor understanding of gender at all levels, make further investment in sensitization and capacity building. Support from central government and donors toward capacity building should not be limited to government officials but extended to other stakeholders, in particular to non-governmental actors, including NGOs and religious organizations, which are more likely to transfer lessons on a larger scale to society."

An important intervention to enable women to participate in paid employment is the expansion of national policies and programs to provide support for care of children, people with disabilities, and the older people. In most industrialized countries, the governments accept some public responsibility for sharing the cost of rearing their nations' children, and they have developed comprehensive family policies. Many developing countries also support childcare and early education services, especially targeted at poor children, recognizing the value of early education. "Yet, no single country provides the investment in care services that is required to fully meet the needs of women and their children" [16]. A common intervention to improve pay and working conditions is the passage and implementation of equal-opportunity or anti-discrimination legislation. This includes family leave policies, equal-pay and equal-opportunity laws and policies, and legislation guaranteeing rights at work [16].

There are five priority areas to ensure women's equal participation in all aspects of life: increasing women's leadership and participation; ending violence against women; engaging women in all aspects of peace and security processes; enhancing women's economic empowerment; and making gender equality central to national development planning and budgeting [18].

To empower women, the Government of Indonesia, through the Ministry of Women's Empowerment (MOWE), ratified the International Convention in 1984. The ministry is tasked with reporting, implementation, and monitoring of state obligations on Convention on the Elimination of all Forms of Discrimination against Women (CEDAW). Additionally, a landmark Presidential Decree, issued in 2000, obliges all government agencies to include gender mainstreaming in their policies, programs, and budgets to eliminate gender discrimination, and to further support the advancement of gender equality. Specifically, the Medium Term National Development Plan identifies gender as a cross-sectoral issue [19].

Meanwhile a 'national vision' on women's empowerment has brought the realization of gender equality to a state and community level, focusing on the improvement of women's quality of life, raising public awareness about gender equality and justice, eliminating violence against women, and their promotion and protection. In the implementation, many NGOs working on gender equality issues have played instrumental roles in lobbying the government and the National Assembly to

amend discriminatory legislation and enact new laws that address women's rights including the drafting of Gender Equality Law [20].

Generally, in Indonesia, gender inequalities exist in entry to work, conditions at work, and in exit from the labor market. Some barriers to entry of women and girls to the labor market are early marriage, early childbearing, and low education. One barrier to entry that has remained the most resistant to change is women's responsibility for providing care for children, the older people, and the sick. The constraints on women's entry into paid employment and their job opportunities include the presence of young children and a lack of childcare options. Other issues are related to increased migration and the breakdown of extended families. Changing social arrangements in some parts of the world have made the extended family a less reliable resource for childcare than before, which necessitates provisioning of other types of care services [16].

To reduce these barriers, the creation of new employment opportunities and increasing women's education are considered by many countries. Since these barriers could be reduced with women entering employments, so it is important to increase women's access to post-primary, vocational, and technical education and to improve the quality of education. There is a need to increase girls' enrolments and achievements in post-primary education in maths, science, and technical courses [16].

One NGO saw women's empowerment through the lens of poor women's struggles to achieve their full and equal human rights. In these struggles, women strive to balance practical, daily, and individual achievements with strategic, collective, and long-term work to challenge biased social rules and institutions. Accordingly, CARE defines women's empowerment as the sum total of changes needed for a woman to realize her full human rights [21]. Another definition says, "Women empowerment is achieved when women and girls acquire the power to act freely, exercise their rights, and fulfil their potential as full and equal members of society." "While empowerment often comes from within, and individuals empower themselves, cultures, societies, and institutions create conditions that facilitate or undermine the possibilities for empowerment." [22]

The UNICEF has adopted the Women's Empowerment Framework, as an appropriate approach to be used in mainstreaming gender. Based on this framework, women's development can be viewed in terms of five levels of equality of empowerment, which is an essential element at each level. The levels are [23]:

1. **Welfare:** This addresses only the basic needs of women, without recognizing or attempting to solve the underlying structural causes that necessitate provision of welfare services. Women are merely passive beneficiaries of welfare benefits.

2. **Equality of access:** Access to resources such as educational opportunities, land, and credit is essential for women to make meaningful progress. The path of empowerment is initiated when women recognize lack of access to resources as a barrier to their growths and overall well-being, and take actions to redress this barrier.

3. **Awareness-raising:** For women to take appropriate action to close gender gaps or gender inequalities, there must be recognition that their problems stem from inherent structural and institutional discriminations.

4. **Participation:** This is the point where women take decisions equally alongside men. Mobilization is necessary in order to reach this level. Women will be empowered to gain

increased representation by organizing themselves and working collectively, which will lead to increased empowerment and ultimately stronger control.

5. **Control:** This is the ultimate level of equality and empowerment, where there is a balance of power between women and men and neither has dominance. Women are able to make decisions regarding their lives and the lives of their children and play an active role in the development process. The contributions of women are fully recognized and rewarded.

The study in Indonesia was conducted to examine whether education empowers women. It exploited an exogenous variation in education induced by a longer school year in 1978, which fits a fuzzy regression discontinuity design. The conclusion of the study was that education reduces the number of live births, increases contraceptive usage, and promotes reproductive health practices. However, the study did not find evidence that education improved women's decision-making authority within households, asset ownership, or community participation. It suggested that, to some extent, education does empower women in middle-income countries like Indonesia. In the context of women empowerment, the governments in Indonesia should consider expanding and improving their education systems further [24].

In many countries, increasing educational attainment rates among women has contributed to higher employment rates, better earnings, and greater career progressions. Nowadays, in OECD countries, new female entrants in the labor market have comparable and often higher education than their male counterparts [25].

Another study analyzed women empowerment in Indonesia, while considering the roles of social system, organizational support, communication behaviors (cosmopolitan, interpersonal, and media communications), and extension agents, and proposed a conceptual framework for future study. This study focused on aspects of communication behavior and empowerment of women farmers that were related to some variables that were the characteristics of women farmers. These included the social system, the availability of support organizations for agricultural businesses, and the empowerment of women farmers in agribusiness regarding their abilities to take decisions [26].

A women empowerment project named Papua Women's Empowerment (PAWE) was conducted in Papua and West Papua provinces. This aimed to increase women's awareness and participation in the decision-making and implementation of a large-scale national community-driven development (CDD) program called PNPM Mandiri. This was achieved by a combination of a grant program to organize women's capacity-building activities, and a training of 50 local facilitators (cadre members) whose mandate was to provide gender training to beneficiary women's groups and local government officials. In addition, it provided the women's groups with any support required in the design of their project proposals and the running of their group activities. An effectiveness review found evidence of a positive impact on women's awareness and increased participation in the PNPM Mandiri project. There was a positive change in other women's empowerment indicators related to the project intervention, such as the women's group participation and group enrolment, their self-confidence and the ability to overcome difficulties, and finally their vocational and entrepreneurial skills [27].

The programs on women empowerment mostly aim at increasing income of the poor women. One of the programs through microenterprise development, such as microfinance, assists poor and

landless women to enter self-employment or start their own businesses. "Attention also needs to be given to innovative savings and insurance instruments for low-income women" [16].

In an informal economy, women homeworkers and home-based women workers in micro and small enterprises also face challenges. "These types of women workers in the putting-out system undergo a highly exploitative situation; working for long hours and earning sub-minimum wages with little or no bargaining power, close to zero job security, poor occupational health and safety standards, and no legal recourse in Indonesia. This system violates fundamental economic and social rights of these workers" [28].

1.2 Labor Market Participation Framework

Based on the Economic Times, labor market is a place where workers and employees interact with each other. In the labor market, employers compete to hire the best, and the workers compete for the best satisfying job. The labor market includes the supply of labor by households and the demand for labor by firms [29].

Labor market, which is a market that distributes workers to jobs and coordinates employment decisions, in general, can be a market that brings together all the buyers (employers) and sellers (workers). The labor market problems that Indonesia has to face right now are: limited employment opportunities, low quality of labor force, relatively high unemployment rate, globalization effect on employment, and lack of awareness regarding the application of industrial relations.

In Medium Term Planning 2015–19, the Government of Indonesia developed a Labor Market Framework. The Framework needed to be developed if Indonesia were to take a more strategic approach to addressing labor market issues. As a comparison, there is the labor market framework in Yukon country [30]. Four pillars of labor market development help identify key labor market areas that need to be addressed to ensure that employers are able to find and attract qualified workers. The pillars are: training and development, recruitment, retention, and labor market information. These form the basis for developing five new strategies to help ensure that employers have the workforce they need to keep the economy strong. These are:

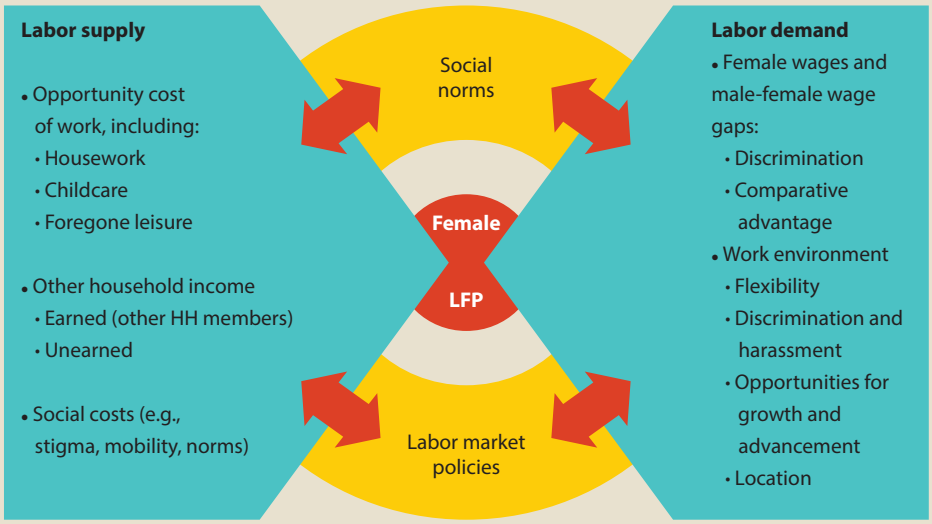
1. A comprehensive skills and trades training strategy.
2. An immigration strategy.
3. A national recruitment strategy.
4. An employee retention strategy.
5. A labor market information strategy.

Related to the labor market, we refer to the ILO that has a Key Indicators of the Labor Market (KILM) database. It is a comprehensive collection of labor market information that "can serve as a tool in monitoring and assessing many of the pertinent issues related to the functioning of labor markets." One such issue is equity in the labor market. The producers of the KILM acknowledge in the "Guide to understanding the KILM" that women face specific challenges in attaining decent work [28]. The KILM is a collection of key indicators of the labor market, covering employment and other variables relating to employment such as status, economic activity, occupation, and hours of work; employment in the informal economy; unemployment and the characteristics of the unemployed; underemployment; education; wages and compensation costs; and labor productivity and working poverty. Taken together, the KILM indicators provide a strong basis for assessing and addressing key questions related to productive employment and decent work. One of the gender studies in Indonesia is grounded by a supply-demand framework of FLFP as graphically illustrated in Figure 3-1 [31].

Figure 3-1 also highlights that there is a continuous feedback loop between supply-side and demand-side factors, social norms, and labor market policies. The multidirectional nature of these relationships makes it especially difficult to infer causality from observational correlations. For example, women with children are less likely to work compared to women without children, but it is difficult to know whether this is due to supply-side factors, e.g., a woman's time at home is more productive when there is a child to mind; or due to demand-side factors, e.g., employers are unwilling to hire new mothers, or due to both. Given this situation, high-quality empirical research that relies on natural experiments or randomized controlled trials is needed to cut through the feedback loops and shed light on causal relationships [31].

FIGURE 3-1

A CONCEPTUAL FRAMEWORK FOR FEMALE LABOR SUPPLY, INDONESIA



Source: Simone (2016)
HH = Household, LFP = Labor force participation

The study found that since rates of wage work increased with educational attainment, job placement services could pair well with vocational education initiatives. This would ensure that women have the skills they need to succeed on the job front as well as the resources to find a suitable job once those skills have been acquired. The diagnostic analysis suggests that such an approach could empower women while mobilizing them as a source of economic growth in Indonesia.

Based on an ILO study, in spite of an expansion of employment opportunities in the past decade, and significant gains in increasing girls' access to and participation in education, Indonesian women still do not participate equally in the labor market. Women workers continue to be concentrated in the informal economy, particularly as homeworkers and home-based workers in micro and small enterprises (MSEs), where wages, working conditions, and job security are typically poorer. Approximately one-third of working women are also engaged in unpaid work.

In addition, women continue to face significant cultural, social, economic, and religious barriers to employment and equal treatment in employment. Gender-based job segregation also tends to trap women in low-level jobs with minimal decision-making functions, which also impacts the perceived opportunities for younger generations entering the labor force.

Difficulties in Conceptualizing Women's Work

The labor force concepts in Indonesia are based on those of the ILO, which divides the population into two components: a working age group, and a nonworking age group. The working age population, in turn, is classified into two major categories: those in the labor force, and those not in the labor force. More specifically, definitions are as follows [32]:

1. **Working age population:** Persons who are 15-year-old and above.

2. **Labor force:** Persons 15-year-old and above, who in the previous week were working, temporarily absent from work but having jobs, or who did not have work and were looking for work.

3. **Not in the labor force:** Persons aged 15 years and above, but not classified in the labor force, such as students, housekeepers, or others, excluding personal activities.

4. **Working:** An activity done by a person who worked for pay or assisted others in obtaining pay or profit for the duration of at least one hour during the survey week. This includes an unpaid worker who helps an economic activity or business.

5. **Temporarily absent from work, but having a job:** An activity done by a person who had a job, but was temporarily absent from work for some reasons during the survey week. Examples are:
   a Government or private employees who had not been working for reasons such as on leave, sick, on strike, off work due to damaged machines or equipment, etc.
   b Farmers who had not cultivated their fields because of illness or were waiting for the next harvest season or for the rainy season to cultivate their fields.
   c Professional workers, such as puppeteers, barbers, masseurs, medicine men, or singers, who had not been working because of an illness, or because they were waiting for the next job, order, etc.

6. **Unemployment:** This refers to:

   a Persons without work but looking for work.
   b Persons without work who have established a new business or firm.
   c Persons without work who were not looking for work, because they did not expect to find work.
   d Persons who have made arrangements to start work on a date subsequent to the reference period.

7. **Looking for work:** The following persons, who during the survey, were looking for work, are included:

   a Those who had never worked and were looking for work.

   b Those who had work, but had resigned or were dismissed from work because of some reasons and were trying to look for work.

   c Those who work or have a job, but are still trying for another job because of some reasons. This activity is not limited to a week during the survey period, but also

applies to those who sent applications more than a week before the survey and were still expecting a job last week. Also, those who are working and still looking for work are not categorized under unemployment.

8. **Persons who established a new business or firm:** Those who established a new business or firm for obtaining profit at their own risks with or without paid or unpaid workers. Their efforts include collecting capitals, preparing equipments, looking for business location, and applying for business permission letter, among other things.

   This activity does not include persons who just have plans to, intend to, or are following a course or training to prepare a business or firm.

9. **Unemployment rate:** This is the percentage of unemployment devided by the number of people in the labor force.

10. **Less than normal working hours:** This refers to a person who worked less than the normal working hours, i.e., less than 35 hours a week. It consists of:

    a Underemployed: This is a person who worked below the normal working hours (less than 35 hours a week), and is still looking for a job or is available for work. It's also called involuntary underemployment.
    b Part-time worker: This is a person who worked below the normal working hours (less than 35 hours a week), but is not looking for a job or is unavailable for work. It's called voluntary underemployment.

11. **Students:** These are persons who were regularly attending a formal school, excluding students who were on school holidays.

12. **Housekeepers:** These are persons who were engaged in household duties in their own homes, or persons who helped in managing household chores without payment, e.g., housewives and their children who were doing household work. However, an activity undertaken by a servant is considered to be a work.

13. **Others:** These are persons performing activities other than the ones mentioned above, such as those who are retired and those who are disabled (deaf, mute, etc.).

14. **Total working hours:** These are total hours used by an employee to do one's job during a calendar week, excluding the time used for other activities that are not classified as work.
    Total working hours for street vendor merchants are calculated from the time they leave for work until they go back home. However, time spent on other activities like visits to relatives' or friends' houses must be deducted.

15. **Occupation:** This refers to the type of work carried out by a particular respondent, classified according to the KBJI 2002, which is referred to as ISCO 88.

16. **Net wage/salary:** This is the wage or salary normally collected for a period of one month from an enterprise, company or employer, after the deduction of compulsory contribution, income tax, etc.

17. **Employment status:** This is the status of a person at the place where one works. It has seven different categories:
    a Own-account worker, is a person who works at one's own risk without being assisted by a paid or unpaid worker using technical or skilled job.

    b Employer assisted by temporary workers or unpaid workers is a person who works at own risk and is assisted by one or more temporary or unpaid workers.

    c Employer assisted by permanent workers or paid workers is a person who runs one's business at own risk and is assisted by at least one paid permanent worker.

    d Employee is a person who works permanently for other people or an institution, office or company and gains some money or goods as wage or salary. A laborer who has no permanent employer is not categorized as a laborer, worker or employee but as a casual worker. Also, a laborer, in general, is considered to have a permanent employer if he or she had the same employer during the past month. For the building construction sector, the duration is three months, but if the employer is an institution, more than one month is admissible.

    e Casual employee in agriculture is a person who does not work permanently for other people, employers or institutions, i.e., has had more than one employer during the last one month in the agricultural sector, with remuneration paid in money or goods, based on a daily or contract payment system. Agricultural industry covers food-based agricultural, plantation, forestry, livestock, fishery, and hunting activities, and includes agricultural services.

    f Casual employee not in agriculture is a person who does not work permanently for other people, employers or institutions, i.e., has had more than one employer during the past one month in a non-agricultural sector and gets money or goods as wage or salary, based on a daily or contract payment system. The non-agricultural sectors include mining, manufacturing, electricity, gas and water, construction, trade, transportation, storage, communication, financing, insurance, real estate, business services, and community, social, and personal services.

    g Family/unpaid worker is a person who works for other people without being paid in cash or goods. Unpaid workers could be:
        - Family members who work unpaid for another person in the family, such as a wife or a child who help the husband or the father in the field.
        - Not a family member who works unpaid for another person but still has family relations, such as those who help their relatives to sell in a minimarket.
        - Other persons outside of family members or relatives who work unpaid for another person, such as a person who weaves hats for the neighbour's home industry.

The FLFP and the type of work that women do are especially important because the majority of Indonesian women work in the informal sector as self-employed, casual, or unpaid family workers [31]. In the Indonesia context, the housewife is a person who is engaged in household duties in her own home, or a person who helped in managing household chores without payment. This activity undertaken by a housewife is not considered work. By definition, working is an activity done by a person who worked for pay or assisted others in obtaining pay or profit for the duration of at least one hour during the survey week. This includes an unpaid worker who helps an economic activity or business. Based on this definition, women as housekeepers in their own houses are not defined as workers.

It is difficult to define women's work, because they play a double role. They not only perform economic activities, but also do household activities and take care of children, apart from reproduction. Although housewives' activities actually help earn incomes for households, those are not considered work, economically speaking.

Related to women and work issues [33], a World Bank study examined the meaning of work for women in the contemporary Indonesia. In Indonesia, the concept drawn from Western industrialized contexts converges with state, cultural, and religious discourses about gender roles, to exclude not only reproductive labor, but also significant proportions of economic activities, from official and popular definitions of work. It presents some issues such as the splits between work and life, and work and family; between paid work and housework, and paid work and child care; and between production and reproduction. In focusing on women's life experiences, they assume a broad meaning of the word work, including not only those activities that bring in income, but also home duties, childcare, healing, and civic work that fulfils obligations for maintaining social and community networks.

To look at the meaning of work for women in Indonesia [33], the study examines not only economic structures, but also how gender ideologies of the nation-state, organized religion, and the community shape public perceptions of women as workers. The aim here was to examine how cultural notions of gender-religious sensibilities, *adat* and ethic identities inform, constrain, and enable women's work. Some questions related to this are: how do state policies and programs intervene in women's working lives? How does working help Indonesian women construct their selves? How does working define Indonesia women within the family and the community? How are the worlds of home and work articulated? Does women's work straddle, separate, or conflate the public and private domains, if we can talk of such?

Indonesia is well-known for its ethnic and cultural diversity, being home to over 200 distinct ethnic groups scattered across more than 6,000 inhabited islands [34–35]. It is therefore difficult, and ultimately inaccurate, to make blanket statements about the Indonesian culture or the role of women in Indonesia [36], considering that women in some areas of the country have a great deal of autonomy and independence, while women in other areas are much more restricted.

Labor Force Participation and Workforce Participation

The empirical evidence presented in this section highlights some aspects of women employment in Indonesia. For example, FLFP and FWFP had been declining during the period 1993–94 to 2011–12 under consideration. FWFP declined for all age cohorts during 1999–2000 to 2011–12. While MLFP increased with educational levels, in case of women it increased only in case of highly educated women in 2011–12. However, though FWFP was declining, the share of educated women was gradually increasing for the period. Likewise, while there was a decline in the number of self-employed and casual workers, the share of regular workers increased. Among SEWs, the share of unpaid family workers declined but a slight increase in the share of OAWs was noted, thus reflecting a growing women's entrepreneurship, even if in petty businesses. Also, there was a decline in employment in the primary sector, a slight increase in manufacturing sector jobs, and increases in service sector jobs, both in rural and urban areas for the period 1999–2000 to 2009–10.

2. Demographic Scenario of Indonesia

Indonesia is the world's fourth-most populous country after China, India, and the USA. The Indonesian population was projected at 255 million in 2015 [1]. As per the census data, the

Indonesian population has continued to increase since 1971. The growth decreased significantly in the period 1991–2000, but increased again in the period 2000–2010.

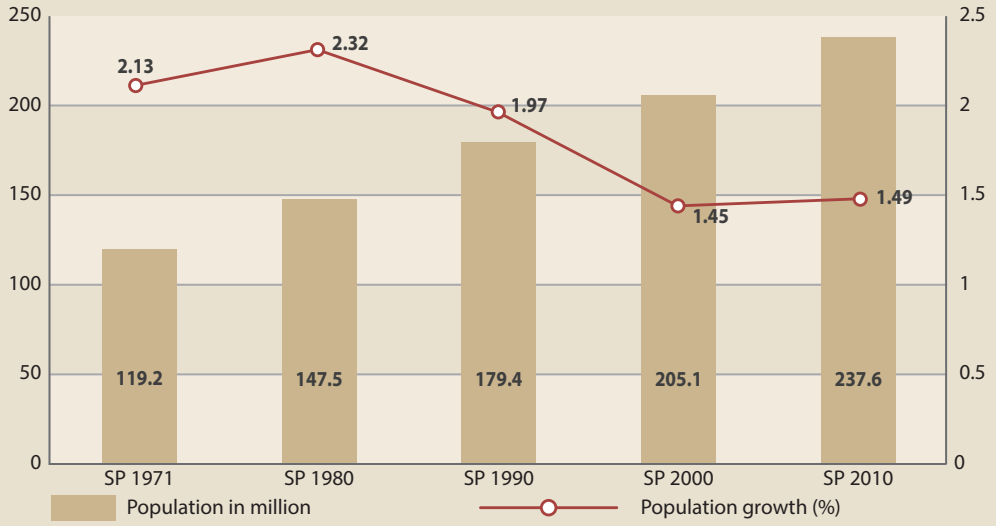
Based on Indonesian Demographic and Health Survey (IDHS) data, the total fertility rate (TFR) of Indonesia decreased from 3.0 births per woman in 1991 to 2.6 births per woman in 2012. This was much lower than in the early 1970s, when the Indonesian women had an average of five to six children [37]. The decrease in fertility reflects that Indonesia has been successful with its family planning program.

In the same timeframe, the mortality rate also decreased, as an important indicator of wellbeing. The IDHS data for 2007 and 2012 shows that infant mortality rate (IMR) has been stagnant at 19 per 1,000 live births, though it is much lower than IMR in 1990, when it was as high as 32 per 1,000 live births.

However, something of concern has happened on the maternal mortality rate (MMR) front, which had been declining until 2007, then increased again in 2012. The 1991 IDHS data shows that the MMR was around 390 per 1,000 live births, then decreased to 228 per 1,000 live births, but increased again to 359 per 1,000 live births in 2012. This signifies a challenge for the Indonesian government, which would need to find ways to improve the maternal health status.

FIGURE 3-2

NUMBER AND GROWTH OF POPULATION IN INDONESIA, 1971–2010



Source: Indonesian Population Census, 1971–2010 (BPS-Statistics Indonesia)
Note: SP=Sensus Penduduk (Population Census)

On the other hand, life expectancy at birth increased from 45.7 years in 1971 to 70.7 years in 2010 [37], and was projected to become 72 years in 2035 [2]. Life expectancy at birth increased for both men and women. For men, it increased from 58 years in 1990 to 69 years in 2010, while for women, it went up from 62 years in 1990 to 73 years in 2010. As evident, women's life expectancy is more than men's, which means that women generally live longer than men in Indonesia. The demographic transition has resulted in the age structure gradually shifting to higher-age groups. Figure 3-3, through various stages of demographic transition presented in the population pyramids, illustrates the process of change in the age structure.

FIGURE 3-3

POPULATION PYRAMIDS OF INDONESIA, 1971–2010 AND 2020–35

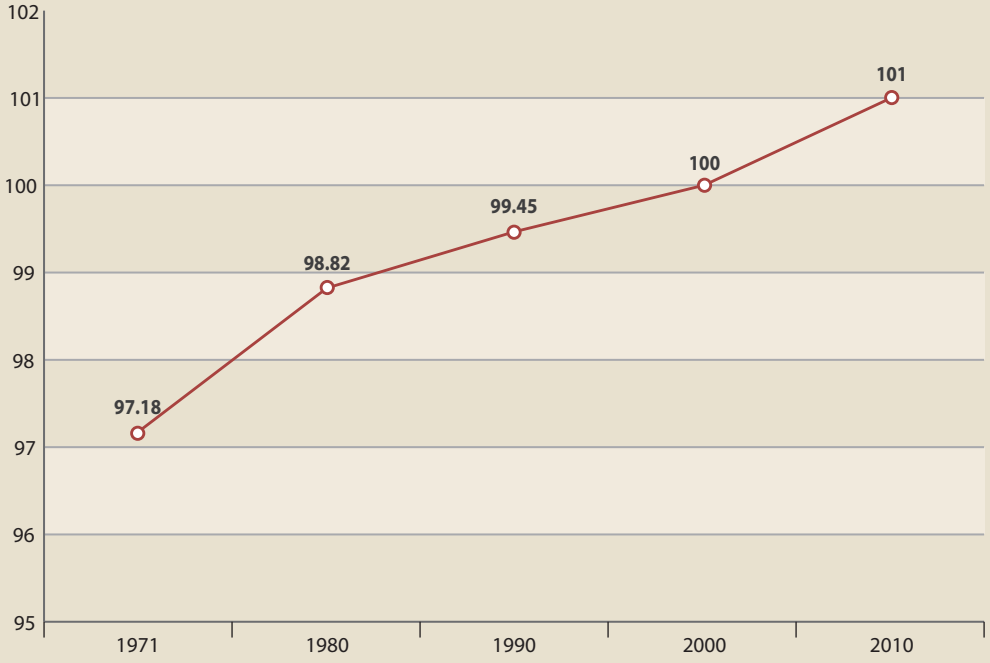
Source: Population Census 1971, 1990, and 2010; and Indonesia Population Projection 2010–35;

The changing shapes of the population pyramids over time provide a visual depiction of the changes in the age structures. From 1971 until 2035, it can be seen that the pyramids change gradually. The narrowing of the pyramids can be seen at the three bottom layers depicting ages up to 14 years, which reflects the declining fertility rates. At the same time, the top four layers of the pyramid depicting ages 60 and above become broader, which results from improving life expectancy [5].

If we look at the 2010 population pyramid, the total number of women was 118.0 million, which was less than the total number of men, 119.6 million. The number of men was particularly more than the number of women in age groups 0–19 years and 30–54 years. However, the number of women was more in age groups 60 years and above. Also, the sex ratio data indicates that the number of men in Indonesia is more than the number of women. The sex ratio increased from 97.18 men per 100 women in 1971 to 101 men per 100 women in 2010 (Figure 3-4).

FIGURE 3-4

TREND OF SEX RATIO IN INDONESIA, 1971–2010 AND 2010–35



Source: Population Census 1971, 1990 and 2010

The important issue related to rapid demographic change is characterized by the fastest-growing segment of those aged 60 and above, which signifies an aging population. In 2010, the population census found that the number of people aged 60 years and above was 18.1 million, or 7.6% of the total population, as per the 2010 Census. This number is projected to increase to 33.7 million or 11.8% of the population by 2025, and reach 48.2 million or 15.8% of the population by 2035 [2].

The 2010 Census highlighted the start of a rapid increase in the percentage of older persons in the country (Table 3-1). There was an increase of 3.1% when compared to 4.5% in 1971, i.e., four decades ago. The proportion of older persons is projected to increase continuously and reach 15.8% in 2035, i.e., 25 years later [5]. In between, it will start approaching 10% in 2020 [2] (Figure 3-5).

TABLE 3-1

TOTAL VS. ELDERS' POPULATION IN INDONESIA, 1971–2035

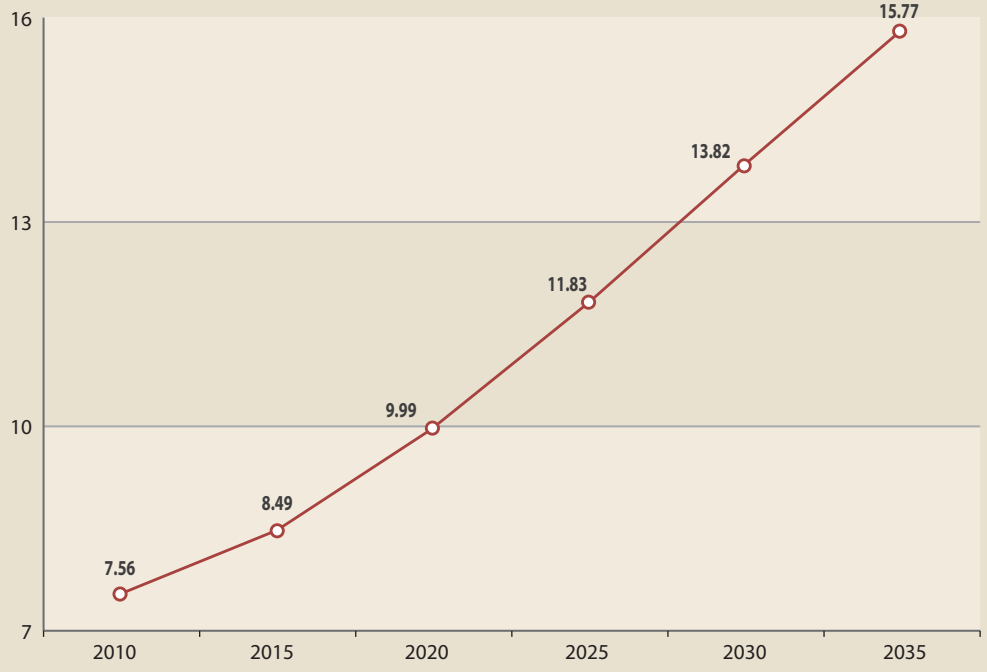
Year	Population ('000)		
	Total	Older persons (60+)	% of older person
1971	118,368	5,307	4.5
1990	179,243	11,278	6.3
2010	237,641	18,044	7.6
2015	255,462	21,685	8.5
2020	271,066	27,088	10
2025	284,829	33,696	11.8
2030	296,405	40,956	13.8
2035	305,652	48,199	15.8

Source: Population Census 1971, 1990, and 2010; Indonesia Population Projection 2010–35 (UNFPA, 2014)

These changes are widely known to impact issues related to pensions, social insurance, taxation and, most importantly, the welfare of older persons [5]. This demographic transition poses challenges for policy makers in maintaining quality of life for the older persons. For Indonesia, the challenge of population aging[1], while being unprecedented, is also complex because of two main reasons. First, the population in Indonesia is projected to progress far rapidly. Second, and more importantly, Indonesia is faced with the issue of population aging with low levels of economic development [5].

FIGURE 3-5

POPULATION TREND OF 60-YEAR-OLDS AND ABOVE IN INDONESIA, 2010–35



Source: Bappenas and statistics Indonesia, 2013

1 Population aging is defined as an increasing proportion of older persons in total population

With the increase in older population, the Aging Index[2] is projected to increase from 26.3 in 2010 to 73.4 in 2035. This means that the index will increase from 26 older persons per 100 children aged 0–14 years in 2010 to 73 older persons per 100 children aged 0–14 years in 2035. Meanwhile, the average number of workers who have the potential to support older persons[3] is expected to decline from 13 workers per older person in 2010 to only 6.4 workers in 2035 [5].

Indonesia is currently in a phase of development where it has a high working-age population rather than an aging or dependent population. In order to optimize the benefits associated with this low dependency ratio, the government needs to expand its investment in education and skills training, since the highly educated workers can enjoy higher wages and better job opportunities. This is particularly important, as there is evidence that the Indonesian economy is currently experiencing the existence of both a shortage of skilled workers and a labor surplus [38].

The number of children (0–14 years), working-age people (15–64 years), and older people (65 years and above) increased during the period 2015–19. However, the number of older persons increased faster than that of the children (Table 3-2). Total dependency ratio decreased from 79.1% to 49.6% in the period of 35 years, from 1980 to 2015. This number will decrease continuously until year 2025 and start to go up continuously as an impact of the increase in older persons population (Figure 3-4).

TABLE 3-2

INDONESIAN POPULATION BY AGE GROUPS, 2015–19

Year	Age group			Total
	0–14	15–64	65+	
2015	69,857,406	171,874,288	13,729,992	255,461,686
2016	70,096,861	174,375,008	14,233,117	258,704,986
2017	70,295,363	176,807,788	14,787,721	261,890,872
2018	70,486,717	179,126,971	15,401,625	265,015,313
2019	70,635,883	181,354,922	16,083,760	268,074,565

Source: Bappenas and statistics Indonesia, 2013

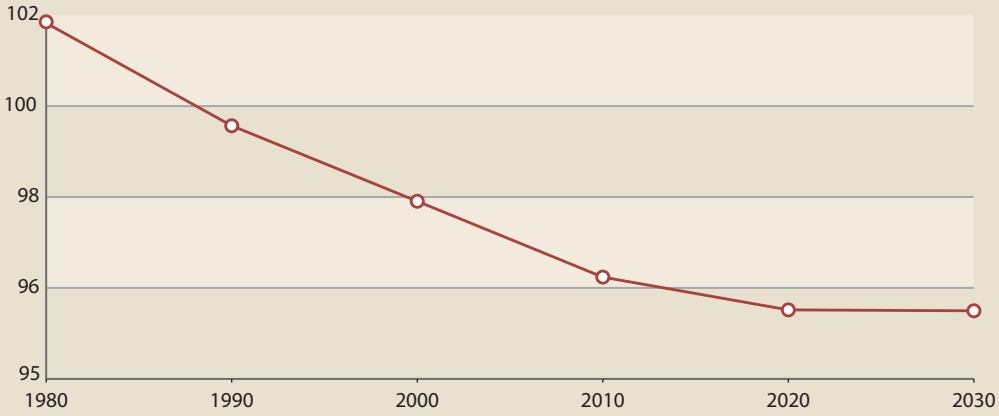
The population of the group aged 15–64 years was higher than other groups of population. Nevertheless, the increase in the percentage of this group is not projected to be too high. In 20 years, the percentage of this age group is projected to increase from 67.3% in 2015 to 67.9% in 2035 [2].

In the light of current demographic trends, women's vulnerability in old age has gained increasing importance. Women live longer than men and in most regions are more likely to spend time as widows, when they are more vulnerable to poverty than men. Because pension entitlements are predominantly through work, women's responsibilities for unpaid care work, as well as their predominance in informal employment and seasonal and part-time jobs, restrict their access to the private pension-covered sector. In many countries, jobs in the public sector have historically been a major source of pensions. However, as the public sector has contracted due to structural adjustments, privatization, and cuts in government spending, many women have lost pension coverage. To protect retired women, it is important that the design of old-age security systems took account of gender differences in earnings, labor force experience, and longevity [16].

2 The Aging Index is the ratio of older persons per 100 children aged 0–14 years
3 The Potential Support Ratio is the ratio of people aged 15–64 per one older person aged 65 and above

FIGURE 3-6

TOTAL DEPENDENCY RATIO IN INDONESIA, 1980–2030



Source: Bappenas and Statistics Indonesia, 2013

2.1 Definition of FLFP and Quality of Data

There are many sources of labor market information, and the two main concepts that drive any discussion on work are employment and unemployment. Both are defined within the international standard framework for measurement of the labor force, also known as the currently economically active population. The labor force is the sum of the two sub-categories: persons who are working, i.e., the employed, and persons who are not working and want to work, i.e., the unemployed. On the other side of the spectrum are persons outside of the labor force, also known as the economically inactive population.

The statistical definitions for measurement of each of these concepts, i.e., employment, unemployment, and inactivity are comprehensive and comprehensible, having been set nearly three decades ago within the institution of the International Conference of Labor Statisticians (ICLS)[4].

A person in the labor force is somehow engaged in economic activity, by either working or looking for work, given that the labor force is the sum of the employed and the unemployed. As a concept, the labor force has come to represent the productive potential of the people in an economy, with the segment that is employed representing the utilized labor and the segment that is unemployed representing the underutilized labor. The inverse is the segment that is inactive or outside the labor force, i.e., the persons who neither work nor look for work. The labor force participation rate, or the labor force as a percentage of the working-age population, then represents the share of productive potential in the working-age population, i.e., the share of the population that could be tapped for economic engagement. The ILO definition of labor force participation, for example, refers to "those who are employed and those who are unemployed, taken as a share of total working age population" [39]. In Indonesia, the LFPR is defined as a percentage of labor force to the working age population [3]. Likewise, the female labor force participation rate (FLFPR) is defined as a percentage of female labor force to the female working age population. In Indonesia, the female labor force is defined as the proportion of the female population aged ten or older who worked for pay or profit at least one hour during the previous week of being surveyed.

4 Resolution concerning statistics of the economically active population, employment, unemployment, and underemployment, adopted by the 13th International Conference of Labor Statisticians, Geneva, October 1982. http://www.ilo.org/global/statistics-and-databases/meetings-and-events/international-conference-of-labour-statisticians/lang--en/index.htm

There are two main types of information related to the labor market in Indonesia: macro data collected the BPS-Statistics Indonesia, and micro data collected by the Ministry of Labor and Transmigration. Each of the data sources has advantages and disadvantages, which depend on the objective of an analysis.

The BPS-Statistics Indonesia collects data through a survey of labor force covering various aspects including the labor force estimation, employment, and unemployment, as well as providing information about the characteristics of workers, including their employment sector, wages, working hours, and employment status. The Ministry of Labor and Transmigration collects administrative data about job seekers, vacancies, and staffing, working through the offices of the public and private employment services that provide online employment services and face-to-face interviews in Indonesia. Services of employment provide registration facilities to collect, code, and store information on the labor market.

Administrative data on the characteristics of job seekers (labor supply) and employment (labor demand) collected by employment services provides essential information to monitor the results of labor across the country. For example, this data provides information regarding fluctuations in demand and supply that could provide signals for policy intervention. This data could provide information about the suitability of job seekers by comparing their qualifications against employers' expectations. It could also provide information on the sectoral growth and employment, as well as information by gender and age groups. This information may be shared with the education and training centers in order to support the creation of the labor force that is ready to work.

One of the macro data resources is the National Labor Force Survey (NLFS) or *Survei Angkatan Kerja Nasional (Sakernas)* from BPS-Statistics Indonesia. This survey is specifically designed to collect information on labor force statistics. Previously, the collection of such data was integrated with other surveys, such as National Socio-Economic Survey or Survei Sosial Ekonomi Nasional (Susenas); Population Census or Sensus Penduduk (SP); and Inter-censal Population Survey or Survei Penduduk Antar Sensus (Supas). The NLFS data can be used to obtain accurate data on employment and is up to date, as the survey is carried out by BPS-Statistics Indonesia regularly every year. For 2016, the field activities were conducted twice duing the year, in February and in August.

The main information collected by the NLFS is data on individual household members covering persons aged 10 years and older. However, tabulated data covers household members aged 15 years and older. One of the chief advantages of the survey is that it allows one to trace changes in FLFP over a period of time. This makes the data especially useful for lifecycle analysis. Although we cannot follow the same set of individuals over time, the repeated cross-sections allow us to follow the same set of birth cohorts over time. Observing changes in FLFP for a given cohort as it ages can help shed light on lifecycle constraints that govern women's participation in the labor market. On the other hand, studying differences in FLFP for different sets of cohorts when they were of the same age can give a sense of shifts in norms and other factors that may change with time, like the economic environment, and the female educational attainment.

Although Indonesia has a number of high-quality data sources that could be used to track the labor force behavior of women, there is very little evidence, even on a descriptive level, as to why women in Indonesia do or do not participate in the labor force. Ideally, the analysis would draw on empirical studies that identify the causal effects of constraints on FLFP. Few studies of this quality have been conducted in Indonesia. Another study examines that Indonesian women's engagement

with the labor force has evolved in important ways over the past 20 years: aggregate FLFP patterns mask meaningful variations in FLFP by birth cohort, geography, education, other household income, and type of work, empowerment, marital status, and fertility history.

There is also a need to have hard data available in order to better understand the prevalence and working conditions of homeworkers, and to develop strong arguments for better valuing the considerable contribution that low-income Indonesian women make to the economic and social development of their families, communities, and the society. Progress in these areas would be key to empowering women, and for unleashing their productive potential [40].

Indonesia has a number of high-quality data sources with information on employment. However, much of this data remains difficult to work with, as coding and question labels vary from year to year, and English survey translations with specific definitions are not available for some years. When data is difficult to access or understand, it is less likely to be used by researchers, and indeed, this constraint could be one reason why there are not many high-quality studies of FLFP using NLFS or NSES data.

Although NFLS is very useful for tracking time trends in the Indonesian labor market, it does have some important disadvantages. First, it is a cross-sectional survey, so it is not possible to study individuals over their life spans, though we can follow birth cohorts over time. Second, changes in the survey design limit cross-year comparability of some variables. Finally, the NFLS is a relatively short survey focused on collecting basic demographic information and labor market outcomes. Thus, it is not very useful for studying other aspects of socioeconomic status and wellbeing.

2.2 Trends and Patterns in Labor Force Participation

By 2015, the Indonesian population aged 15 years and above was around 184.6 million, with an increase of 3.43 million compared to year 2014. From this number, the working population was 120.8 million including an increase of 2.7 million compared to 118.2 million in the previous year.

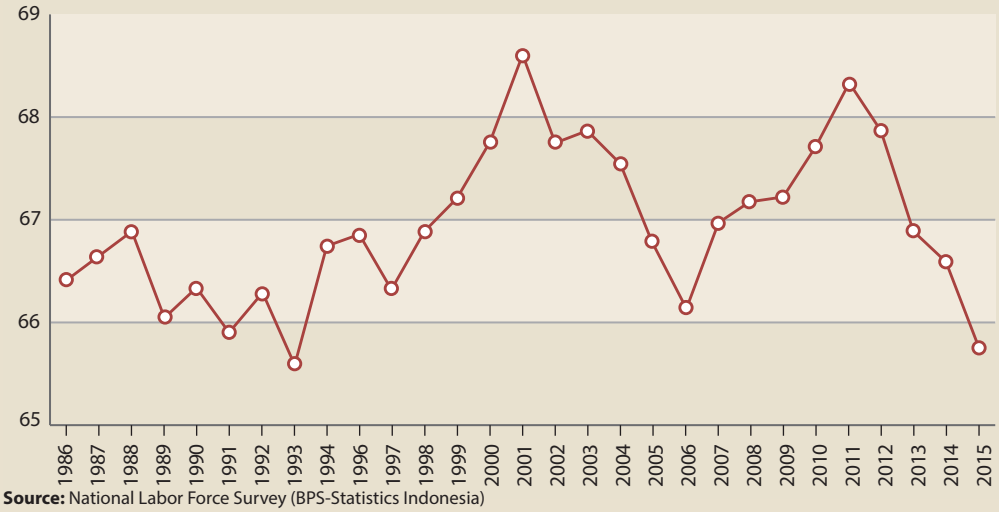
Figure 3-7 shows that no specific pattern of LFPR may be inferred, as it shows much fluctuation. The highest percentage of LFPR was 68.6% in 2001, then 68.34% in 2011. LFRP decreased to 65.6% in August 2015.

The populations of males and females aged 15 years and above were about the same, at around 92 million each. However, the labor force participation rate for males was higher than that for females, though both male and female labor force participation rates tended to stagnate in the period 2007–15 [32]. The female labor force participation rate (FLFPR) was just around 50% when the male labor force participation rate (MLFPR) was more than 83%. This amounted to FLFPR being classified as moderate, while MLFPR was termed high (Figure 3-8).

In 2015, there were around 50 million economically active females aged 15 years and above, which amounted to 39% of total economically active labor force. Also, there were 42 million non-economically active females in the same age group, accounting for 75% of the total non-economically active population in the age group. Of the 50 million females who were economicaly active, around 47 million were working (comprising 39% of total working people), while 3 million were unemployed (comprising 43% of total unemployed people). The number of females with working hours less than the normal working hours was 19 million, of which 5 million were underemployed and the remaining 14 million were part-time workers [32].

FIGURE 3-7

TREND OF LABOR FORCE PARTICIPATION RATE IN INDONESIA, 1986–2014

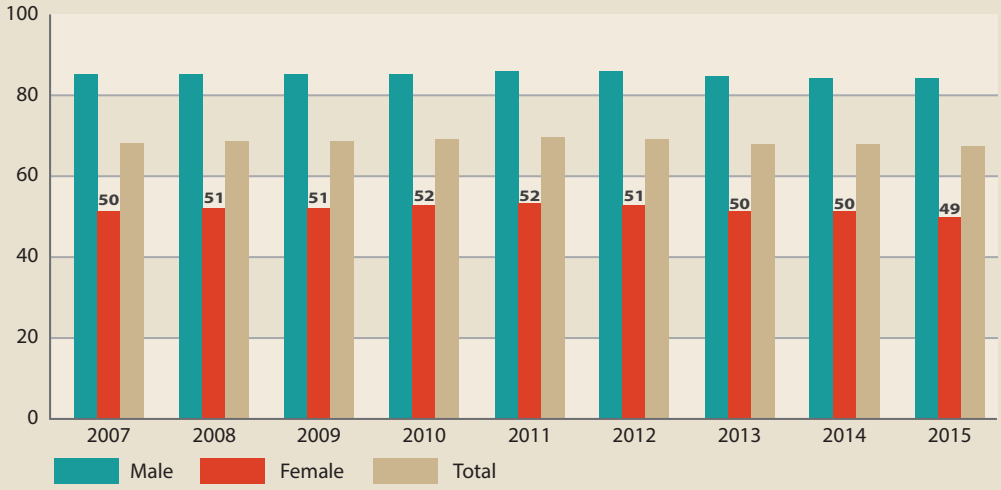


Source: National Labor Force Survey (BPS-Statistics Indonesia)

Note: 2005–15 using data in August

FIGURE 3-8

LABOR FORCE PARTICIPATION RATE BY GENDER IN INDONESIA, 2007–15



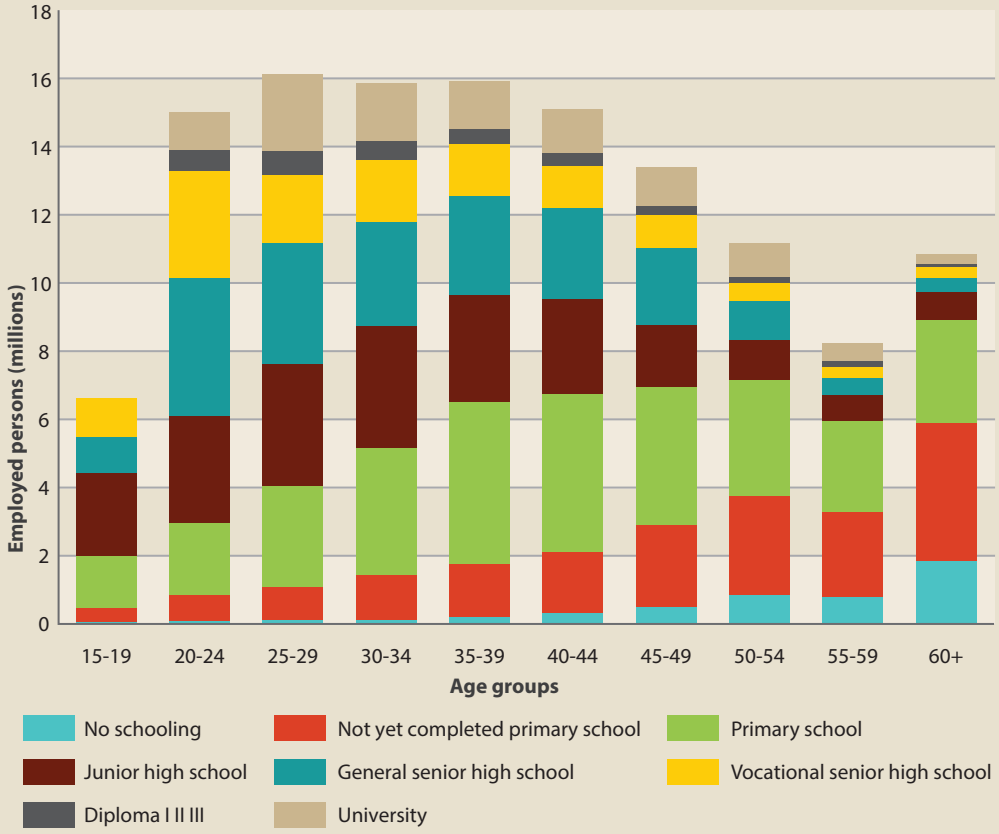
Source: National Labor Force Survey 2012, 2013, and 2014 (BPS-Statistics Indonesia)

Figure 3-9 provides an overview of educational attainments by age groups for the economically active population. For improving the worker quality, the goverment needs to increase the quality of education. Increasing investments in education have expanded the pool of educated workers.

The relationship between female labor force participation (FLFP) and gross domestic product (GDP) has been remarkably stagnant since 1990 (Figure 3-10). In spite of the apparent stagnation, Indonesian females' engagement with the labor force has evolved in important ways over the past

FIGURE 3-9

EDUCATIONAL ATTAINMENTS BY AGE GROUPS FOR THE ECONOMICALLY ACTIVE POPULATION, AUGUST 2015



Souce: Labor force situation, August 2015 (BPS-Statistics Indonesia)

20 years: aggregate FLFP patterns mask meaningful variations in FLFP by geography, education, other household income, type of work, empowerment, marital status, and fertility history [31].

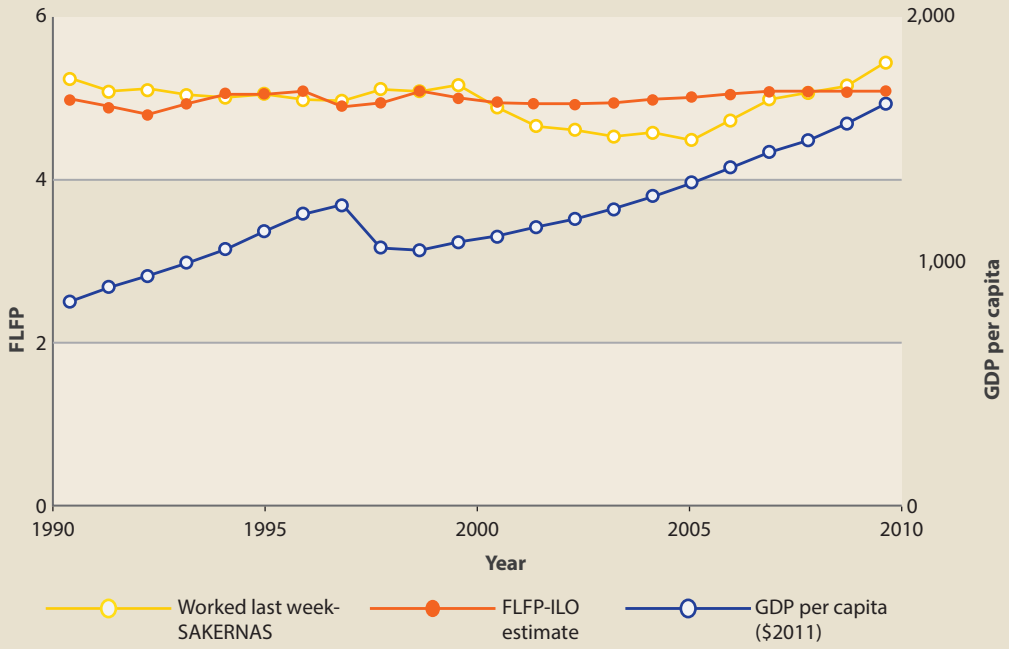
"The large difference between the sexes can largely be explained by the social convention carried through into old age which, soon after marriage, requires men to carry the main responsibility as the provider for the family while women more typically remain out of work to support their household members with their daily needs" [5].

Based on the age groups, the LFPR pattern for year 2015 shows up as an inverse 'U' shape, with the largest portion of working-age population being in the 20–54 years group and the LFPR gradually declining after 60 years. Also as shown in Figure 3-11, LFPR decreased from February 2015 to August 2015 for all age groups except for those aged 95 years and above, for whom it increased.

In 2010, half of Indonesia's older persons aged 60 years and above were still active in the labor force. However, while 69.9% of older males were active, only 35% of older females were active. Also, the percentage of older persons in labor force dropped quite visibily with age. The LFPR for both older males and females decreased from 61.4% for those aged 60–69 years, to 40.9% for those

FIGURE 3-10

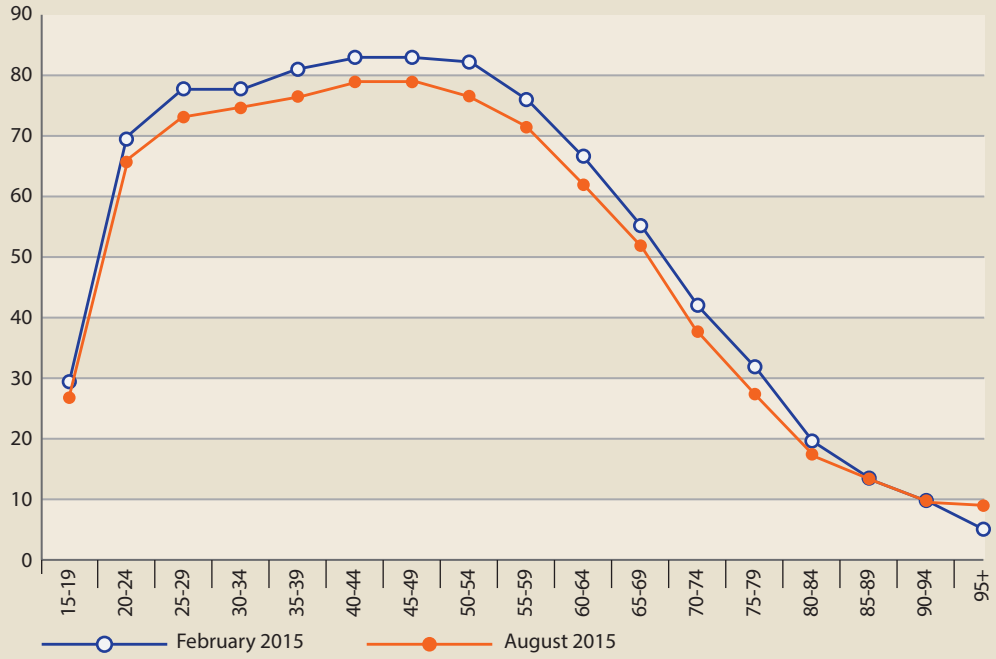
FEMALE LABOR SUPPLY AND PER CAPITA GDP OVER TIME



Source: 1990–2011 National Labor Force Survey estimates are from authors' calculation (ages 20–70 years). ILO estimates and per capita GDP are from the World Bank Indicators (ages 15+ years)

FIGURE 3-11

LABOR FORCE PARTICIPATION RATES BY AGE GROUPS IN INDONESIA, 2015

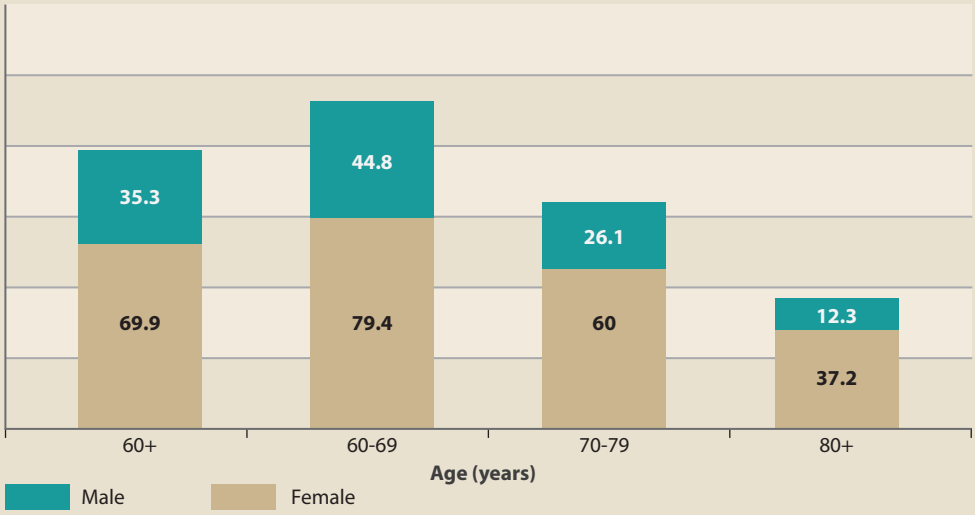


Source: National Labor Force Survey (BPS-Statistics Indonesia)

aged 70–79 years, and to a mere 22.5% for those aged 80 years and above [5]. The greatest concern is that 37.2% of males and 12.3% of females aged 80 years and above were reported to be still economically active (Figure 3-12).

FIGURE 3-12

LABOR FORCE PARTICIPATION RATES OF OLDER MALES AND FEMALES BY AGE IN INDONESIA, 2010



Source: National Labor Force Survey (BPS-Statistics Indonesia)

A decrease in labor force participation is an indication of decreased economic independence, which brings consequences for policy makers. To support economic security for people, particularly for older persons, is important. In Indonesian context, as in other developing countries, the incidence of poverty among older persons is high, and increases with age. The pension system, to the extent it exists, has limited coverage. That is why some older persons need to continue to engage in income-earning activities to meet basic needs. The government needs to prepare the population from an early stage of live to become prosperous senior citizens.

In the context of female elders, it is necessary to relook at women's participation at a young age. Their participation in economic activities is quite large. Many young women volunteer to work even though they are still attending the school or continuing their education. This hampers their human resource development in future.

Late-in-life employment[5], particularly in informal-sector jobs, is common among older people in Indonesia[6]. This provides a significant source of income for older persons and provides opportunities to remain actively engaged with others in a purposeful way. Indeed, many older men and women continue to work or are willing to work as long as they are healthy and strong enough to be able to do so. Data shows that compared to men, a larger proportion of older women would be financially dependent on their adult children (the customary source of support) or others.

5 The official retirement age for administrative-level civil servants was 56 years in 2010 but under Law No. 5, 2014 (The Civil Servant Law), it was raised to 58 years. So it has been normal for many people to retire before the age of 60 years.
6 The 2010 Census revealed that 60% of all workers aged 15 years and above worked in the 'informal sector' (See UNFPA (2014).; UNFPA Indonesia Monograph Series No. 2). Also, close to 90% of employed persons aged 60 years and above worked in informal informal-sector jobs.

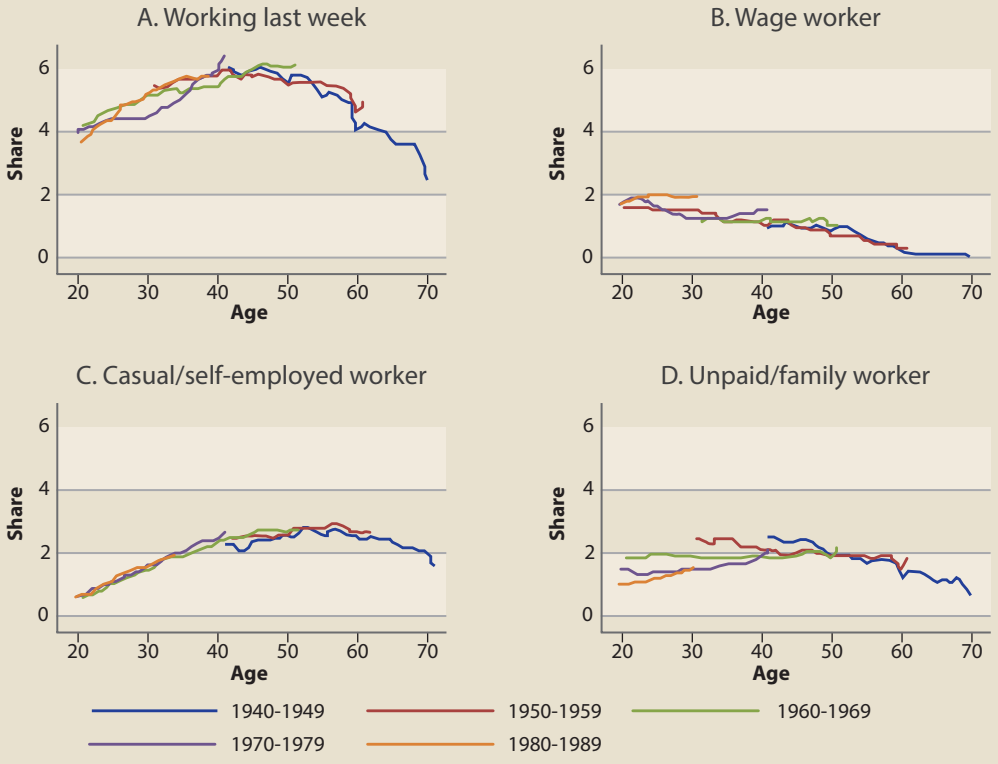
Moreover, FLFP varies with age for the five birth cohorts of women born in 1940–49, 1950–59, 1960–69, 1970–79, and 1980–89. Figure 3-13 presents the changes in FLFP for a given cohort as it can help shed light on lifecycle constraints that govern women's participation in the labor market [31]. From this study, one could also know the differences in FLFP for different sets of cohorts when they were of the same age and get a sense of shifts in norms and other factors that may change with time, like the economic environment and female educational attainment.

Part A of Figure 3-13 illustrates how overall FLFP varies with age for the five cohorts, and that FLFP follows a clear 'inverse U' shape. Approximately 40% of women in their early 20s participate in the labor market, but this share grows steadily as women (and their children) get older. The FLFP peaks at around 60% when women are aged 40–50, and then declines as they continue to age. In Part A, the lines for the different birth cohorts overlap closely, which suggests that overall lifecycle patterns in FLFP have been stable from generation to generation.

Parts B through D in Figure 3-13 reveal that the participation in wage work peaks among women in their 20s and then decreases with age, while participation in casual and self-employed work peaks among women in their late 40s and early 50s. However, the job types in parts B through D show evidence of some important generational changes. Part D shows that more recent birth cohorts have increasingly been less likely to engage in unpaid work at young ages, while Part B

FIGURE 3-13

LIFE-CYCLE CHANGES IN FEMALE LABOR FORCE PARTICIPATION BY BIRTH COHORTS IN INDONESIA, 1940–89



Source: National Labor Force Survey, 2011; [31]
Note: Sample limited to women aged 20–70 years who worked in the past week

shows that women in the most recent birth cohort of 1980–89 are more likely to work for a wage at young ages. In contrast, women's engagement in self-employment is very stable from cohort to cohort. Lighter lines on the graph correspond to younger birth cohorts [31].

This pattern suggests that many women first enter the labor market by joining the informal sector after they marry and their children are older. This contrasts with the M-shaped pattern found in the Republic of Korea and Japan, where young women enter the labor force, drop out when they have children, and re-join after their children mature [40–41].

One of the results that the study highlighs is the different pattern for women in urban areas, where, younger birth cohorts are increasingly likely to participate in the labor market (Figure 3-14). The figures also show that at all ages, women in rural areas are more likely to work than their urban counterparts. If the trends apparent in the 1980–89 birth cohort continue, however, the rural–urban difference may ultimately disappear in future [31].

It may be difficult for many women, especially in rural areas, to find jobs that pay a steady wage. In the 2011 NLFS data, 47% of working women in urban areas reported earning a wage, while just 15% of working women in rural areas reported the same. Even if wage work is available, women may be discouraged from taking a job if they encounter harassment or gender-based discrimination. Many women face low-quality working conditions in the formal sector. Another recent survey of Indonesian factory workers, 92.2% of whom were female, found extremely high rates of concerns about workplace safety, sexual harassment, and verbal abuse [42]. However, we do not have enough data on workplace harassment or working conditions.

Related to the gender, a study conducted by the Asian Development Bank (ADB) analyzed the relationship between Gender Development Index (GDI) and Gross National Income (GNI) per capita (see Figure 3-15). Compared to other countries, gender outcome in Indonesia was well above India and Pakistan but slightly below the People's Republic of China (PR China) and the Republic of Korea (ROK) [31].

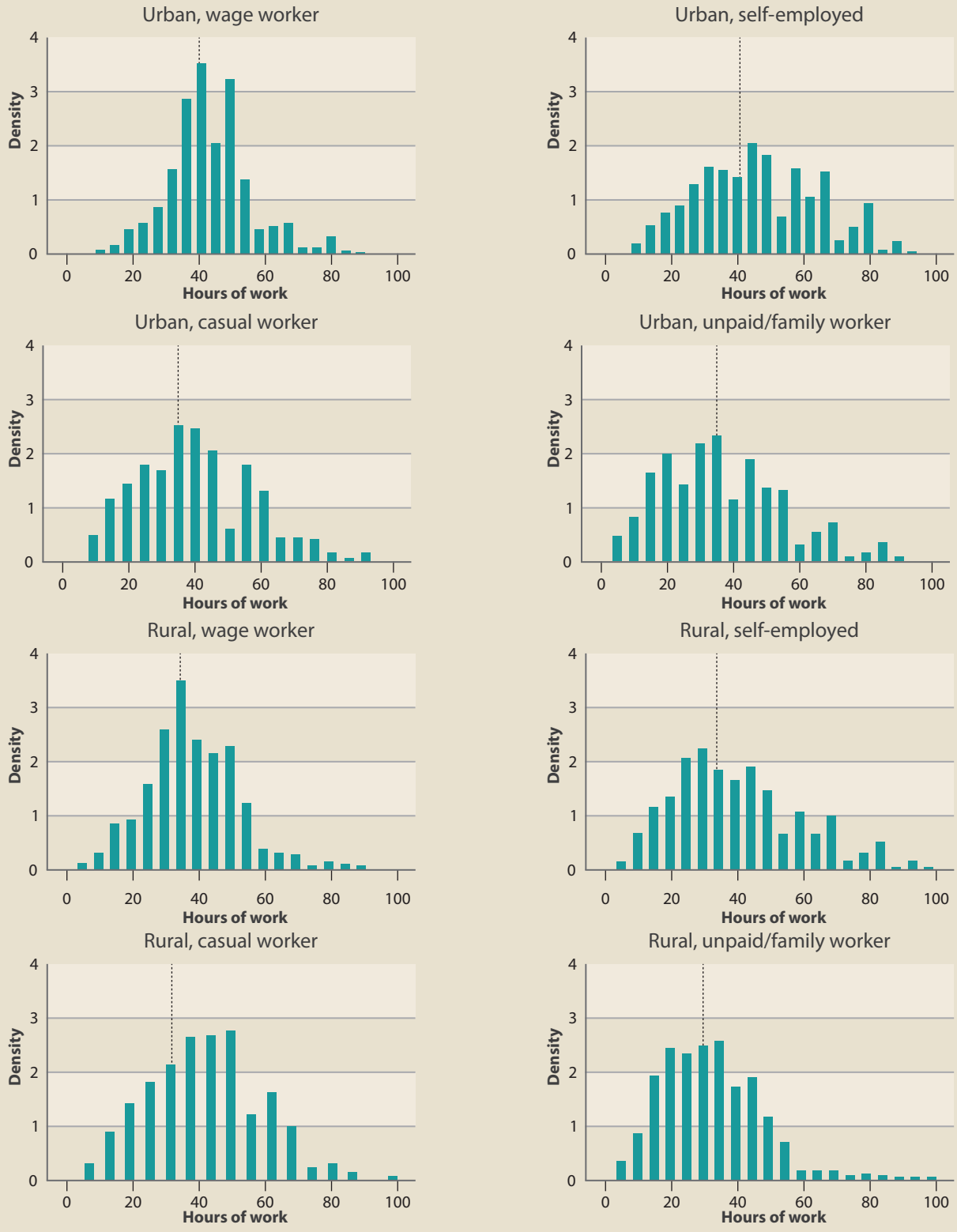
The most persistent form of inequality in the labor market is the gender gap in earnings. Men earn more than women, and this is true across different groups of workers (agricultural or services) and different types of earnings (monthly, hourly or salaried). Numerous studies show women's increased participation in temporary, casual, contract, and part-time labor in manufacturing. The percentage of women in 'flexible' jobs greatly exceeds the corresponding percentage of men [16].

Although opportunities for paid employment for women have increased, the nature, terms, and quality of women's employment have not improved commensurately. For empowering women and reducing their poverty, it is not sufficient only to give them access to paid work. They need accesst to decent and productive work. Gender differences can be seen in decent work, with the four pillars being full and productive workers, right at work, social security, and social dialogue. Related to this, there are some indicators to preview decent work. These are, employment-to-population ratio (EPR)[7], unemployment rate (UR)[8], employment in excessive working time (EEWT)[9], low pay rate (LPR)[10], and precarious employment rate (PER)[11]. The trends of some decent work indicators are presented in Table 3-3.

7 EPR = The number of working population (15+) / total population (15+) x 100%
8 UR = Unemployed (15+) / Workforce (15+) x 100%
9 EEWT = The number of workers who work more than 48 hours per week / total number of employees x 100%
10 LPR = The number of workers with wages below two-thirds of the median income per hour
11 PER = The number of vulnerable workers (free workers) / total number of employees x 100%

FIGURE 3-14

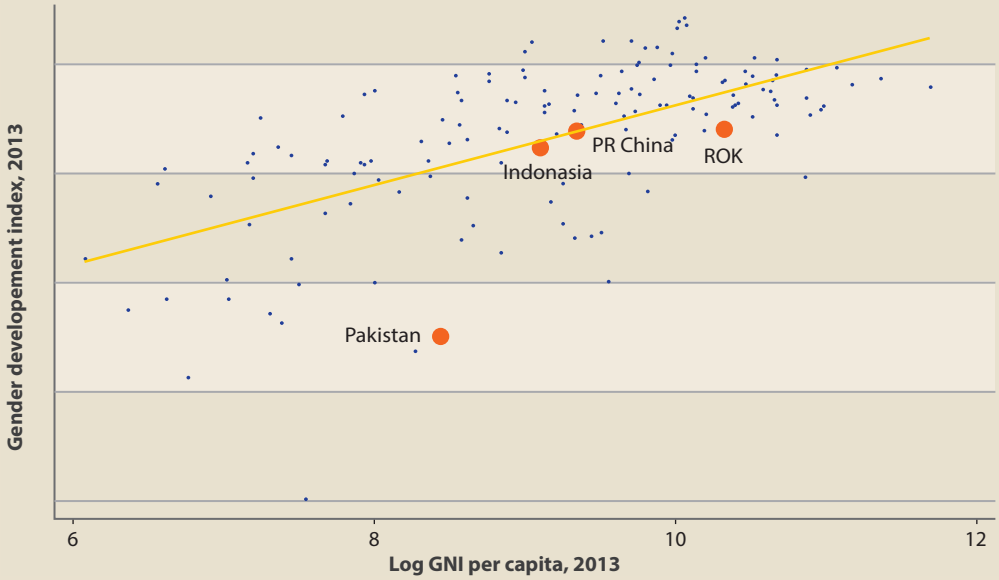
HOURS WORKED BY EMPLOYMENT CATEGORY AND GEOGRAPHY IN INDONESIA



Notes: Samples are limited to women aged 20–70 years. Vertical lines indicate the median number of hours worked per week by women in a particular category.
Source: National Labor Force Survey estimates [31]

FIGURE 3-15

CROSS-COUNTRY RELATIONSHIP BETWEEN INCOME AND GENDER EQUALITY



Note: GNI = gross national income
Source: UNDP Human Development Report, 2013 [31]

Employment-to-population ratio (EPR): Over the last few years, the EPRs in Indonesia have been higher than the global averages, partly due to the high percentage of the population being of working age and limited income support options being available outside the world of work. However, there have been significant differences in the EPRs between males and females, with males having higher EPRs than females.

The pattern of EPR has been an inverse 'U' shaped, with the peak of the curve manifested in 2012. The EPR for females has gradually increased since 2011, generally reflecting improving labor market performance. The ratio recorded a remarkable increase of 2.6% points between 2011 and 2012. However, despite this increase, gender gaps in EPR remain large.

TABLE 3-3

SOME DECENT WORK INDICATORS IN INDONESIA, 2011–14

Gender	2011	2012	2013	2014
		Employment to population ratio (EPR)		
Male	78.3	79.4	78.4	78.3
Female	45.3	47.9	47	47.1
Total	61.8	63.7	62.7	62.7
		Unemployment rate		
Male	6.65	5.76	6.02	5.75
Female	8.86	6.73	6.4	6.26
Total	7.76	6.25	6.21	6.01

CONTINUED ON NEXT PAGE

CONTINUED FROM PREVIOUS PAGE

Gender	2011	2012	2013	2014
Employment in excessive working time				
Male	30.0	29.6	24.5	28.6
Female	21.8	21.3	18.7	21.7
Total	26.98	26.46	22.28	25.97
Low pay rate				
Male	27.32	28.14	28.37	30.39
Female	34.85	34.49	36.15	32.35
Total	30.17	29.2	29.57	32.19
Precarious employment rate				
Male	12.29	12.63	11.95	12.25
Female	6.3	6.57	6.71	6.36
Total	10.08	10.34	9.98	10.03

Source: National Labor Force Survey 2011–14 (BPS-Statistics Indonesia)

The comparatively low EPR for females, particularly in the young age, is due to the participation of females in education and training, a trend that should help to strengthen the competitiveness and productivity of the labor force in the coming years. Trends in gender outcomes have shown little improvement over time, with females having significantly lower labor force participation than males. While the increasing educational attainment of the young female population should help to improve females' participation in employment in future, the persistence of this trend indicates a need for more active policies and programs to support females to enter the labor force and engage in work that is external to the household unit.

Unemployment rate (UR): Indonesia's labor market has continued to expand in 2014 and 2015, with employment growing and unemployment declining. The pattern of unemployment rate is almost inverse 'U' shaped (Figure 3-16).

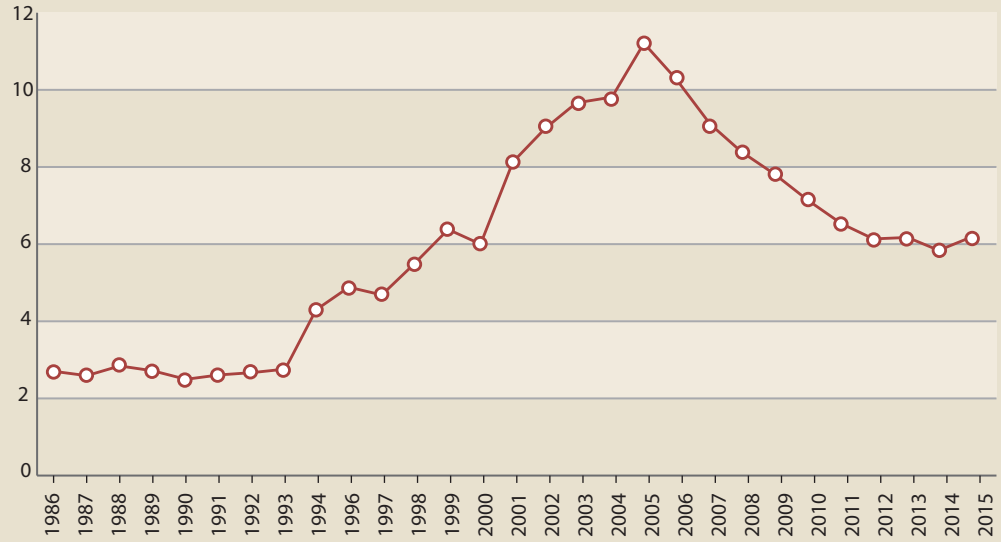
Unemployment has been trending downwards in recent years, and was around 6% in 2014. This indicates that the target of reducing unemployment to between 5% and 6%, as set out in the Medium-Term Development Plan for 2010–14, has been met. However, unemployment remains a challenge, particularly for youth, and especially within the context of a slowing economy. The unemployment rate for people aged 15 to 24 years in the country was estimated at 22.2% in August 2014 and 18.3% in February 2015 [38].

Indonesia's unemployment situation is projected to remain steady or improve slightly, with the unemployment rate projected to remain close to 6% by 2019. However, given the projected fast growth in the working-age population and labor force, and Indonesia's history of high youth unemployment, policies to support school-to-work transition would be needed to facilitate outcomes for youth and to avoid the emergence of structural issues. In this regard, a key factor for improving outcomes is supporting the youth to optimize their educational attainments.

Specifically, females generally face higher unemployment rates than males, though the unemployment rate for females has gradually decreased. It appears that various sociocultural factors and employment practices hamper integration of females into the labor market. Public-

FIGURE 3-16

UNEMPLOYMENT RATE IN INDONESIA, 1986–2014



Source: 1986–2014 National Labor Force Survey (BPS-Statistics Indonesia)

awareness raising campaigns and policy interventions are needed in order to narrow the gender gaps in the labor market.

In particular, data captured by the Ministry of Manpower's Employment Service Centres indicates that unemployment in Indonesia is in part caused by a skills mismatch that is observed between registered job seekers and registered job vacancies. More specifically, the result of analysis indicates that the demand for labor with tertiary education outstrips the supply of such labor [43]. There is also an oversupply of labor with junior high school and senior high school being the highest levels of educational attainment in comparison to the number of job vacancies requiring such levels of educational attainment.

Employment in excessive working time: Males generally face higher employment in excessive working time rates than females. According to official figures for 2014, over 22% females were working more than 48 hours per week. Long working hours were, in particular, put in by females in households (average 51.4 hours in 2008); wholesale and retail (49.2 hours); and hotels and restaurants (47.8 hours). These averages were even prolonged between 2000 and 2008.

Based on National Labor Force Survey, in 2015, average work hours per week were 43 hours, which means that the pattern did not change significantly in any of the survey periods. The same pattern also occured in August 2015 with the average work hours per week being 44 hours.

Gender differences are also apparent in unemployment, with women more likely to be unemployed than men in recent years. To improve the nature and conditions of work, employment-enhancing economic growth is a prerequisite for low-income countries, coupled with social policy that eliminates discriminatory employment barriers. For poor women, especially those in rural areas, public employment guarantee schemes can be important interventions for providing work and

increasing income, although evaluations of country programs reveal a mixed track record. Public employment guarantee schemes can also be gender-biased. In many programs, women earn less than men, partly because they are excluded from higher-wage and physically difficult tasks, and women are also more susceptible to being cheated and exploited [16].

Low pay rate: This is the number of workers with wages below two-thirds of the median income per hour. Figure 3-17 plots the share of women workers who are:

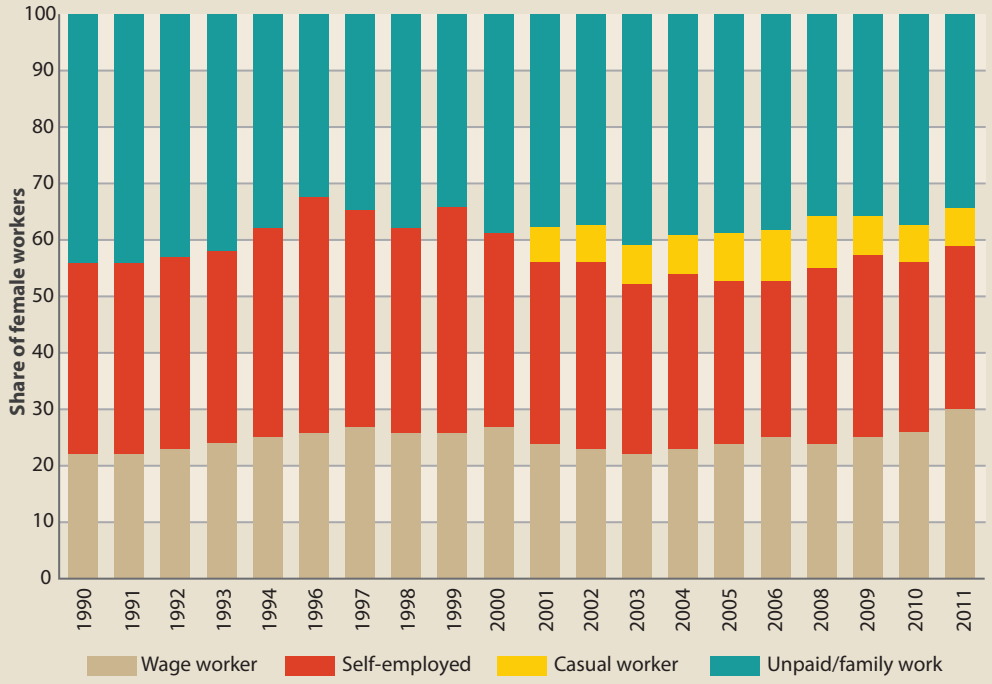
1. Unpaid or family workers.
2. Self-employed, including own-account workers as well as small business owners.
3. Wage workers.
4. Casual workers [31].

Although these job-type categories are coarse, this classification provides a rough indicator of a working woman's protection under labor laws, her flexibility in working hours, and her integration into the formal economy.

Just fewer than 30% of the working women were formal-sector wage workers in 2011, up from 22% in 1990.[12] In fact, the most common employment class across years was unpaid workers,

FIGURE 3-17

TRENDS IN TYPES OF WORK PERFORMED BY FEMALE WORKERS OVER TIME



Source: 1990–2011 National Labor Force Survey [31]
Notes: Sample is limited to women aged 20–70; the casual work category was introduced to the SAKERNAS in 2001.

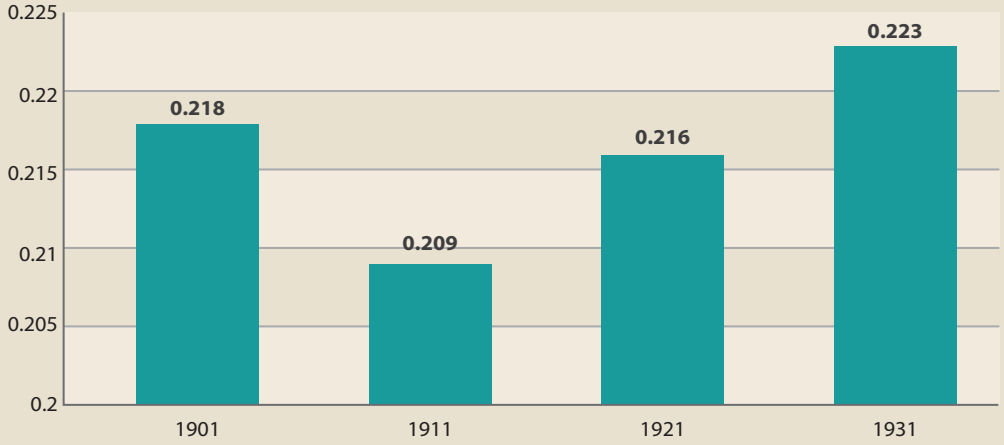
12 The SAKERNAS allows for seven employment categories, but this study defines members of the formal sector as those in the category of workers/employees. The remaining employment categories are self-employed; self-employed with assistance from family/unpaid worker; self-employed with assistance from permanent worker; casual labor in agriculture; casual labor in non-agriculture; and family/unpaid worker. We note the caveat that wage work provides only a rough proxy of formality, as some wage workers are likely employed by informal businesses.

especially among rural women with low educational attainments. Unpaid workers often helped other family members operate a small business or farm and received no explicit remunerations for their labors, in spite of the fact that among unpaid female workers, the median number of hours worked per week was 28 in 2001.

The gender wage gap (GWG) increased from 0.209 in 2012 to 0.216 in 2013 and 0.223 in 2014 (Figure 3-18). The share of women in wage employment grew from 29.2% in 1990 to 31.7% in 2000, then fell to 29.1% in 2004 and recovered to 30.6% in 2007, as per the UN MDG Indicators. Based on various sources, we calculated this share for 2008 at 31.1%.

FIGURE 3-18

GENDER WAGE GAP IN INDONESIA, 2011–14



Source: National Labor Force Survey 2011–14 (BPS-Statistics Indonesia)

"The statutory minimum wage structure is complex and not transparent. The minimum wage rates are based on cost of living calculations, after the gap between minimum living needs and (average) minimum wage levels has widened. Moreover, the informal sector is not included. Compliance and enforcement are weak" [40].

The graph in Figure 3-19 shows the median female-male wage ratio[13] and the female-male wage employment ratio[14] over time. It shows that in 1990, the median female wage worker earned just 57% of the median male worker's wage.

The wage ratio, however, has steadily improved over time. By 2011, the median woman earned over 84% as much as the median male worker's wage. This is encouraging, especially since the share of women relative to men engaging in wage employment has increased over time, though the gender pay gap in Indonesia is still considerable [39].

The existence of a gender wage gap does not necessarily imply that there is gender-based discrimination in the labor market; it could just be that female workers get paid less because they are less productive than male workers, e.g., due to lower levels of human capital. There is no

13 The median hourly wage among female wage workers divided by the median hourly wage among male wage workers.
14 The share of women working in wage employment divided by the share of men working in wage employment.

FIGURE 3-19

GENDER WAGE AND EMPLOYMENT RATIOS OVER TIME

Note: Sample limited to men and women wage workers aged 20–70 years.
Source: National Labor Force Survey [31].

perfect way to estimate the extent of gender discrimination. However, one could use regression analysis to generate suggestive evidence [31].

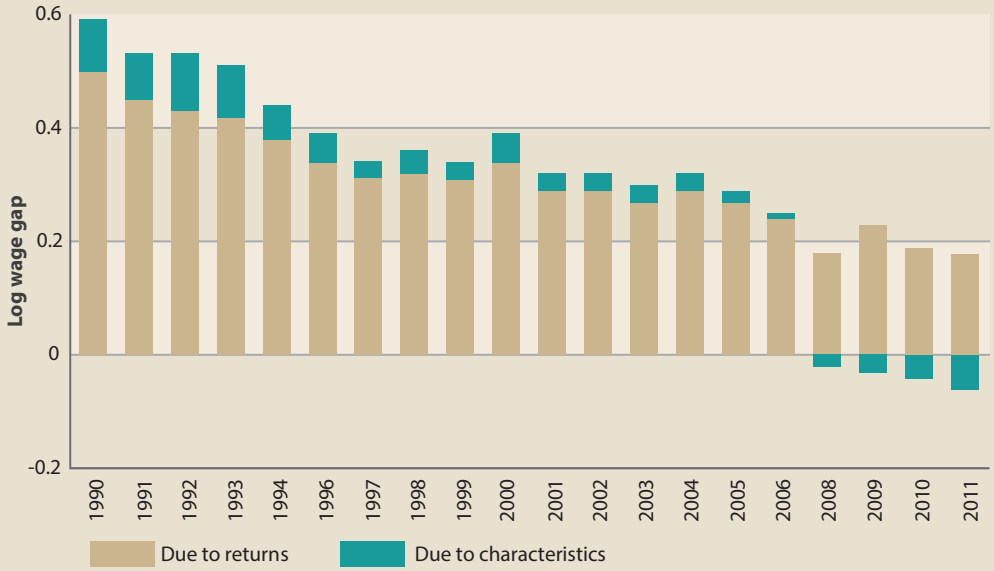
In addition, the gender wage gap has shrunk dramatically over time (Figure 3.20). The vast majority of the gap is due to differences in returns (our residual measure of discrimination), rather than due to differences in characteristics. In fact, the contribution of differences in characteristics is negative [31]. This means that, on average, female wage workers are more positively selected in terms of education as compared to their male counterparts. In the face of persistent gender-based discrimination, higher educational attainment serves to depress the male-female wage gap.

The number of male workers with wages below two-thirds of the median income per hour has gradually increased, from 27% in 2011 to 30% in 2014. On the other hand, female workers with wages below two-thirds of the median income per hour have gradually decreased in the same period, from 35% to 32%. In addition, females generally get lower wage rates than their male counterparts.

Overall, wage workers are better educated and have more economic agency. An important insight for policy makers is that government programs and policies that focus on regulating wage work and formal employers systematically overlook many of Indonesia's most vulnerable female workers. Figure 3-21, which graphs educational attainment by class of worker, further supports this hypothesis. Women with tertiary education are most likely to work (virtually all of the work is wage work), followed by women with less than primary education, while women with either junior or senior secondary education are least likely to work.

FIGURE 3-20

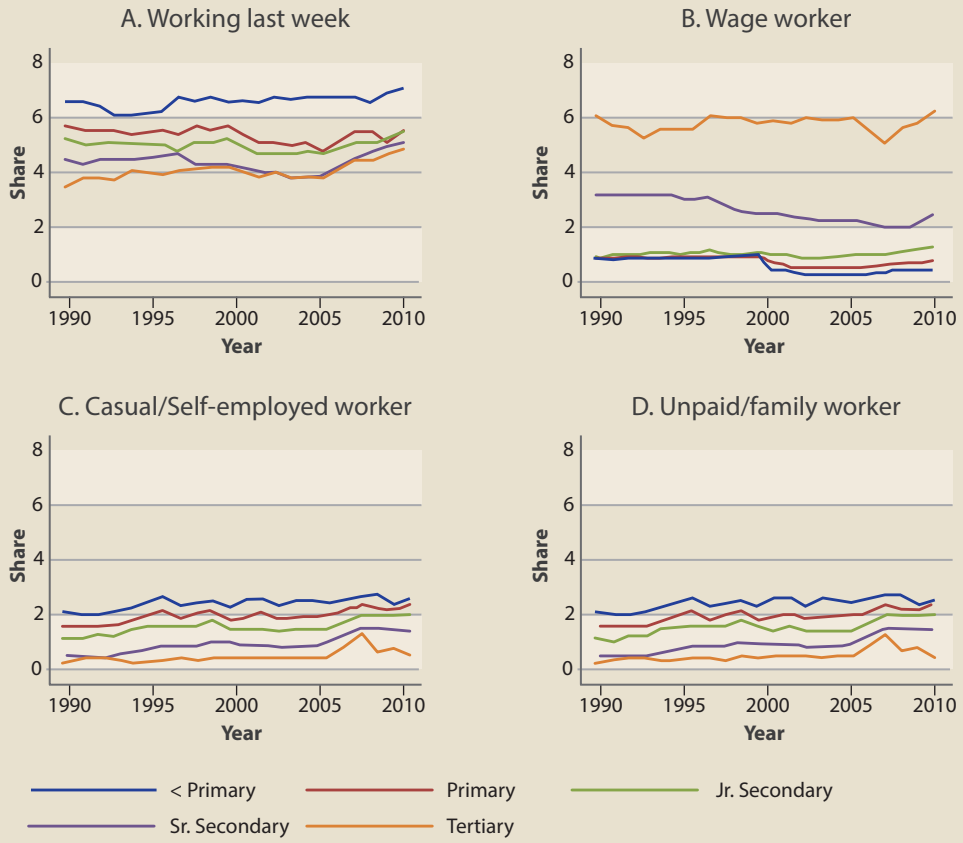
DECOMPOSITION OF THE GENDER WAGE GAP OVER TIME (WAGE WORKERS)



Note: Sample limited to men and women wage workers aged 20–70 years.
Source: 1990–2011 National Labor Force Survey [31].

FIGURE 3-21

FEMALE LABOR FORCE PARTICIPATION OVER TIME BY CLASS OF WORKER



Notes: Sample limited to women aged 20–70 years. Note that the casual work category was introduced to the SAKERNAS in 2001.
Source: 1990–2011 SAKERNAS [31].

Precarious employment rate: In 2014, the proportion of the vulnerable male workers (precarious employment rate) was higher than that of the females, at around 12% for males compared to 6% for females. In Indonesia, reducing the incidence of informal and precarious work could contribute substantially to improving job quality and productivity, as the majority of Indonesian employment is informal. In 2007, more than six out of 10 workers belonged to the informal sector, though there has been some decline since then.

Reducing informality is an important challenge for Indonesia. Workers in the informal sector experience a higher degree of economic insecurity; informality limits economies of scale; and firms in the informal sector invest less in their workers, which dampens the productivity growth [44].

Another potential indicator of gender-based discrimination is occupational segregation, in which certain occupations are dominated either by men or by women. While Indonesian women are well represented in jobs that tend to require soft skills, such as professional, clerical, sales, and service, they are underrepresented in leadership-oriented positions such as legislators and managers. Likewise, they are underrepresented in blue-collar jobs that require manual labor. Women's underrepresentation in leadership-oriented jobs could reflect a 'glass ceiling' in which social norms and attitudes constrain highly-skilled women's career trajectories.

However, opportunities for women in the labor market in Indonesia are emerging as the government is noting women's contributions to the micro, small and medium enterprises (MSME) sector, which represents the backbone of the Indonesian economy. Additionally, the national economy is moving toward becoming more of a service economy, thus expanding the demand for working women in a sector where women have significant presence.

Additionally, there is a strong demand for microfinance activities, and a variety of organizations are currently responding to that need. Commercial banks have discovered the financial benefits of working with women and women's groups, and banks have been growing focus in this market segment. Regional development banks, especially province-owned banks, are effectively using women's groups savings and lending to build strong customer bases. Women's cooperatives are often formed for savings and loan activities, and there are a range of governmental institutions and NGOs supporting credit union activities.

3. Determinants of Female Labor Force Participation Rate

This section discusses the determinants of labor force participation, especially for women, both from supply-side and demand-side viewpoints. It also views differences in FLFP conditions in villages and towns, as well as the effects of female migrations. As was remarked previously, it is difficult to understand women's work in Indonesia, as the issues relating to women's work and employment are quantitatively different from those of male workers [45].

Many factors contribute to female labor force participation [46]. The labor market, as well as other markets in the economy are controlled by the forces of supply and demand. In general, there are several factors that determine female participation in the labor market, and could be analyzed by examining the supply and demand of labor [47].

The labor market is different from most other markets because the demand for labor is derivative labor or derived demand, which means that the demand for labor depends on the demand for output

production [47–48]. A woman's labor market behavior will be determined by the intersection of labor supply with labor demand. These factors may be broken down into intervening and background variables. Intervening variables include supply and demand factors and a woman's status as a migrant.

The study of determinants of FLFP is a relatively less researched area in Indonesia. This section assumes importance because of this research gap. As was remarked previously, it is difficult to understand women's work in Indonesia, as the issues relating to women's work and employment are quantitatively different from those of male workers.

Given the complex nature of female labor force participation, it is important to highlight how socioeconomic factors affect the decision and ability of women to engage in the labor market. The key dimensions, though often overlapping, are discussed ahead [48–49].

3.1 Labor Supply

In the background are demographic and sociocultural factors that influence the supply factors [45]. Then there are several intervening factors including GDP per capita, fertility rates, female illiteracy rates, unemployment rates, and urbanization. The intervening factor may be divided into supply and demand-side factors. The supply-side factors are: women's education and skill levels; availability of childcare facilities; attractiveness of jobs; husband's income, occupation, and education; and women's motivation to work. On the demand side, the factors are the rate and character of economic development; size of the informal sector; discrimination against hiring females; wages and sex discrimination; and hiring regulations.

There are some factors that influence female participation in the labor force, followed by changes in employment structures. Female's education, household welfare, and family structures are the main factors that affect females' decision to work. These apart, the employers' preferences determine the job opportunities for females. These preferences are influenced by gender stereotypes that are often attached to females, such as docility and being nimble-handed.

Based on the previous framework, labor supply refers to a woman's choice of how much to work, given the labor market opportunities available to her. "When deciding whether and how much to work, a woman must balance the returns to labor (her wage and any nonmonetary benefits) against the opportunity cost of foregone home production and leisure as well as other monetary and nonmonetary costs that she and her family members would incur if she performs work outside the home" [31].

The household's broader financial situation also influences labor supply. When other household incomes are low, the marginal benefit of additional income is very high, thus giving women a strong incentive to work; whereas when other household incomes are high, there is a less pressing need for female labor to supplement the household budget. Some supply-side factors, such as the marital status, the presence of children, age, education, the composition of the family, and the husband's income affect female labor [47].

Some of the obstacles that hinder the entry of women workers in the labor market have been properly addressed. There are several fundamental factors such as education and skills that are crucial for improving employment outcomes and promoting better labor market participation. Implementing policies to enhance the coverage and quality of education and better linking education and training systems with the employment demand may help overcome not only skill deficits and mismatches but also promote growth and formal employment. In Indonesia, this also requires tackling large regional and urban-rural disparities in skills.

There is considerably more variation across developing countries in labor force participation by women than by men. This variation is driven by a wide variety of economic and social factors, which include economic growth, education, and social norms. Looking more broadly at improving women's access to quality employment, a critical policy area is enhancing women's educational attainment beyond secondary schooling [52].

3.2 Labor Demand

Labor demand broadly refers to the set of labor market opportunities available to a woman with a given set of demographic characteristics. Some factors were analyzed as demand-side factors, such as harassment and discrmination, gender wage gaps, and occupational segregation. Other demand-side labor factors can be addressed by government policies and wages [47]. There may be a number of factors, such as:

- Gender-based discrimination in hiring or wages.
- The quality of the work environment, e.g, concerns due to harassment or security.
- The location of available jobs and commuting costs.
- Whether the available jobs allow a woman to balance work with obligations at home or not.

3.2.1 Description of Explanatory Variables

Based on a review of the literature available on female labor force participation, some key important indicators were observed that are discussed ahead.

Education

A study has shown that access to education is one of key determinants of female labor force participation [10]. Other studies have found that educational attainment affects the decision and ability of women to engage in the labor market [49–50]. Education has a positive effect on female labor force participation with a significance level of 5% [51]. For married women too, education influences positively and significantly their decisions to work [53–55].

An analysis on the mismatch between supply and demand of labor [56] shows that although females coming from better income status sometimes have higher education, that does not mean that they also have higher probability to be employed. The findings on the key factors drive female's engagement in the labor market and access to employment, especially the role of educational attainment.

Another study found that there was a positive effect of education on labor force exit and reentry, indicating high-educational homogamy and better access to job information [57–58]. There was a strong correlation of participation in wage labor with better education and empowerment [31]. The study analyzed the female labor participation in Indonesia, which confirmed the J-curve relationship between women's educational attainment and FLP [59].

Family Status

Family status is one of the key determinants of female labor force participation [10, 59]. The indicator of female's status in the family is marital status, which has stronger impact than childbearing on labor force exit. This indicates that the decision to have a child is jointly determined with the decision to marry [57]. This effect of marital status on labor force exit is stronger for blue-collar private workers, which could be due to a low job protection or because women choose such type of work for a 'transit' before marriage [57–58].

The previous studies of FLFP in Indonesia were mainly focussed on the work pattern of married females in employment. In the context of West Papua, however, the study of indigenous FLFP in Kota Jayapura was limited to an investigation of indigenous women participating in informal sectors in the Sentani district [60].

The factors that determined female participation in the labor force are the family structures. Females' marital status, age, and presence of young children are strongly correlated with their labor force participation [61–62]. Particularly with the existence of children, females tend to delay their involvement in the labor market for childcare reasons. Another factor that exogenously determines females' decision making is the employer's preference of having females as their employees, especially in the manufacturing sectors such as textiles, clothing, and footwear that are dominated by young and single females [61]. Females are preferable to employ as factory workers because they are stereotyped with more manual dexterity, more willingness to take orders, docility, willingness to accept lower wages, and low enrolments in the labor unions [63].

Previous studies have found strong effects of marital status, childbirths, and presence of young children in reducing females' employment continuity. However, it may be noted that:

1. Flexibility in part-time jobs reduces the incompatibility between work and childcare.
2 Presence of adult women in the household reduces the negative effect of young children on women's work continuity.
3. Family status is important, but not a sole determinant. Other factors, particularly education and previous job characteristics are also found to determine women's employment transitions.

Fertility

Fertility rate is another factor influencing married women's participation in the labor market [10]. The relationship between fertility rate and married women's participation can be positive. In Indonesia, many poor families with a large number of children may pressure the married women to look for work to support their families since their husbands' incomes are not enough.

The relationship between fertility and FLFP has been explored using multiple rounds of the National Socio-Economic survey (NSES) in a study. This effect is concentrated among low-income households, and the author argues that it is the expense associated with having a third child that drives women into the labor market [64]. The childcare constraints do bind some women, at least at the margin, to perform certains types of work. Informal employment is relatively more attractive to mothers, perhaps due to the additional flexibility it provides [31].

The later stages of childrearing, measured by the age of the youngest child, were found to have no significant effect on women's decisions to return to employment. However, the presence of children does have a strong effect on the likelihood of returning to work in the informal sector rather than in the formal sector. The likelihood of reentering employment after a work interruption is also positively associated with the number of young children, indicating that women return to work more quickly when the economic burden in the family increases. This study also finds that formal workers tend to be employed in the same sector when they return to work [31].

In Indonesia, females adjust their labor force participation during childbearing years. Marriage and childbearing have consistently been shown to affect women's employment continuity. Women in

general withdraw from the workforce at marriage or at the onset of motherhood. However, the characteristics and effects of such interruptions to women's working patterns remain unclear.

The rates of wage work decline steadily with age, an outcome that is strongly correlated with marriage and the presence of children in our sample. One explanation for the dropout may be that wage work requires longer hours, or that it does not offer women the flexibility they need to balance work and family responsibilities.

From the DHS data to study the relationship between FLFP, marriage, and the age of a woman's youngest child, the omitted category is 'single with no children,' so all impacts in the table represent average differences relative to this reference group. The married women with no children are not less likely to be working compared to their unmarried peers, and they are 15% less likely to be a wage worker, although this is offset by increases in self-employment and family work. In contrast, married women with children under the age of five are 19% less likely to be working than single women with no children, with their large declines in wage work partially offset by increases in self-employment and family work. Women do appear to reenter the labor force, and mothers with children aged 11 and older are just as likely to work as their unmarried childless peers. However, mothers go less for wage work and more for informal-sector work.

The subsidized childcare will likely be effective in contexts where it does not simply crowd out informal caregiving arrangements. In the Indonesian context, this suggests that urban women, who often have families in rural areas, could especially benefit from childcare services. Research that sheds light on women's experiences of transitioning back into formal-sector work after their children have grown could help identify additional policy entry points.

Percentage of females working without payment in the family enterprises or paddy fields had declined after 1990 to 33% in 1995, but rose again to 39% by 2000. The increase of females' share of unpaid work in 2000 was influenced by the economic crisis when women assisted their husbands to make their families better off. The reverse effect of family welfare takes place for females from better-off households. They have the tendency to stay out of the labor force, especially in urban areas [62].

Social

Social factors have positive effects on female labor force participation with significance level of 5% [51]. The social stigma and norms, with respect to women's mobility or the types of jobs 'appropriate' for women to do, may be especially important in countries like Indonesia, where the roles of men and women in the home and in the society are often sharply differentiated[15] [10, 31]. Also, it is important to highlight how social factors affect the decisions and abilities of women to engage in the labor market [49–50].

It is also possible that women in conservative households are not permitted sufficient freedom of movement to perform wage work, or they do not feel safe traveling to areas where wage work is readily available. This variation is evident in the share of women who state that wife-beating is justifiable if a woman leaves the house without her husband's permission.

Income Level

Income of workers can be seen from the wages. Variable income has positive effect on female labor force participation with a significance level of 5% [49, 53, 65]. In Indonesia, the regional minimum wage has been determined, though wage problems exist, particularly the wage gaps.

15 Even in the USA's context, Goldin [89] argues that a key driver of FLFP growth was the expansion of white-collar jobs, which were seen as more socially appropriate for women as compared to blue-collar jobs.

The amount of family income, and the absence of pension are among the factors determining that as many as 65.5% of the older persons still work [65]. This study was conducted in eight districts in Bali with 358 samples. The objective of the study was to broadly determine the socioeconomic background of the older persons and know the employment models of older persons and the factors that influenced those models. The best model obtained from this study was:

g(x)=16.204-0.152age-3.459pension-2.421hhincome, where hh=household

The imbalance between supply and demand for labor will determine the level of wages [48]. The study aimed to examine and analyze the effect of wages on labor absorption in 33 provinces of Indonesia. The national data was used for the period 2006–10, with statistical method being the Path Analysis Model [66]. Empirically, the causal relationship between the minimum wage (W), and labor participation (L), was formulated as follows:

*Labor (L)=py*1*x*1 *Minimum Wage (W)+py*1ε1it

The result of the study shows that minimum wage has a significant effect and that it has a negative correlation with labor participation. The effect of minimum wages on employment has a path coefficient of –0.39 with a probability value of significance 0.000. This means that increasing the minimum wage contributed to decrease in labor participation, particularly for low productive employment.

In Indonesian context, regarding employment in the clothing industries on either side of the Jakarta–West Java provincial border, several minimum-wage changes were implemented at the provincial rather than national level [67]. The analysis found that the minimum wage hike had a better impact on female wages, since women are generally paid less than men. It also found that there was little impact of the minimum wage on employment, although there was some evidence that small, domestic firms reduced their labor demand [31].

The minimum wage is considered to be a determining factor for female labor force participation rate. At higher levels of education, potential earnings act as a pull factor, helping overcome economic and social constraints.

Access to Transportation

Access to transportation is a key determinant of female labor force participation [10]. The number of female workers is often influenced by such things as the inadequacy of services like day-care and transport.

Services like day-care often reduce the burden on women in the home, and encourage them to go to work freely. Further, the facilities of adequate transportation often enable the access of females to the workplace. Easy access to work encourages a higher labor force participation rate for females, which leads to higher productivity. However, apart from the lack of day-care and transportation services, the persistence of the view that women are appropriate being housewives is one of the factors inhibiting labor market participation of women in Indonesia.

Rural and Urban

Residence in rural or urban area is determined as a key factor of female labor force participation rate (FLFPR). It has a significantly positive effect on FLFPR [65].

By 2035, two-thirds of the population would be living in urban areas. In 2010, half the population lived in urban areas, and with the increasing pace of urbanization it is expected that an additional 85 million people would be living in urban areas by 2035. This shift would have profound implications for the labor market. In particular, rural labor force participation tends to be higher than urban labor force participation, and urban unemployment tends to be higher than rural unemployment. If these trends continue, there is a risk of lower labor force participation and higher unemployment in the years to come.

Indonesia is shifting away from an economy dominated by the agricultural sectors that are based in rural areas, toward an economy with a larger share of activities in the industrial and services sectors in urban areas. This trend is driving rapid urbanization. On a positive note, the manufacturing and construction sectors, which provide important information on investment and trade trends, have shown strong performances in 2014 and 2015. The challenge is now to consolidate these efforts and channelize support into strategies that could drive competitive and productivity gains in the context of a slowing economy [39].

In general, women in rural areas in Indonesia are economically more active than those in urban areas; with rural working women outnumbering their urban counterparts by nearly five to one. The study highlights the decline in unpaid work among younger women, which appears to reflect a decline in overall labor force participation rather than a substitution between different types of work.

In the context of Indonesia, a limited number of studies of urban and rural areas investigated FLFP. For instance, these studies investigated demographic and socioeconomic factors that affected FLFP in several major cities in Indonesia [58] and Jakarta [54]. In eastern Indonesia, the studies investigated human resources development by analyzing inter-provincial differentials in education, health, and FLFP.

One of the studies highlights the different patterns for women in urban areas, where younger birth cohorts are increasingly likely to participate in the labor market [31]. This growth is mostly driven by wage works. These patterns may reflect changing social norms and income effects as supply-side factors; or increased availability of relatively more attractive formal-sector jobs in urban areas as a demand-side factor. The figures also show that at all ages, women in rural areas are more likely to work than their urban counterparts. If the trends apparent in the 1980–89 birth cohort continue, however, the rural-urban difference may ultimately disappear in the future.

Rural-urban Migration Issues

It is theoretically argued that there is a strong linkage between migration and poverty. Migration can be treated as an alternative to improve individuals' welfare and to minimize the risk of being prone to poverty. Meanwhile, poverty itself at the same time facilitates people to leave the land. In Indonesia, migration is seen as a coping strategy to step out of poverty.

Migration is a common phenomenon for many Indonesians who cannot find jobs in their homes due to lack of employment opportunities and limited sources, and therefore try to search for fortunes in other destinations. Many studies on migration have found that migrants on an average are better than non-migrants. However, little is known to what extent the migration process can improve migrants' welfare and help them step them out of poverty.

Like education and health, migration is seen as a human capital investment in that an individual decides to move to a new place, scarifying time and money to gain benefits in the future. In this

view, potential migrants consider the benefits and losses of the migration process beforehand, and a decision to migrate is taken if and only if the benefits outweigh the cost of migration. Even though the level of uncertainty to have jobs in the destination is high, the potential migrant is willing to move as long as the expected net benefit from the migration exists.

Theory suggests that a migrant is an economically oriented person who only moves if there is an expected positive net benefit of migration. However, the theory does not underline that the migrant is a selective person. His or her decision to migrate does not depend only on an expected income in future. There is an unobservable factor embedded with each potential migrant that strongly influences his or her decision to migrate. The empirical findings of this study are based on longitudinal datasets of Indonesia Family Life Surveys (IFLS) of 1993 and 2000, which contain a rich and dense information on migration history of individuals over the years. The data allows analyzing socioeconomic conditions of individuals before and after migration.

Another virtue is that the data set provides information on earnings so that it is possible to measure the welfare of people before and after migration and to estimate the earnings of those who did not work prior to migration. The study takes into consideration all individuals aged 15 and above in 1993 and follows them till 2000. A two-step Heckman model is applied to estimate wages in 1993 and 2000.

The core findings of this study reveal that the migrants benefitted by earning higher wages in the destination. After migrating, they had wider capabilities to afford better standards of living, which put them far above the poverty line. The higher wages received after migration provided them with many opportunities. Being better off financially allowed migrants to improve productivity by investing their human capital in completing higher education and acquiring superior skills. Further, an improvement in the level of welfare also allowed them to have the power to support new migrants, which could potentially sustain the flow of migration in future.

Economic growth almost inevitably leads to substantial movement of labor from the rural agricultural sector to secondary and tertiary industries in cities. This movement is thought to benefit both who migrate and those who remain behind. As a result, rural-urban migration is often regarded as one of the most effective ways to reduce rural poverty and alleviate income inequality.

In Indonesia, it is estimated that approximately two-thirds of the rural labor force will migrate to urban areas. In general, urbanization over the past 40 years has been rapid, with the government placing few restrictions on rural-urban migrations. Most of the migration movements have consisted of the rural poor moving into the informal sector and urban slums, though there also are a considerable number of circular migrants who left their families behind in the villages [61, 68–69]. Further, increased rural-labor productivity, partly related to outmigration, contributed to the relatively small rural-urban income gaps [60].

Among other factors that may contribute significantly to the decision to migrate are: increasing labor demand in the service markets in countries of destination; family obligations; unemployment; low wages; limited social and economic opportunities; and the desire to expand one's horizons. Women generally face more drastic decision-making and financial restrictions than men, which could pose obstacles to freedom of movement. Yet income-earning opportunities could empower women and loosen traditional constraints on female mobility. Economic and social upheaval could also provide the impetus to leave.

Educated women unable to overcome employment discrimination in their own countries migrate in search of an opportunity to find work that is more likely to better utilize their skills and that is better paid. Female migration is also motivated by other non-economic factors, including surveillance by communities and patriarchal traditions that limit opportunity and freedom, getting out of a bad and abusive marriage, fleeing from domestic violence, and desiring equal opportunities.

A significant number of women still migrate as wives, and therefore their migration status is tied to that of their spouses. In Indonesia, if domestic violence occurs, women risk losing their residence rights if they decide to leave their spouses. Other contributory factors that are usually taken into account when considering migration are women's age, their power position within the family, and their stage in the life cycle (whether they are leaving children behind or not), the capacity of the household to do without them, and the presence of other women to replace them in their domestic activities [70].

Migration processes with a female focus should be more closely scrutinized in order to prevent hidden risks and promote new opportunities for women and their families. Women's decisions to migrate depend on many factors: labor market conditions, discrimination and exclusion, unfavourable legislation, risks, the impact on people left behind, etc. Apart from the problems and risks, however, women's migration also brings new opportunities.

Household and Spouse Characteristics

Characteristics of household, such as the husband's income and family size have positive and significant influence on married women to decide to work [53]. Among other variables of family status identified by household characteristics [10] that have effect on female labor force participation, Dini's study in Makasar found that parental characteristics such as income and education have negative effects with significance levels of 5% (2014).

The study shows a strong relationship between marital status (married) and household headship [59]. Marriage strongly discourages women to work in the formal sector, while the reverse is true for the informal sector. In addition, women of headed households do not have any other choice to join the labor market to earn money.

Other Factors

There are several other factors of female labor force participation, such as [10, 49–50, 65] :

1. Institutions (legal framework, enterprises, labor unions, etc.).
2. Sectoral base of the economy (agricultural, industrial or service-based).
3. Political regimes.
4. Wars and conflicts.
5. Access to credit and other inputs.
6. Institutional setting (laws, protection, and benefits).

Empirical Results

A few studies have attempted to identify the potential determinants of FLFP in Indonesia. There are a number of supply and demand factors that could be expected to influence FLFP. Based on a review of the available literature as a foundation, and keeping in view the availability of data, the explanatory variables were identified for analyzing their impacts on FLFP as a dependent variable.

One study identified ten independent variables that were expected to influence the dependent variable FLFP [65]. The ten independent variables were: completed primary school, completed junior high school, completed high school, age, percentage of married women, per capita expenditure, minimum wage, human development index, residence, and gross domestic product. For the analysis, these were categorized into supply- and demand-side factors that could be expected to influence the FLFP as follows:

a. Supply-side factors

1. Completed primary school (X1).
2. Completed junior high school (X2).
3. Completed high school (X3).
4. Age (X4).
5. Percentage of married women (X5).
6. Per capita expenditure (X6).

b. Demand-side factors

1. Residence (X7): Percentage of women in the labor force who reside in the urban areas.
2. Minimum wage (X8): Minimum-wage net salary of the worker for a month in each district or city, based on the decision of the Governor of East Java.
3. Human development index (X9).
4. Gross domestic product (X10).

Data on these variables was collected from two national data sources, namely, the National Socio-Economic Survey (NSES), and the National Labor Force Survey (NLFS). The units of analysis were districts or cities in East Java Province. A statistical model with probit regression was specified to analyze the factors that were anticipated to influence FLFP in Indonesia.

The likelihood ratio test was conducted in order to examine the significance β coefficients simultaneously. Value of the G test statistic was 39.391, while value of $\chi^2$0.05:10 amounted to 18.307. The results showed that reject H0 meant that there was at least one influential predictor variable of female LFPR.

Wald test statistic was used for significance test of the complete model. The result of test presented the value Z0,05/2 = 1.96. The predictor variable has a W value of less than Z0,05/2 and it meant reject H0.

TABLE 3-4

TEST OF SIGNIFICANCE PARAMETER OF SPATIAL PROBIT REGRESSION; COMPLETE MODEL

Variable	β	SE(β)	W	P-value
Constant (1)	-16.368	16.514	-0.99	0.322
Constant (2)	-15.730	16.498	-0.95	0.340
Constant (3)	-6.896	15.606	-0.44	0.659
% Primary (X1)	-0.088	0.071	-1.23	0.217
% Junior (X2)	-0.088	0.172	-0.51	0.608
% Senior (X3)	-0.435	0.275	-1.58	0.114

CONTINUED ON NEXT PAGE

CONTINUED FROM PREVIOUS PAGE

Variable	β	SE(β)	W	P-value
% Married (X5)	0.082	0.317	0.26	0.797
Income (X6)	-0.060	0.114	-0.53	0.599
Wage (X8)	-0.243	0.103	-2.37	0.018
HDI (X9)	0.000	0.000	1.53	0.125
Urban (X7)	0.150	0.198	0.76	0.449
GDP (X10)	0.558	0.250	2.24	0.025

Note: Significance α=5%

The percentage of women workers who came from the city, and the GDP, affect the female LFPR. The parameter estimates resulted by the model are as follows:

$Z_1 = -16.3681 - 0.087595X_1 - 0.0883616X_2 - 0.434608X_3 + 0.081653X_4 - 0.0598486X_5 - 0.243169X_6 + 0.000068X_7 + 0.149727X_8 + 0.558209X_9 + 18111.5X_{10}$

$Z_2 = -15.7304 - 0.087595X_1 - 0.0883616X_2 - 0.434608X_3 + 0.081653X_4 - 0.0598486X_5 - 0.243169X_6 + 0.000068X_7 + 0.149727X_8 + 0.558209X_9 + 18111.5X_{10}$

$Z_3 = - 6.89602 - 0.087595X_1 - 0.0883616X_2 - 0.434608X_3 + 0.081653X_4 - 0.0598486X_5 - 0.243169X_6 + 0.000068X_7 + 0.149727X_8 + 0.558209X_9 + 18111.5X_{10}$

The next significantce test obtained the value of the G test statistic as 33.045, while value of $\chi 20.05:2$ amounted to 7.815. The results showed that reject H0 meant there was at least one influential predictor variable of female LFPR. The best result of the model is shown in Table 3-5.

TABLE 3-5

TEST OF SIGNIFICANCE PARAMETER OF THE BEST SPATIAL PROBIT REGRESSION, COMPLETE MODEL

Variable	β	SE(β)	W	P-value
Constant (1)	-4.834	1.151	-4.20	0.322
Constant (2)	-4.313	1.082	-3.99	0.000
Constant (3)	-0.154	0.869	-0.18	0.859
Income (X6)	-0.144	0.048	-0.29	0.003
Urban (X7)	0.232	0.067	3.45	0.001
GDP (X10)	8034.9	2609.3	3.09	0.003

Note: Significance α=5%

Based on Table 3.5, variables such as per capita expenditure (X3), women from urban (X8) and GDP (X9) significantly affected the female labor force participation. Variable of education did not affect female labor force participation, which meant that whatever the education level of women, they remained absorbed in the labor market. The parameter estimates resulting from the best model are as follows:

$Z_1 = - 4.831 - 0.144X_6 - 0.233X_9 + 8034.9X_{10}$

$Z_2 = - 4.313 - 0.144X_6 - 0.233X_9 + 8034.9X_{10}$

$Z_3 = - 0.514 - 0.144X_6 - 0.233X_9 + 8034.9X_{10}$

Other empirical results aimed to investigate the factors that had strong influence on women's decision to enter the labor market, with special emphasis on education and household-level factors [59]. The probit model was used to examine the factors that influenced women's decision to participate in employment.

Using the 2000 IFLS data, some variables were selected, classified as below:

1. Female's characteristics:

    - Age: 15–24; 25–39; and 40–60.
    - Marital status: Married, separated, widowed, divorced or single.
    - Education: No schooling, incomplete primary, primary, lower secondary, upper secondary, diploma or university.

2. Religion: Islam, Hindu, Buddisht, Catholic or Protestant.

3. Heads of household characteristics: Age, education, and monthly income.

4. Region of residence.

Table 3-6 presents the results of the probit model estimated as a set of explanatory variables, with the labor force status of all women aged 15–60 years being a dependent variable. The results show that in general, the female labor force participation is significantly and positively correlated to all age groups. Other variables had significant negative associations with female labor force participation. Variables such as marital status being married, religion (Islam), middle level of education, higher level of education of the household head; monthly income of the head, and family size had significant negative associations.

An interesting result found was that women aged 40–60 years had the highest probability to participate in the labor force, whether living in urban area (78%), rural area (85%) or total (82%). It makes sense that women in this age group were more likely to participate than other groups, because they had enough time to join the labor market over their younger counterparts who belonged to child-bearing and child-rearing ages.

A key status of female labor force participation is the marital status, with the assumption that married women have less propensity for labor force participation. From the result, it was seen that married women were 8% less likely than single women to participate in employment, with a significance level of 1%.

Primary education did not significantly affect female labor force participation, and the lower secondary education had a negative effect. Meanwhile, all levels of education, including primary incomplete, upper secondary, diploma, and university had significant positive effects on female labor force participation.

TABLE 3-6

MEANS AND STANDARD DEVIATIONS OF SAMPLE VARIABLES

Variables	All samples	Participation in labor force	Participation in formal sector	Participation in informal sector
Age group				
25-39 years	0.39	0.41	0.43	0.40
	(0.49)	(0.49)	(0.50)	(0.49)
40-60 years	0.30	0.37	0.27	0.43
	(0.46)	(0.48)	(0.44)	(0.50)
Marital status				
Married	0.71	0.71	0.60	0.77
	(0.46)	(0.45)	(0.49)	(0.42)
Separated/divorced/widowed	0.08	0.12	0.12	0.12
	(0.28)	(0.33)	(0.32)	(0.33)
Education				
Primary incomplete	0.22	0.25	0.18	0.30
	(0.41)	(0.44)	(0.39)	(0.46)
Primary	0.27	0.26	0.22	0.28
	(0.44)	(0.44)	(0.41)	(0.45)
Lower secondary	0.18	0.13	0.12	0.14
	(0.39)	(0.34)	(0.33)	(0.34)
Upper secondary	0.17	0.16	0.25	0.11
	(0.38)	(0.37)	(0.43)	(0.32)
Diploma	0.02	0.03	0.07	0.01
	(0.16)	(0.17)	(0.26)	(0.08)
Universirty	0.02	0.02	0.05	0.01
	(0.13)	(0.15)	(0.22)	(0.09)
Religion				
Islam	0.89	0.88	0.89	0.87
	(0.32)	(0.33)	(0.32)	(0.33)
Head of household characteristics				
Age	44.21	44.86	43.59	45.58
	(12.00)	(11.86)	(12.17)	(11.61)
Education				
Primary/lower secondary	0.40	0.39	0.35	0.41
	(0.49)	(0.49)	(0.48)	(0.49)
Upper secondary/higher education	0.24	0.22	0.32	0.16
	(0.43)	(0.41)	(0.47)	(0.37)
Monthly income				
Rp 1,000,001–3,000,000	0.31	0.32	0.35	0.30
	(0.46)	(0.47)	(0.48)	(0.46)

CONTINUED ON NEXT PAGE

CONTINUED FROM PREVIOUS PAGE

Variables	All samples	Participation in labor force	Participation in formal sector	Participation in informal sector
Rp 3,000,001–8,000,000	0.28	0.26	0.28	0.25
	(0.45)	(0.44)	(0.45)	(0.43)
Rp 8,000,000+	0.16	0.14	0.17	0.13
	(0.37)	(0.35)	(0.37)	(0.33)
Female-headed household	0.13	0.18	0.21	0.17
	(0.33)	(0.39)	(0.41)	(0.37)
Family size	4.82	4.63	4.63	4.63
	(2.04)	(2.05)	(2.18)	(1.97)
Region				
North Sumatra	0.07	0.07	0.05	0.07
	(0.25)	(0.25)	(0.22)	(0.26)
West Sumatra	0.04	0.04	0.04	0.04
	(0.20)	(0.20)	(0.19)	(0.20)
South Sumatra	0.05	0.05	0.03	0.06
	(0.21)	(0.21)	(0.16)	(0.24)
Lampung	0.04	0.04	0.02	0.06
	(0.20)	(0.21)	(0.13)	(0.24)
Jakarta	0.08	0.07	0.12	0.05
	(0.27)	(0.26)	(0.33)	(0.21)
Central Java	0.13	0.15	0.15	0.16
	(0.34)	(0.36)	(0.36)	(0.36)
Yogyakarta	0.05	0.07	0.07	0.06
	(0.22)	(0.25)	(0.26)	(0.24)
East Java	0.15	0.15	0.16	0.15
	(0.35)	(0.36)	(0.37)	(0.36)
Bali	0.05	0.05	0.05	0.06
	(0.23)	(0.23)	(0.23)	(0.23)
West Nusa Tenggara	0.07	0.07	0.06	0.08
	(0.26)	(0.26)	(0.24)	(0.27)
South Kalimantan	0.04	0.05	0.03	0.06
	(0.21)	(0.21)	(0.16)	(0.27)
South Sulawesi	0.06	0.04	0.03	0.04
	(0.23)	(0.20)	(0.18)	(0.21)
Urban	0.48	0.45	0.61	0.35
	(0.50)	(0.50)	(0.49)	(0.48)
Sample size	8,862	5,293	1,939	3,353

Source: Ogawa (2007)

Note: ***, **, and * indicate significance levels of 1%, 5%, and 10%, respectively.

For household head, age charactersitics had significant effect on females being employed in the rural and total samples. However, for education, the head of household with higher education decreased the prospensity of women's labor force participaton. Also, higher monthly income made a family economically solvent, which discourgaed women's entry into the labor market.

4. Impact of FLFP on Productivity

Many of the studies listed above have demonstrated that there is a strong relationship between LFP and economic development. Labor productivity is determined by two main factors, namely the technical factors that are associated with the implementation of more efficient working methods, and the human factors that are associated with the efforts made by people in completing the work, e.g., motivation, discipline, and work ethics. Therefore, in industries that use lot of technology, improvements in productivity would come by focusing on the technical factors, whereas in labor-intensive industries, the focus would be on human factors.

Related to the impact of female labor force participation on productivity, we analyzed the data from the APO. The results showed that there was a strong correlation between total factor productivity and the employment ratio.

Productivity is commonly defined as a ratio of a volume measure of output to a measure of input used. Among other productivity measures such as multifactor productivity or capital productivity, labor productivity is particularly important in the economic and statistical analysis of a country. More specifically:

1. Labor productivity is a revealing indicator of several economic indicators as it offers a dynamic measure of economic growth, competitiveness, and living standards within an economy. It is the measure of labor productivity, and all that this measure takes into account, which helps explain the principal economic foundations that are necessary for both economic growth and social development.

2. Labor productivity is a relationship between production and the factors of production. Although the ratio used to calculate labor productivity provides a measure of the efficiency with which inputs are used in an economy to produce goods and services, it can be measured in various ways. Labor productivity is equal to the ratio between a volume measure of output, such as gross domestic product or gross value added, and a measure of the input used, such as the total number of hours worked or thetotal employment.

3. The numerator in the ratio of labor productivity, i.e., the volume measure of output, is measured either by gross domestic product or by gross value added. Although these two different measures can both be used as output measures, there is normally a strong correlation between the two. There is also a preference for value added, as the taxes are excluded. The denominator in the ratio of labor productivity, i.e., the input used, is the most important factor that influences the measure of labor productivity. The measures of input used include the time, efforts, and skills of the workforce.

Labor input is measured either by the total number of hours worked by all persons employed or the total employment (head count). There are both advantages and disadvantages associated with the different input measures that are used in the calculation of labor productivity. It is generally accepted that the total number of hours worked is the most appropriate measure of labor input because a simple

headcount of employed persons can hide changes in the average hours worked, caused by the evolution of part-time work or the effect of variations in overtime, absence from work or shifts in normal hours. However, the quality of hours-worked estimates is not always consistent. In particular, statistical establishment and household surveys are difficult to use because of the varying quality of hours-worked estimates and the varying degree of international comparability [26].

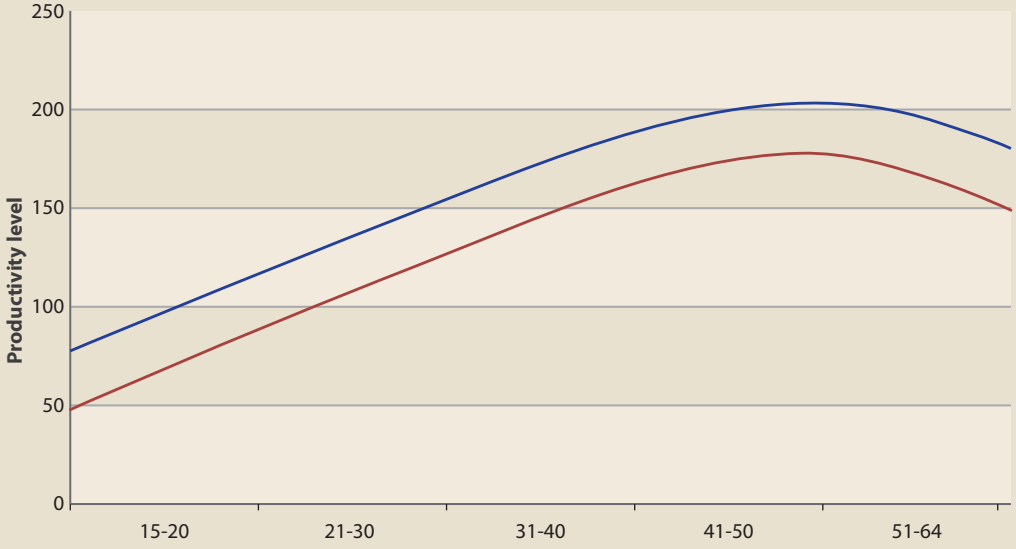
Increase in labor force participation is negatively correlated with productivity growth, at least in the short term [71–74]. The main reasons for this negative tradeoff are that new entrants may lack the practical skills and that it takes time until they become fully productive. Immigrants may also lack general skills in relation to the native language or formal education. Older workers may suffer from declining physical abilities and slightly lower cognitive capacities, although this may be compensated by higher levels of experience and social intelligence [75–76]. Overall, a higher participation of older workers, or an extension of their work life, is not likely to contribute to productivity growth [77].

The findings of the research highlight the age-productivity profiles (Figure 3-22). Productivity increases up to around the age of 50, and then decreases. Obviously, the main driver of productivity growth is technological change. Thanks to pervasive innovations like ICT, productivity increases universally. This is shown in the upward shift of the productivity curve. This shift presumes that everyone learns to use the new technology. This figure only serves to conceptualize a theoretical relationship between age, productivity, and technological shocks. The higher curve represents productivity after a technological shock that increases overall productivity. The lower curve describes the pre-shock state of productivity [77].

Hence, participation growth may lead to productivity growth if workers can adapt to innovations that increase productivity. Life long learning (LLL), therefore, is the key to adopting new technologies, and ensuring that participation growth and productivity growth go together.

FIGURE 3-22

AGE-PRODUCTIVITY PROFILES AT TWO LEVELS OF OVERALL PRODUCTIVITY



Source: APE [132]

The fact that employment of older female workers increased may have opposite effects on productivity growth. As shown in the literature, an increased participation of older women has a relatively strong negative effect on productivity growth due to lower skill levels among older generations of women [74]. However, given the positive trends in educational attainments of females and better equality between male and female workers, this negative effect is likely to become smaller or even disappear in future [77].

The correlation of productivity growth per hour worked with participation growth in FTE is negative, more so for women. These correlations suggest that an increase in the female labor force participation would induce a negative productivity growth.

The relationship between female labor force participation and economic development focused on West Papua, but more specifically on the five regencies of Kota Jayapura, Jayawijaya, Manokwari, Merauke, and Kota Sorong. It also provided important new evidence on the ways in which women were engaged in paid work and how this varied with their ethnicity, education, region, age, and family status.

Labor productivity has been improving slowly over time, with productivity in the manufacturing sectors being more than double the productivity of the overall economy. The manufacturing sector is highly diverse, with significant differences in productivity between large and medium firms and between micro and small firms. For example, between 2008 and 2012, productivity for large and medium firms grew at an average rate of 4.1%, while productivity growth for the manufacturing sector on the whole was relatively steady. Wages for workers within large firms have grown, but employment growth within these firms has been lagging. The critical challenge is therefore to support the expansion of large manufacturing firms, as this would strengthen the overall productivity of the economy.

It is important that gains in labor productivity are shared between workers and employers. These gains can be shared with workers through higher wages, improving working conditions, shorter working hours, and investments in human capital. For employers, linking real wage growth to productivity gains implies stable real unit labor costs and profit growth in line with productivity. Sharing gains could also provide benefits for economic growth as higher wages could improve the purchasing power and subsequently strengthen the household consumption.

Gender differences in access to economic opportunities are frequently debated in relation with gender differences in labor market participation. This focuses on productivity and earnings, for two reasons [51]:

1. A focus exclusively on labor force participation provides only a partial picture of women's and men's experiences in the labor market. Far from being a simple decision of whether or not to join the labor force, participation in the market work involves reallocating time across a variety of activities. This is a process that can be difficult and costly, particularly for women. A focus solely on participation masks the gender differences in the nature and dynamics of work.

2. Despite significant progress in female labor force participation over the past 25 years, pervasive and persistent gender differences remain in productivity and earnings across different sectors and jobs. Indeed, many women around the world appear to be caught in a productivity trap that imposes significant costs on the welfare and economic empowerment today and poses serious disincentives to invest in the women of tomorrow.

Slightly over 30% of the total labor force and less than 28% of females are currently working in the formal sector. About 42% of the total labor force and 32% of the females are self-employed. In the

early-2000s, the informal sector absorbed the largest amount of new entrants to the labor market, but this reversed in 2003–04 [39].

In the course of the decade, unemployment for women remained at a level higher than for men. Unemployment was the highest among youngsters; with official unemployment rates of over 18% for girls and young female in 2008.

Despite lower earnings and productivity, women are not worse farmers, entrepreneurs or workers than men. Gender differences in labor productivity and earnings are primarily the result of differences in the economic activities of men and women, although gender differences in human capital and in the returns to worker and job characteristics also play a role. Indeed, men's and women's jobs differ greatly, whether across sectors, industries, occupations, types of jobs, or types of firms [51]. Three main factors lead to gender segregation in access to economic opportunities among farmers, entrepreneurs, and wage workers:

1. Gender differences in time use (primarily resulting from differences in care responsibilities).

2. Gender differences in access to productive inputs (particularly land and credit).

3. Gender differences stemming from market and institutional failures.

Gender segregation in access to economic opportunities in turn reinforces gender differences in time use and in access to inputs, and perpetuates market and institutional failures. For instance, women are more likely than men to work in jobs that offer flexible working arrangements (such as part-time or informal jobs) so that they can combine work with care responsibilities. But because part-time and informal jobs often pay lower (hourly) wages than full-time and formal jobs, a high concentration of women in these lower-paying jobs weakens the incentives to participate in market work and thus reinforces the specialization in nonmarket (including care) and market work along gender lines within the household [51].

From a policy perspective, supporting LLL and activation programs (targeting immigrants) may boost both employment rates and productivity because people acquire skills on the job. In the longer term, therefore, an increase in LLL and higher skills gained in employment are likely to have a positive impact on productivity growth [77].

Presented below is an analytical view linking FLFP and productivity, based on available literature:

1. There can be instances when an increased FLFP rate leads to residual absorption in the informal sector. In such cases, FLFP and productivity may not be correlated. Labor productivity is the important source for income and economic growth [74, 79]. Some facts and figures related to benefits of economic empowerment are:
    - When more females work, economies grow. An increase in female labor force participation, or a reduction in the gap between female's and male's labor force participation, results in faster economic growth [27].

    - Evidence from a range of countries shows that increasing the share of household income controlled by females, either through their own earnings or cash transfers, changes spending in ways that benefit children [51].

2. Female's economic equality is good for businesses. Companies benefit greatly from increasing leadership opportunities for female, which is shown to increase organizational effectiveness. It is estimated that companies with three or more females in senior management functions score higher in all dimensions of organizational effectiveness [80].

3. Female's labor force participation tends to increase with economic development, but the relationship is not straightforward or consistent at the country level. Also, FLFP is an important driver (and outcome) of growth and development. Women join the workforce in developing countries as a coping mechanism in response to shocks [52].

4. Encouraging female labor participation is one of the efforts to improve national productivity and reduce the unemployment rate in Indonesia [6]. The total number of females being more than males encourages the potential of women in the labor market.

5. Policy Issues

5.1 Government Policy Initiatives

Under the Law No. 17 of 2007, development in Indonesia is based on the direction of development of the National Long-Term Development Plan 2005–25 (RPJPN 2005–25), which is divided into four Medium-Tem National Development Plans (RPJMNs). Currently, the third RPJMN (2015–19) is in progress. The vision of development plan 2005–25 is for the realization of "Indonesia as an independent, developed, fair, and prosperous" state.

In order to achieve the Indonesian development objectives of the current five-year period, the Medium Term National Development Plan 2015–19 has been used as the main guideline for the development of economic and social goals, including employment, as per the policy directions of national development. This medium plan consists of various labor and employment programs, such as:

1. Improving the manpower competency, quality, and productivity to create a competitive labor force and new entrepreneurs.
2. Managing a conductive work climate to build a harmonious industrial relationship.
3. Increasing the intensity and quality of labor norms, inspection, and law enforcement.

The Medium Plan has been broken down into employment activities as follows:

1. Employment creation:
   a Creating conducive social and economic conditions for employment creation.
   b Identifying the potential of centers for economic growth.
   c Promoting a conducive business climate.
   d Supporting entrepreneurship and SMEs.
   e Eliminating discrimination in the workplace.
   f Enhancing labor intensive programs in the public sector and applying appropriate technologies.
   g Empowering vulnerable groups.

2. Labor productivity:
   a Developing human resources.
   b Revitalizing vocational training and education.

c Improving productivity in the workplace.
d Providing fair compensation and incentive based on performance.

3. Industrial relations:
   a Conducting capacity building programs to develop constructive social dialogue.
   b Reforming labor laws and regulations.
   c Empowering industrial relation institutions.
   d Settling industrial relation disputes.
   e Increasing management system of occupational safety and health.

4. Social protection:
   a Promoting national social security system.
   b Providing social security administrators, which are the Labor Social Security Administrator (BPJS of Employment) and the Health Social Security Administrator (BPJS of Health).

The ministries that highlight labor include the Ministry of Man Power. Generally, there is no specific policy in promoting female workforce participation in Indonesia. The agenda of manpower development 2015–19 consists of:

1. Strengthening of national labor planning.
2. Acceleration of labor competencies.
3. Acceleration of the certification profession.
4. Expansion of formal employment opportunities.
5. Strengthening of productive entrepreneurship.
6. Creation of healthy and productive industrial relations.
7. Labor law enforcement.
8. Improved protection of migrant workers.
9. Ensuring that employment services are simple, transparent, and accountable.

In addition, two strategies for the manpower sector could be:

1. Migrant worker protection:
   a Solving migrant workers problems.
   b Strengthening the protection system for migrant workers in and abroad.
   c Revitalization of district public vocational training centers or Balai Latihan Kerja (BLK) and education of Indonesian migrant worker or Tenaga Kerja Indonesia (TKI), suitably with placement state qualification.
   d Training microenterprise investment for workers in the Middle East, Hong Kong, and the ROC.

2. Improving the society's competitiveness:
   a Reorientation of BLK to make it a center for vocational training, skill, and entrepreneurship (BLKK).
   b Making government regulations on the priorities of utilization of labor experts and non-experts.

The Government of Indonesia through the Ministry of Women and Children Protection will conduct a strategy to provide protection and fulfilment, and enhance the role and participation of women in various areas of development, namely:

1. Improving the implementation of gender equality in development policies.
2. Increasing the participation of all components in the building of women's empowerment.

3. Improving the LFPR of women because women have a lot of potential, and should be given better and easier access to the world of work.
4. Making micro businesses as development targets.
5. Expanding support for education and skills.
6. Making legislation related to employment in the informal sector to provide for the protection and welfare of women workers, so that they get a job and a decent living.
7. Creating mechanisms for and monitoring the system of discrimination against women workers (equal employment opportunities) to guarantee protection and fulfilment of rights of women workers and to provide a comfortable environment for them to work.

Particularly for Indonesia, achievements and challenges in promoting gender equality and women's empowerment are discussed ahead. Among major achievements, the policy on gender equality and empowerment of women has been adopted at several levels [81]:

1. At the international and national levels, through the ratification of the UN Convention on the Elimination of All Forms of Discrimination against Women with Law Number 7/1984.
2. At the national level, through the People's Consultative Assembly (the highest political body in Indonesia) Decree Number IV/MPR/1999 on the Broad Guidelines of State Policy 1999–2004.
3. The establishment of National Machinery for the Advancement of Women with the Presidential Decree of 1978.
4. Law Number 25/2000 on the National Development Programme.
5. Presidential Instruction Number 9/2000 on Gender Mainstreaming in National Development.
6. National Action Plan for the Elimination of Violence Against Women.
7. The inclusion of gender-mainstreaming policy in 38 Programme of the National Development Programme (2000–04).
8. Law Number 23/2002 on Child Protection.
9. Presidential Decree Number 87/2002 on National Plan of Action on Eradication of Child Commercial Sexual Exploitation.
10. Presidential Decree Number 88/2002 on National Plan of Action on Elimination of Trafficking in Women and Children.
11. Law No. 12/2003 on General Election in which each political party participating in a general election should consider at least 30% of women representation in the nomination of its members of national, provincial, and local representative councils.

The implementation of policies at the national, provincial, and regency levels may be listed as below:

National Level

1. At present, there are 38 gender-responsive programs as part of the National Development Programme (2000–04). The areas covered are law development, economic development, labor, agriculture, cooperatives and small and medium enterprises, political development, education development, sociocultural development, health, social welfare and family planning, national resources development, and environment.
2. Gender focal points have been set up in more than 10 related ministries to coordinate the implementation of the policy. The National Working Group on Gender coordinated by the Ministry of Women Empowerment has also been set up with membership from various ministries to discuss gender issues and implement Presidential Instruction No. 9/2000 on Gender Mainstreaming.

3. Compilation of gender profiles in 30 provinces (including gender disaggregated data) and the establishment of the website http://www.menegpp.go.id for internal and external networking have been undertaken.

Subnational Level

1. In cooperation with the Ministry of Home Affairs and the Ministry of Women Empowerment, a circular has been passed to establish women's bureaus at the provincial and district or regency levels to coordinate the implementation of policies and to monitor and evaluate the policies and programs. At the moment, there are more than 14 bureaus established at the subnational level. Provincial and regency working groups on gender mainstreaming have also been formed as consultation forums as gender implementers and motivators.
2. Thirteen provinces and 130 districts have given priority to policies and programs on gender mainstreaming, elimination of violence against women, income-generating activities for women, women in politics, maternal mortality reduction, reproductive health and family planning, and gender profiling through annual budget allocations at regional levels.
3. Other measures to facilitate the provincial mechanism are: capacity building (gender sensitization, gender analyses, and gender budgeting training) for the focal points and officials of related sectors including NGOs and the women studies centers on gender mainstreaming concepts and analysis; compilation of gender-disaggregated data to be used for gender analyses; empowerment of the Regional Development Agency as the gatekeeper for gender-responsive planners; and financial support for the operation of bureaus, to be used for trainings on gender analysis, gender and children concepts, gender data, regional meeting on gender mainstreaming, and institutional strengthening.
4. Starting with the period 2000–04, 25 provinces have inserted gender equality and women empowerment policies in their Regional Development Planning documents (five provinces have not done this). Nine provinces have conducted Regional Coordination Meetings on gender, as well as workshops on gender-responsive regional development planning, gender analyses, and training.

However, there is still a need to make improvements in program implementation, both in terms of the quality of the programs and the quantity of their coverage. As such, a coordination is needed between the sectors and other stakeholders to improve the employment conditions, access, and quality of jobs to ensure that both women and men are able to maximize their productivity, earn a living wage, and have access to social protection benefits. There is a need to invest in infrastructure (roads, transport, and clean water), especially in rural areas to reduce the time-consuming aspects of women's and girls' unpaid domestic work.

Beyond standard labor force participation rates, policymakers should be concerned with whether women could access better jobs and take advantage of new labor market opportunities that arise as the country grows and, in so doing, contribute to the development process itself. For this reason, policies should consider both supply- and demand-side dimensions, including access to better education and training programs and access to childcare as well as other supportive institutions and legal measures.

These would ease the burdens of domestic duties, enhance women's safety, and encourage private-sector development in industries and regions to increase job opportunities for women in developing countries. Particularly, emphasis is required on keeping young girls in schools and ensuring that they

receive good-quality education, beyond the junior secondary level, and are able to take advantage of training opportunities. That, in turn, would increase their chances of overcoming other barriers in finding decent employment [52].

It may entail identifying the need for changes in the agenda. It may require changes in goals, strategies, and actions so that both women and men can influence, participate in, and benefit from development processes. The goal of mainstreaming gender equality is thus the transformation of unequal social and institutional structures into equal and just structures for both men and women. Better economic opportunities for women would help increase labor productivity, and higher female employment would widen the base of taxpayers and contributors to the benefit of social protection systems that would come under increasing pressure due to population aging. More gender diversity would also help promote innovation and competitiveness in business.

5.2 Successful and Unsuccesful Initiatives

In terms of lessons learned regarding female labor force participation, government institutions in Indonesia have been supportive, and there has been an increasingly enabling environment for the female labor force. The establishment of the Ministry of Women's Empowerment and Child Protection shows the Indonesian government's commitment to women's issues. Gender mainstreaming and gender responsive budgeting in numerous ministries and government institutions are identified as steps in the right direction for empowering women, not only economically, but also socially and politically. Women's organizations in Indonesia have worked in particular ways that are worth highlighting. Some address gender relations and cultural and religious beliefs while engaging in economic-empowerment activities.

Listed below are some selected policy lessons for Indonesia, to improve gender equality in employment [27]:

1. Enable women to attend schools.
2. Enable women to participate in the labor market or take up self-employment opportunities.
3. Improve job quality within the informal sector and ensure that women move away from the most precarious and dangerous forms of informal employment.
4. Ease their transition to formal-sector jobs, through investments in education and training, as well as through the extension of childcare and social insurance schemes to small employers.
5. Women's organizations in informal employment are also crucial for the protection of their rights and can be effective in challenging discriminatory practices that hinder women's equal access to assets such as land, technology, financial services, and information.
6. Guarantee women's property and inheritance rights and ensure women's awareness of their rights.
7. Limited access to and control over resources can have a negative effect on food security of the household, increase women's vulnerability to poverty or violence, prevent them from accessing bank loans or financial services, and reduce their decision-making power.
8. Policy reforms such as land titling or changes in inheritance legislation that secure women's property rights and incorporate monitoring mechanisms to guarantee the implementation of such laws that can play a significant role in ensuring that women have more and better employment opportunities.
9. Improve the availability of reliable gender disaggregated statistics, which are key to enhancing evidence-based decision-making and policy development.

The Ministry of Women's Empowerment and Child Protection seems to be the appropriate institution to fulfil this coordinating role and establish a system of accountability to reinforce the national initiatives on women's economic empowerment [82]. There is a momentum of women's organizations in Indonesia actively working to support women in gaining the necessary confidence, skills, and instruments that prepare them to join the labor force and increase economic productivity.

The uniqueness of these local organizations lies in their ability to create synergies and forge partnerships among them. Each organization targets unique groups of women that face different challenges and needs that could be best served with specifically tailored interventions. Examples of these groups include women heads of households, low-income women, rural women, urban women, domestic workers, and migrant workers. Through joint initiatives, local women's organizations have the potential to reach larger groups of beneficiaries. Collaborative work allows them to complement their expertise and experiences. Moreover, regional and international organizations have also reached out to local organizations with consolidated membership bases that allow them to more effectively target appropriate groups of women.

Indonesia has many labor problems such as those related to women's discrimination. Many programs have been conducted to protect women, but many problems, such as those of the migrant domestic workers, have remained unsolved.

5.3 Additional Measures to be Pursued

Specific policies are needed to address the high incidence of low-wage work in Indonesia. Reducing the incidence of low pay is important for strengthening the productivity and competitiveness of the Indonesian labor force, as low wages could be associated with the deterioration of workers' skills and could also give signals to employers that such workers have low productivity.

Gender inequality needs to be addressed within the context of balancing work and family responsibilities. The government improves the participation of females by launching various policies and programs, such as public campaigns on providing the facilities for women workers in their workplaces as well as by establishing Task Force on Equal Employment Opportunity and Responsive Gender Programme.

In the long run, promoting the labor force participation of women throughout the life cycle is a key measure to be taken for enhancing security for women in older age. If women are able to accumulate funds for old age starting early, there would be less need for governments to balance inequalities in old-age social security. The extent to which women participate in the labor force also has a direct impact on macroeconomic development. There are various mechanisms to enhance women's participation in the labor market, which would benefit the society as a whole. The need for labor force could be met by women who are currently not working due to care responsibilities.

In order to provide positive conditions for women to participate in the labor market, the following aspects need to be considered: a developed and flexible infrastructure of childcare, adherance to standards in the quality of childcare, prevention of gender discrimination and harassment in the workplace, more involvement of men in care and family duties, and a gender-assessed tax system. To summarize, policies for the well-being of women in old age should target all ages. In order to prevent inequalities of social security in old age, it is important that societies create optimized conditions for the reconciliation of work and family life. The coordination across policy areas and between government agencies that target different age-groups and work in different policy areas is recommended.

Investing in formal education is essential to promote equal-employment opportunities and to strengthen economic growth. It increases cognitive and non-cognitive skills, improves productivity, and provides individuals with better abilities to further develop their knowledge and skills throughout their lives. Increased educational participation is also associated with better health, and more investments are needed in the education and health of children and women, particularly in developing countries [27].

Related to women in the labor market, homework is a form of non-standard employment in Indonesia that is characterized by unpredictable employment, low wages, and long hours of work. The majority of homeworkers are women and children conducting factory work in home-based settings, earning either no pay or low pay. Development and adoption of a policy on homeworkers that recognizes them and promotes their rights as workers could play an important role in addressing their decent-work deficits. It could also contribute toward eliminating unfair competition among businesses. Linking these workers with workers' organizations and other advocacy groups is likely to empower this group of workers and help improve their working conditions.

In addition, policies that support women's empowerment, such as provision of maternity leave, childcare facilities, and flexible work-time arrangements, as well as programs that could support women to improve their qualifications and access to work outside the household, are needed to strengthen their overall position within the world of work.

5.4 Policies to Improve FLFP and Impact on Labor Productivity

Participation in wage labor is strongly associated with better education and empowerment. A substantial share of women would be willing to work, provided they could find a suitable job.

However, unemployment remains a challenge, particularly for youth, especially within the context of a slowing economy. Supporting youth to optimize their educational attainments would be a key factor for improving outcomes in this regard. Further, unequal outcomes persist for men and women. For example, within the labor market, occupational segregation is pronounced for men and women, with many women working in jobs with lower levels of remuneration and more limited prospects in terms of career progression.

The labor force participation rates of women are also extremely low, with many women reporting to be fully engaged with housekeeping responsibilities. However, throughout the course of the year, many women transition from being economically inactive to participating in the labor force as unpaid family workers. Many of these women are likely to be homeworkers, who are linked to global supply chains, and are conducting factory work in home-based settings, earning either no pay or low pay. Strengthening the position of these workers within global supply chains by improving their working conditions would be a key factor for unleashing the productive potential of women for supporting the growth and competitiveness of the Indonesian economy in future.

The government of Indonesia has acknowledged the importance of gender equality in broader development and poverty alleviation goals, and gender inequality is often identified as one of several determinants of poverty. It still plays an important role in perpetuating poverty and vulnerability. Despite numerous commitments to improving women's conditions since the beginning of the reform process, effectively promoting gender equality in Indonesia is still challenging [29].

Employment conditions and job quality need to improve so that women could maximize their productivity, earn a living wage, and have access to maternity leaves, paid sick leaves, and other forms of social protection. Policies to support women to organize in unions and protect their rights would also be an important step toward bettering their working conditions. Investing in physical and social infrastructure would help reduce the time spent on unpaid work and thus help women access the labor markets. Policies to improve women's access to, and control over, assets and new technologies are also important for gender equality in labor market outcomes. Public-sector employment programs could also strengthen female employment outcomes. However, policies would be most effective when developed across a range of possible partners, including different levels of government, international institutions, social partners, and community organizations and civil society [27].

Overall, it is recommended that in order to work toward a model that is framed by the principle of 'sustainable growth with equity,' the focus should be on:

1. Improving the coordination between macro and sectoral policies.
2. Expanding the coverage of social insurance to all workers.
3. Integrating and strengthening safety nets.
4. Rethinking the design of active labor market programs, including those used to stimulate labor demand.
5. Investing in labor market information systems.
6. Promoting social dialogue and increasing vigilance to avoid violations of rights at work.

Indonesia has prioritized investing in human capital and connectivity, with a focus on sectoral development strategies. It is also positioning itself as a global leader in transitioning to a greener economy. This framework is moving the country toward higher levels of prosperity, sustainability, and human development. Many of the mid-term development targets that Indonesia has set for itself are within reach; however, there is still much work to be done to improve employment quality and livelihood sustainability. Improving access to social protection, maintaining effective social dialogue, and sustaining developmental gains are ongoing challenges. Against this backdrop, Indonesia can be more ambitious in setting targets to improve the quality of livelihoods and employment, particularly among those who have managed to escape the lowest measures of deprivation, in its next mid-term development plan.

Developing responsive education and training systems is key to addressing the issue. This requires strong engagement from the key stakeholders of the economy, including workers, employers, and government in the development of skills systems, accompanied by effective labor market information systems and employment placement services.

Managing working time and implementing effective work-time arrangements could provide enterprises with mechanisms for promoting improvements in labor productivity and overall firm performance. Work-time arrangements are important for enhancing productivity, with research indicating that gains in manufacturing productivity are not linked to long working hours. Indeed, in many industries it appears that shorter hours are associated with higher output rates per hour. Improving work-time arrangements could offer firms many benefits. For example, both flexi-time arrangements and compressed workweeks tend to have positive effects on productivity and employee job satisfaction.

Permitting flexi-time arrangements could have a strong positive impact on absenteeism. Ensuring that employees have breaks could reduce fatigue, leading to decreased faults, reduced

worker injuries, and reduced time per task. There is also substantial evidence that employers who offer work schedule flexibility are likely to improve the recruitment of new staff and the retention of existing staff. Improving work-time arrangements could also offer reductions in direct wage costs from savings in overtime, as well as reductions in operational costs and less wear of company assets.

Policies that support women to maintain labor market attachment, through provision of maternity leave, childcare facilities, and flexible work-time arrangements, as well as programs to support women to increase their qualifications and access off-farm employment, are therefore needed to address structural issues associated with the labor market outcomes of women in Indonesia. Progress in this area could play a key role in unleashing the productive potential of the Indonesian labor force in future.

Gains in productivity and competitiveness could only be realized through a combination of factors, including infrastructure investment, technology adaptation, business innovation, effective industrial relations, and investments in education and skills training, among others. With regard to education and skills training, it is important that institutions equip the working-age population, as well as the future generations, with appropriate education and skills training for supporting access to productive jobs that have upward earning potentials.

Female labor supply is, therefore, both a driver and an outcome of development. As more women enter the labor force, economies grow faster in response to higher labor inputs. At the same time, women's capabilities typically improve, while social constraints weaken, thus enabling women to engage in work outside the home. For this reason, policymakers need to understand the nature of female labor supply and monitor female labor force participation. Ultimately, labor force participation is the outcome of not only supply-side factors, but also of the demand for labor.

In 2014, the Ministry of Manpower, together with the Coordinating Ministry for Economic Affairs, APINDO, and trade unions, has been engaging in consultations and piloting the application of the concept of 'productivity gains sharing' in nine small and medium companies in various sectors across Indonesia. The purpose of the exercise was to pilot the application of productivity improvement and to provide recommendations on productivity gains sharing as an alternative wage system. The concept of productivity gains sharing refers to an approach that compensates workers on the basis of improvements in the company's productivity, so that wages move in line with prices plus productivity.

The analyses from the nine companies show that productivity gains sharing supports the creation of good industrial relations and strengthens partnerships between workers and management at the company level. There should be clear performance indicators and measurement of productivity gains sharing, which are adjusted to the needs and characteristics of individual companies. Further, for productivity gains sharing to be effective, commitment and transparency from both management and workers based on mutual trust and good faith is needed, as is an integrated information technology system for monitoring.

It is recommended that the government should provide the policy and guidance (through standards for sectoral measurement or training modules with simulation and factual cases) on the implementation of the productivity gains sharing concept, so that it could be used more widely, especially by small and medium enterprises in Indonesia. Productivity gains sharing also requires

effective bipartite institutions at the enterprise level, as they provide the forum for consultation. Productivity gains sharing should also be included in collective bargaining agreements.

It is recommended to start a social mapping project to collect disaggregated data on women's participation in micro, small and medium enterprises as compared with the overall workforce and GDP for the government to see how important women entrepreneurs are for the country's economy. In this regard, the following steps need to be taken:

Supply Side

1. Establishment of women's groups to reach various populations and expand women's working opportunities and to improve their working conditions.
2. Development of women-owned MSMEs.
3. Government investment in STEM education.
4. Focus on reentry to the labor force.
5. Promotion of a social campaign.
6. Grant for disadvantaged families through the National Social Security program.

Demand Side

1. Increase of government collaboration with the private sector.
2. Available, affordable, and quality childcare.
3. Encouragement of early childhood development careers.
4. Promotion of socially responsible practices for home-based workers and informal employees.
5. Monitoring of women workforce discrimination to create equal employment opportunities.
6. Creation and implementation of Ministry of Women and Gender Specialists.
7. Reforming manpower rule to protect all workers.
8. Offering a national award for 'best employers of women.'
9. Gathering of sex-disaggregated data.
10. Providing the employment information.
11. Organizing follow-up activities such as research, training courses, professional certification, and assistance.

There are many sources of labor market information in Indonesia. Common ones include labor force surveys, population censuses, national social economic surveys, establishment surveys, and administrative records. Each source comes with its own strengths and limitations [10]. The secondary data sources include population census; national-level sample surveys on labor force, employment, and unemployment; national accounts data; and sector-specific data on sectors such as agriculture and manufacturing.

This report used the data from the NLFS, which was first conducted in 1976 and has been conducted every year since 1986 (except in 1995), with varying frequency within a given year. The NFLS, managed by Indonesia's statistics bureau, is nationally representative as the main source of Indonesia's annual labor force statistics. The NLFS records demographic and labor supply information for all individuals aged 10 and older living in the sampled households.

The labor force survey flows allow data users to analyze the movements that underlie the net over-the-month changes in employment and unemployment in the labor force. For example, examining the flows would show whether a drop in the unemployment over the month was due to an increase

in the number of unemployed people becoming employed or due to an increase in the number of unemployed people leaving the labor force entirely. The historical series on labor force flows also allows for longer-term analysis which should be useful for business cycle comparisons.

6. Conclusion

Based on the review of the available literature and the empirical studies, female labor force participation rate in Indonesia tended to be stagnant and has been declining since 2015. There are several factors that have affected women's entry in employment. Generally women enter the labor market because they want to generate an income. For such women, the objectives of entering labor market is to meet the needs of self existence.

In some cases, women play multiple roles, both as workers in the labor market and as caregivers for their families and children. Consequently, some married women leave the labor market and reenter it after completing their childbearing and childrearing ages. This condition is commonly experienced by highly educated women, partly because they have high awareness in caring for the children, and partly because they earn revenue from their husbands or household heads. However, they choose to work with flexible timings, so that they are still able to do household tasks and work in the labor market. They consider that taking care of the children in itself would contribute to the improvement of human capital.

The cohort study shows that women aged 40–60 have higher participation in the labor market. Another study shows that the number of women among older persons would tend to increase in future. This poses a challenge for improving the quality of the female labor, and for keeping women active and productive in old age. There is a need to improve women's capacity to get decent work. Some problems faced by women workers include limited access and wage gaps from men, particularly in certain sectors such as manufacturing.

Related to the aging population from a future standpoint, the key is to promote women's participation in the labor market. One important approach is gender mainstreaming in human capital-related policies with a life-cycle approach, starting from an early productive age.

The policy should be formulated both by various national governments and international organizations like the APO. An APO initiative in formulating policy recommendations could potentially boost female labor force participation, and mainstream the gender perspective in human capital development. The policies could include some key points such as to improve the women productivity, reduce the negative factors in female labor force participation, and empower women to prepare for the aging societies of the future.

Women empowerment programs are essential for economic development. The fact that many women work in the informal sector, through micro and small economic activities, means they contribute to the economic growth even during an economic crisis. Therefore the women's empowerment programs should be maintained for a sustainable economic growth, and should be evaluated for quality enhancements.

Also, the policy should protect women to fulfill their roles in terms of reproduction. In implementing the policy, companies or institutions should provide paid maternity leaves, and it has be ensured that they don't perceive this as a burden. They have to realize that this role of the women is one of

the most important ones for the overall long-term economic growth. The maternity period is important for women to promote their children toward human capital formation. This policy related to the women's rights at work should be well implemented and evaluated continuously. Also, there should be a policy related to decent work covering aspects such as wages and collective bargaining, social protection, and social dialogue. Afer the implementation, it should be evaluated continuously, supported by a reward-and-sanctions mechanism.

References

[1] BPS-Statistics Indonesia. Population Indonesia. Result of the 2015 Intercensal Population Survey. Jakarta: BPS-Statistics Indonesia; 2016.

[2] National Development Planning Agency, BPS-Statistics Indonesia, United Nation Population Fund. Indonesia Population Projection 2010–35. Jakarta: BPS-Statistics Indonesia; 2013.

[3] BPS-Statistics Indonesia. The Labor Situation Indonesia August 2015. https://www.bps.go.id/index.php/publikasi/1021. Accesed on 18 January 2016.

[4] Rafinus, Boby Hamzar. The Report: Indonesia 2014. Oxford: Bussiness Group; 2014. e-book. https://books.google.co.id/books?isbn=1910068039. Assessed on 20 November 2015.

[5] United Nations Population Fund (UNFPA). Indonesia on the Threshold of Population Aging. UNFPA Indonesia Monograph; 2014, 1: 4-22.

[6] Faradila F. Mendorong Partisipasi Tenaga Kerja Wanita dalam Meningkatkan Produktivitas Nasional (Encouraging Labor Force Participation of Women in Increasing National Productivity). In: Tinjauan Ekonomi dan Keuangan (Economic and Financial Overview), February; 2014, vol. 4: Nomor 2. https://www.ekon.go.id. Accesed on 15 November 2015.

[7] ILO. Aging societies: The benefits, and the costs, of living longer. http://www.ilo.org/global/publications. Accessed on 21 February 2016.

[8] Kinoshita K., and Fang G. What Can Boost Female Labor Force Participation in Asia? IMF Working Paper Regional Office of Asia and the Pacific. March 2015; WP/15/56. https://www.imf.org/external/pubs/ft/wp /2015/wp1556.pdf. Accesed on 15 January 2016.

[9] United Nations Economic Commission for Europe (UNECE). Gender equality, work and old age. UNECE Policy Brief on Aging. 2009; 2: 1–12. http://www.unece.org/fileadmin/DAM/pau/_docs/age/2009/Policybriefs/2-Policy Brief_GenderEquality_Eng.pdf. Accessed on 21 November 2015.

[10] ILO. Women in labor markets: Measuring progress and identifying challenges. International Labor Office, Geneva; 2010. http://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_elm/---trends/documents/publication/wcms_123835.pdf. Accessed on 16 November 2015.

[11] Wee V., Heyzer N. Gender, Poverty and Sustainable Development, Engender, Singapore; 1995.

[12] Bridge. Gender Equality and Empowerment of Women and Girls: A Policy Reviewí, UNICEF Programmeme Committee. 1994. http://www.bridge. ids.ac.uk/sites/bridge.ids.ac.uk/files/reports/re40c.pdf. Accessed on 24 February 2016.

[13] United Nation. Sustainable Development. 17 Goals to Transform Our World. http://www.un.org/sustainabledevelopment/sustainable-development-goals. Accessed on 25 February 2016.

[14] Malhotra A., Sidney R.S., Boender C. Measuring Women's Empowerment as a Variable in International Development. http://siteresources.worldbank.org/INTEMPOWERMENT/Resources/486312-1095970750368/529763-1095970803335/malhotra.pdf. Accessed on 25 February 2016.

[15] Kabeer N. Resources, Agency, Achievements: Reflections on the Measurement of Women's Empowerment. Development and Change; 1999, vol. 30, Issue 3, pp. 409–692. http://onlinelibrary.wiley.com/doi/10. 1111/dech.1999.30.issue-3/issuetoc. Accessed on 25 February 2016.

[16] Grown C., Geeta R. Gu, and Aslihan K. Taking Action to Empower Women: UN Millenium Project Report on Education and Gender Equality; 2005. http://www.unmillenniumproject.org/documents/Gender-complete.pdf. Accessed on 24 February 2016.

[17] Yumna A., Vita F., Muhammad S., et al. The politics of gender and social protection in Indonesia Opportunities and challenges for a transformative approach. Full Report; 2012. http://www.odi.org/sites/ odi.org.uk/files/odi-assets/publications-opinion-files/7762.pdf. Accessed on 14 November 2015.

[18] United Nation Women (UN Women). Policy Brief. Decent Work and Women's Economic Empowerment: Good Policy and Practice. UN Women; 2012. http://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_ent/---ifp_seed/documents/genericdocument/wcms_184878.pdf. Accessed on 2 January 2016.

[19] UN. Implementation of the Beijing Declaration and Beijing Platform for Action. http://www.un.org/womenwatch/daw/beijing15/ responses/escap/Indonesia.pdf. Accessed on 2 January 2016.

[20] United Nation Women (UN Women). Situation of Women – Overview. http://www.unwomen-eseasia.org/docs/factsheets/03%20INDONESIA%20 factsheet.pdf. Accessed on 2 January 2016.

[21] CARE. Women's Empowerment Framework. http://www.care.org/our-work /womens-empowerment/gender-integration/womens-empowerment framework. Accessed on 24 February 2016.

[22] USAID. Gender Equality and Female Employment Policy. March 2012. https://www.usaid.gov/sites/default/files/documents/1865/GenderEquality Policy_0.pdf. Accessed on 24 December 2015.

[23] Bridge. Gender and Empowerment: Definitions, Approaches and Implications for Policy Briefing. Prepared for the Swedish International Development Cooperation Agency (Sida); 1997. Report No 40. http://www.bridge.ids.ac.uk /sites/bridge.ids.ac.uk/files/reports/re40c.pdf. Accessed on 24 February 2016.

[24] Samarakoon S., Rasyad A.P. Does Education Empower Women? Evidence from Indonesia. World Development; 2015, vol. 66, pp. 428–42, 0305-750X/2014. Published by Elsevier Ltd. http:// www. sciencedirect.com/science/article/pii/S0305750X14002678. Accessed on 2 December 2015.

[25] OECD. Report on the Gender Initiative: Gender Equality in Education, Employment and Entrepreneurship. Meeting of the OECD Council at Ministerial Level Paris; 25–26 May 2011. http://www.oecd.org/education/ 48111145.pdf. Accessed on 2 December 2015.

[26] Che Su. M., Asyiek F. Conceptualizing Framework for Women Empowerment in Indonesia: Integrating the Role of Media, Interpersonal Communication, Cosmopolite, Extension Agent and Culture as Predictors Variables. Asian Social Science; 2015, vol. 11, No. 16. Canadian Center of Science and Education. http://www.ccsenet.org/journal/index.php/ass/ article/ viewFile/49991/26932. Accessed on 22 December 2015.

[27] Oxfam. Women's Empowerment in Indonesia. Evaluation of Papua Women's Empowerment Effectiveness Review Series 2013/14. www.oxfam.org.uk /effectiveness. Accessed on 27 December 2015.

[28] ILO. Key Indicators of the Labor Market (KILM) 2015. Geneva, ILO. 2015 http://www.ilo.org/ wcmsp5/groups/ public/---dgreports/---stat/documents/publication/wcms_498929.pdf. Accessed on 14 November 2015.

[29] Economic Online. The Labor Market. http://www.economicsonline.co.uk/ Competitive_ markets/. Accessed on 24 February 2016.

[30] Yukon Government. A Labor Market Framework for Yukon. http://labormarketframeworkyukon. com/system/PDF/labor_market_framework-web.pdf. Accessed on 24 February 2016.

[31] Schaner, Simone., and Smita Das. Female Labor Force Participation in Asia: Indonesia Country Study. ADB Economics Working Paper Series; 2016, No. 474. https://www.adb.org/sites/ default/files/publication/ 180251/ewp-474.pdf. Accessed on 20 May 2016.

[32] BPS-Statistics Indonesia. Labor Force Situation in Indonesia, August 2015. Jakarta: BPS-Statistics Indonesia; 2015. https://www.bps.go.id/index.php/ publikasi/1150. Accessed on 14 January 2016.

[33] Ford M., Parker L. Thinking about Indonesian Women and Work. Book Women and Work in Indonesia. Ford M., Parker L., eds. 2009.

[34] Central Intelligence Agency (CIA). CIA World Fact Book; 2014. https://www.cia.gov/library/ publications/resources/the-world-factbook/. Accessed on 11 January 2016.

[35] Blackburn S. Women and the State in Modern Indonesia. Cambridge: Cambridge University Press; 2004.

[36] Cahyadi A. Konflik Peran Ganda Perempuan Menikah yang Bekerja Ditinjau dari Dukunga Sosial Keluarga dan Penyesuaian Diri (Conflict of Dual Role of Married Women that Working In terms of Social Support of Family and Self Adjustment). Widya Warta; 2012, No. 02 Tahun XXXV I/ Juli 2012 ISSN 0854–1981.

[37] National Population and Family Planning Board (BKKBN). Profile of Population and Development in Indonesia; 2013; pp. 10–20.

[38] ILO. Labor and Social Trends in Indonesia 2011. Promoting job-rich growth in provinces. International Labor Organization. Jakarta; 2012. http://www.ilo.org/wcmsp5/groups/public/@asia /@ro-bangkok/@ilo-jakarta/documents/publication/wcms_175953.pdf. Accessed on 11 January 2016.

[39] ILO. Labor and Social Trends in Indonesia 2014 - 2015 Strengthening competitiveness and productivity through decent work. Jakara: ILO Country Office for Indonesia; 2015.

[40] Kawata H., Naganuma S. 'Labor Force Participation Rate in Japan,' Bank of Japan Review. 2010, E-7, 1–9. https://www.boj.or.jp/en/research/wps_rev/ rev_2010/data/rev10e07.pdf. Accessed on 11 January 2016.

[41] Lee S.-A., Cho J.-E., Park S., et al. It's More than an M-shape: The Political Economy of Female Non-standard Workers in the Republic of Korea. Asian Social Work and Policy Review; 2013, 7 (1), pp. 1–17. http://www.sagepub.net/isa/resources/pdf/CreativeLabor.pdf. Accessed on 11 January 2016.

[42] Better Work Indonesia. Garment Industry 1st Compliance Synthesis Report. International Labor Office; International Finance Corporation. Geneva: ILO; 2012.

[43] ILO. Global Employment Trends 2014: Risk of a jobless recovery? 2014. http://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/publ/documents/publication/wcms_233953.pdf. Accessed on 23 January 2016.

[44] OECD. How does INDONESIA compare? OECD Employment Outlook 2014. https://www.oecd.org/indonesia/EMO-IDN-EN.pdf. Accessed on 11 January 2016.

[45] Beneria L. Accounting for women's work. In: Beneria L. ed., Women and development: The sexual division of labor in rural societies; 1982.

[46] Shah N.M., Al-Qudsi S. Female Work Roles in a Traditional, Oil Economy: Kuwait. Research in Human Capital and Development Series; 1990, vol. 6.

[47] Borjas G.J. Labor Economic. New York: Mc Graw Hill; 2005.

[48] Mankiw N.G. Teori Makro Ekonomi (Macro Economic Theory). Book. Jakarta: Penerbit Erlangga; 2003.

[49] Gaddis I., Pieters J. Trade Liberalization and Female Labor Force Participation: Evidence from Brazil. IZA Discussion Paper, August No. 6809; 2012.

[50] World Bank. World Development Report 2012: Gender Equality and Development. Washington, DC: World Bank; 2011. https://siteresources. worldbank.org/INTWDR2012/Resources. Accessed on 20 January 2016.

[51] Dini C.M. Faktor-faktor yang Mempengaruhi Partisipasi Angkatan Kerja Wanita Muda dalam Kegiatan Ekonomi Kota Makasar (Factors Affecting Labor Force Participation of Young Women in

Economic Activities in Makasar City); 2014. http://repository.unhas.ac.id/handle/123456789/10113. Accessed on 20 January 2016.

[52] Verick S. Female Labor Force Participation in Developing Countries. IZA World of Labor; 2014, 87. http://wol.iza.org/articles/female-labor-force-participation-in-developing-countries.pdf. Accessed on 20 January 2016.

[53] Majid F. Faktor-faktor yang Mempengaruhi Keputusan Perempuan Berstatus Menikah untuk Bekerja. Studi Kasus di Semarang. (Factors Affecting the Decision of Women Married Entering to Work Force). Universitas Diponegoro; 2012.

[54] Widarti D. Determinant of Female Labor Force Participation by Married Women: the Case of Jakarta. Bulletin of Indonesian Economics Studies; 2006.

[55] Purnamaningsih N. Analisis Faktor-Faktor Yang Mempengaruhi Tenaga Kerja Wanita Bekerja Di Luar Negeri. Studi Kasus Di Kediri. (Analysis of Factors Influencing Women Labor Working Abroad. Case Study in Kediri. Jurnal Ilmiah Berkala Universitas Kediri, Juni Edision; 2011.

[56] Mantra I.B. Demografi Umum (General Demography). Yogyakarta: Pustaka Pelajar; 2000.

[57] Setyonaluri D. Determinants of Female Labor Force Participation Dynamics: Evidence From 2000 & 2007 Indonesia Family Life Survey. Paper presented at NATSEM HDR Workshop, 13 September 2012.

[58] De Jong P., Apostolos T. Can labor force participation growth and productivity growth be combined? APE (Aarts, de Jong, Wilms & Goudriaan Public Economics), June; 2008.

[59] Ogawa K., Masuma A. Female Labor Force Participation in Indonesia; 2007. https://www.researchgate.net/publication/29689054_ Female_ Labor_Force_Participation_in_Indonesia. Accessed on 24 January 2016.

[60] Mollet J.A. Female Labor Force Participation and Economic Development in West Papua. Cambridge Scholars. UK; 2011. http://www.cambridgescholars.com/download/sample/58782. Accessed on 24 January 2016.

[61] Manning C. Indonesian Labor in Transition: An East Asian Success Story? Cambridge: Cambridge University Press; 1998.

[62] Oey-Gardiner M. A Gender Perspective in Indonesia Labor Market Transformation. In Manning C., Hardjono J., eds. Indonesia Assessment 1993, Labor: Sharing in the Benefits of Growth? Canberra: Department of Political and Social Change Research School of Pacific Studies, Australian National University; 1993, pp. 203.

[63] Anker R. Gender and Jobs: Sex Segregation of Occupations in the World. Geneva: International Labor Office (ILO); 1998.

[64] Priebe J. Child Costs and the Causal Effect of Fertility on Female Labor Supply: An Investigation for Indonesia 1993–2008. Courant Research Centre – Poverty, Equity and Growth Discussion Papers; 2010, 45. http://www.uni-goettingen.de/en/67061.html. Accessed on 15 December 2015.

[65] Yuliant R.A., Ratnasari V. Pemetaan dan Pemodelan Tingkat Partisipasi Angkatan Kerja (TPAK) Perempuan di Provinsi Jawa Timur dengan Pendekatan Model Probit (Mapping and Modeling of Female Labor Force Participation Rate (LFPR) in the East Java Province using the Approach of Probit Model). Journal Science and Art Pomits; 2013, vol. 2, No. 2. http://ejurnal.its.ac.id/index.php/sains_seni/article/view/4960. Accessed on 15 December 2015.

[66] Susilawati M., Nilakusmawati D.P.E., Rimbawan N.D. Presented in National Conference in Science and Technology: "The Role of Science and Technology insightful Environmental in Improving Human Welfare," Denpasar, Bali, 18–19 Sepember 2014.

[67] Alatas V., Cameron L. The Impact of Minimum Wages on Employment in a Low-Income Country: An Evaluation using the Difference-in-Differences Approach. World Bank Policy Research Working Paper; 2003, 2985.

[68] Hugo G. "Sources of internal migration data in Indonesia: their potential and limitations", Majalah Demografi Indonesia (Indonesian Journal of Demography); 1982, 17, 9: 23–52.

[69] Silvey R. Transnational migration and the gender politics of scale: Indonesian domestic workers in Saudi Arabia. Singapore Journal of Tropical Geography; 2004, 25 (2).

[70] Lipszyc. The Feminisation of Migration: Dreams and Realities of Migrant Women in Four Latin American Countries; 2004, 15 April, pp. 11.

[71] Beaudry P., Collard F. Why has the employment productivity trade-off among industrialized countries been so strong? NBER Working Paper; 2002, 8754.

[72] McGuckin R., van Ark B. Productivity and participation: an international comparison, Groningen Growth and Development Centre, Research Memorandum GD-78; 2005.

[73] Pichelmann K., Roeger W. "Employment and labor productivity in the EU: reconsidering a potential trade-off in the Lisbon strategy." In: Eichengreen B., Landesmann M., Stiefel D., eds. The European Economy in an American Mirror; 2008, pp. 128–42.

[74] Dew-Becker I., Gordon R.J. The Role of Labor Market changes in the slowdown of European productivity growth, CERP Discussion Paper; 2008, 6722.

[75] Avramov D., Maskova M. Active Aging in Europe, Directorate General III- Social Cohesion, Publication Studies; 2003, No. 41.

[76] Skirbekk V. Age and Individual Productivity: a Literature Survey, Max Planck Institute for Demographic Research, Germany, Working Paper; 2003, 028.

[77] De Jong P., Apostolos T. Can Labor Force Participation Growth and Productivity Growth be Combined? APE (Aarts, de Jong, Wilms & Goudriaan Public Economics), June; 2008.

[78] Mallick J. Globalisation, Structural Change and Labor Productivity Growth in BRICS Economy. www.fiw.ac.at/fileadmin/ Documents/Publikationen/Working_PaperN_141_Mallick.pdf. 2013. Accessed on 24 February 2016.

[79] United Nation Women. UN Women in Indonesia; 2016: April. http://www. unwomeneseasia. org/Indonesia/about_unwomen_indonesia.html. Accessed on 24 February 2016.

[80] McKinsey. Women Matter; 2014. http://www.mckinsey.com/global-themes/women-matter. accessed on 24 February 2016.

[81] United Nations. Overview of Achievements and Challenges in Promoting Gender Equality and Women's Empowerment. http://www.un.org/ womenwatch/daw/Review/responses/ INDONESIA-English.pdf. Accessed on 25 February 2016.

[82] Garcia M., Greenley R., Martin-Onraët V., et al. Women's Workforce Participation in Indonesia and Malaysia A Comparative Analysis with Recommendations for Egypt. https://elliott.gwu. edu/ sites/elliott.gwu.edu/files/Nathan%20Associates,%20Inc..pdf. Accessed on 25 February 2016.

CHAPTER 4

WOMEN'S LABOR FORCE PARTICIPATION IN MALAYSIA

Kelvin Chee Meng Yeong
Assistant Director, Economic Planning Unit
Prime Minister's Department

Malaysia consists of 13 states and three federal territories. It is a multiracial country with more than 70 identified ethnic groups. These ethnic groups are broadly classified into four major groups, namely, Bumiputera (inclusive of Malay and Indigenous); Chinese; Indians, and others (inclusive of non-Malaysian citizens). The population of Malaysia was 28.3 million in 2010 with an annual population growth rate of 1.9%. Bumiputera, the main ethnic group, constituted 60.3% of the total population, followed by Chinese and Indians at 22.9% and 6.8%, respectively. The population is estimated to become 32.4 million by 2020.

For the bulk of the twentieth century, prior to World War II, population growth was characterized by large-scale immigration of the Chinese and the Indians. After the war, with the cessation of immigration, natural factors began to play a dominant role in population growth. In the late 1950s, Malaysia got poised for a rapid population growth, characterized by high fertility rates driven by a large cohort of post-war baby boomers. The industrial transformation during the 1980s and the early 1990s resulted in a more exports-led economy and an infusion of foreign direct investment. This resulted in a high economic growth and manpower demand, which the labor markets could not provide. Thus, migrant workers from neighbouring countries were desired as workers in these sectors.

The main economic activities before 1970 were rubber and tin production for export and a variety of food crops. In 1970, slightly more than half of the labor force was employed in the agriculture sector, but that had declined to 9.9% in 2000. Malaysia has been one of the success stories among developing countries that began to shift from agriculture-based economy to knowledge-based economy (K-economy) in the mid-1990s to maintain rapid economic growth as well as to improve competitiveness at the international level. Since 1970, Malaysia's development plans have been guided by the New Economic Policy (1970–90), the National Development Policy (1990–2000) and the the National Vision Policy (Vision 2020). These policies were aimed at restructuring the society, eradicating poverty, and ensuring redistribution of income.

Malaysia has also achieved remarkable progress in human development. During the period of 1957 to 2010, life expectancy increased from 55.8 years to 71.9 years for males and from 58.2 years to 76.6 years for females. Gender differences in educational attainments have also narrowed as compared to the past. With women comprising nearly half of the population and representing one-third of the total labor force, their participation has contributed significantly to the national economic growth. The female labor force participation rate has increased from 37.2% in 1970 to 46.8% in 2010. Concomitant with socioeconomic development, the mean age at first marriage among women has increased from 21.6 years in 1970 to 25.1 years in 2000, which influences the formation of future generation.

Since 1911, Malaysia has experienced three stages of demographic transition. During stage one of the transitions (1911–27), the birth and death rates in Malaysia fluctuated, along with low birth

rates and high death rates. However, in stage two (1928–57), the birth rate reached a peak at 46.2 in 1957 while the death rates decreased. From 1958 onward, Malaysia has been in stage three, where both birth and death rates have been relatively low. [1]

'The Malaysia Economic Monitor November 2012: Unlocking Women's Potential' reported that the Malaysian female labor force participation was only 46%. This is lower than the middle-income neighbouring countries like Singapore (60%) and Thailand (70%), and significantly lower than high-income countries like the UK (70%) and Sweden (77%). According to the report, increasing Malaysian female labor force participation rate from 46% to 57% would raise GDP growth by 0.4% per year.

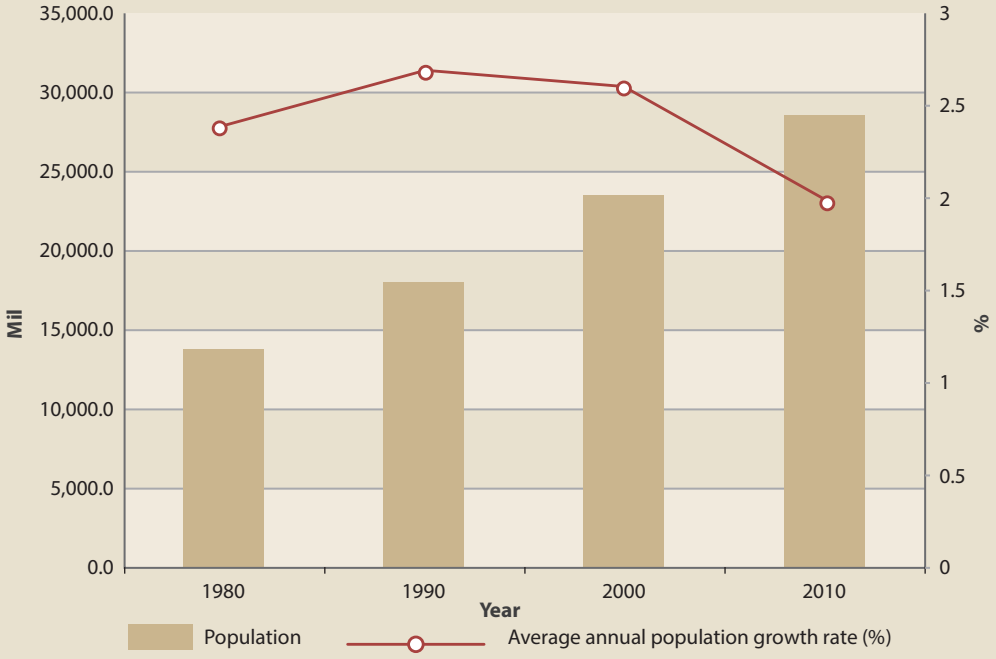
1. Population Dynamics In Malaysia

1.1. Population Growth

Population of Malaysia has increased over the past three decades (1980–2010), from 13.9 million to 28.3 million, with an average growth rate of 2.4% (Figure 4-1).

FIGURE 4-1

POPULATION GROWTH IN MALAYSIA, 1980–2010



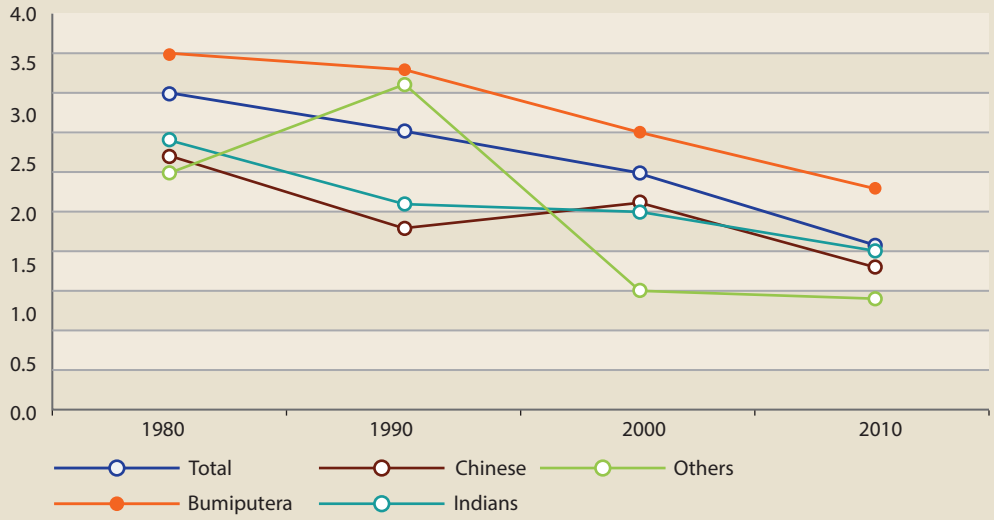
Source: Department of Statistics, Malaysia.

1.2. Fertility

Total fertility rate (TFR) in Malaysia was 4.0 in 1980 and fell to 2.1 in 2010. The Bumiputera group recorded the highest TFR, which contributed to a significant impact on the overall TFR of Malaysia. The TFR for Bumiputeras decreased from 4.5 in 1980 to 3.5 in 2000, and 2.8 in 2010. However, for the Chinese and the Indians, TFR dropped continuously from 1980 onward, eventually reaching the levels of 1.8 and 2.0, respectively, in 2010 (Figure 4-2).

FIGURE 4-2

TOTAL FERTILITY RATES BY ETHNIC GROUPS, 1980–2010



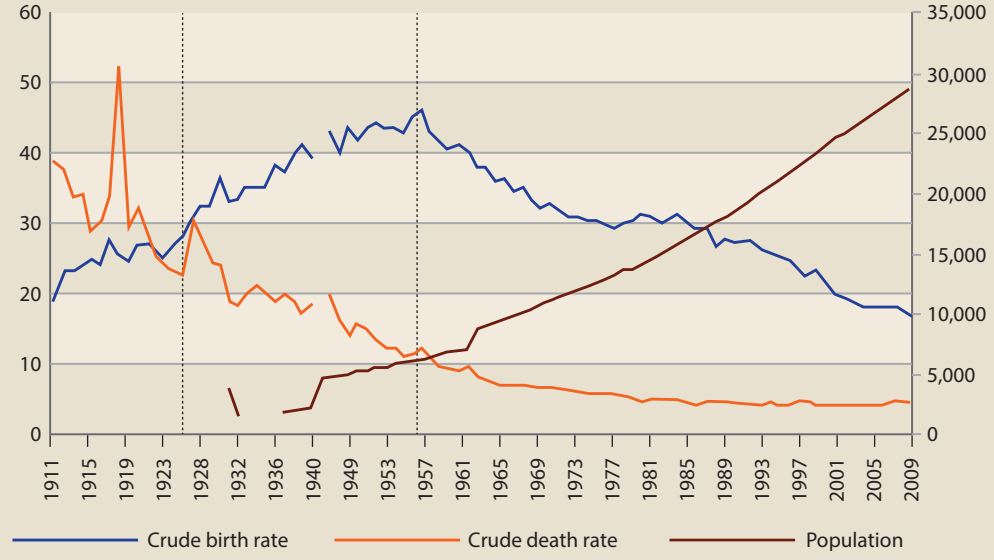
Source: Department of Statistics, Malaysia.

2. Demographic Transition Patterns In Malaysia

Based on the available data, demographic transition in Malaysia involves three stages. Stage one was during the period 1911–27 (16 years), followed by stage two during 1928–57 (29 years), and lastly stage three, which started in 1958 and continues till present (Figure 4-3). Advancements in medical sciences, transfer of technology, and family planning programs have acted as catalysts to speed up the demographic transition in Malaysia.

FIGURE 4-3

DEMOGRAPHIC TRANSITION IN MALAYSIA, 1911–2010



Source: Department of Statistics, Malaysia [3] [4]

2.1 Stage One (1911–27)

Stage one of demographic transition was normally characterised by high death as well as birth rates. During this stage, Malaysia experienced a unique scenario where the birth rates were relatively low, as data shows that death rates between 1911 and 1921 exceeded the birth rates. However, the birth and death rates became equal in 1922. During 1923 to 1926, the birth rate started to exceed the death rate before the two rates becoming equal again in 1927. The death and birth rates also showed different directions. Basically, the crude death rate (CDR) showed a declining trend except in 1918, which increased to an unprecedented 52.9% before decreasing sharply. The birth rate, however, increased steadily.

Two important events that took place in the world calendar may have attributed to the high death rates, namely the World War I (1914–19) and the Spanish Influenza pandemic (1918–19). The highest death rate recorded in 1918 may have been caused by the Spanish Influenza pandemic which killed an estimated 20 to 40 million people globally. Besides, the high death rate was also due to common factors such as untreatable diseases, malnutrition, and poor hygiene and sanitation.

Meanwhile, the low birth rates could have been due to a lower proportion of females being in the childbearing age. The census of 1911 reported that there were 1.5 million males as compared to 0.8 million females. The low proportion of females compared to males is mainly attributed to the influx of male immigrants during the British colonization period. Even though initially the crude birth rate (CBR) was low, it gradually increased during the period 1911–27. This may be attributed to the fact that Malaysia's economy was then agriculture-based and most families relied on their children to help in farming and agricultural works.

2.2 Stage Two (1928–57)

During this stage, Malaysia experienced high birth rates and low death rates. The high birth rates were attributed to the fact that Malaysia was still an agriculture-based society where most family relied heavily on children to help in farming. It was a custom to have a large family size in Malaysia during that time. Besides, early marriage was also a norm and that further contributed to the increase in CBR.

Prior to independence, most of the people, especially women did not have access to education, even though it was available during that time. Due to poverty, many families could not afford to send their children to school. Further, schools were mostly located in towns while most of the population resided in rural areas, which made schools more inaccessible. The medical breakthrough during the period 1928–57 globally had a positive impact on the health and wellbeing of the population.

2.3 Stage Three (1958 onward)

The transition to stage three for Malaysia was closely related with government policies, women changing their roles, and improvements in health facilities. The government introduced a series of Malaysian Plans to eradicate poverty as well as to create a balanced economy between the different ethnics. It also transformed the Malaysian economy from being agricultural to becoming industrialized. In turn, this created job opportunities that were not available in stages one and two. The government also introduced the Education Act to ensure that education became compulsory for all.

As a result of the government policies, women shifted from their traditional roles as mothers to career women. The number of women participating in the labor market increased and became

significant to the Malaysian economy as a whole. Their decisions to marry at older ages and to put career ahead of the family had a huge impact on the demographic transition.

Under the Family Planning Program, contraceptive methods received a wide acceptance among the married couples, which had a great impact on reducing the birth rate. Concurrently, better access to health facilities has resulted in a decline in death rates. Subsequently, the life expectancy has improved from 55.8 years for males and 58.2 years for females in 1957 to 71.9 years for males and 76.6 years for females, respectively, in 2010. [1]

3. Changing Roles of Women

Demographic transition impacts the family institution, and fertility levels can be categorized as macro and micro factors. Macro factors focus on government policies on population, while micro factors would be described in economic and social perspectives. Economic perspectives emphasize on education and women in employment, while social perspectives include issues such as mean age at first marriage and family planning programs. It also discusses the urbanization that changes the value of children and family support.

3.1 Macro Factors

The country's policies contributed to a lot of changes in the population. The emergence of economic problems and awareness of the long-term social, economic, and health implications of high population growth prompted the Government of Malaysia to launch the National Family Planning Program in 1966. The program was designed to reduce the population growth rate and to increase the average annual per capita income. The change in official policy represented the triumph of economics and health over politics in this multi-ethnic country having Islam as the national religion. By the early-1970s, family planning services had been extended to all parts of the country through an integration of the maternal and child healthcare programs under the Ministry of Health.

In 1981, the government adopted different development strategies, with a great emphasis on the industrialization programs, to be supported by a larger population and domestic market. Subsequently, industrial labor shortages rapidly began to emerge. Malaysia is now a major destination for foreign labor.

During a political gathering in 1982, the then Prime Minister announced a new demographic target of a population of 70 million by 2100. That became an official policy in the Midterm Review of the Fourth Malaysia Plan (1981–85). However, this policy has been revised as Malaysia could not afford to reach the target of 70 million population based on the projection by the Department of Statistics Malaysia (DOSM). The National Family Planning Program was renamed as National Population and Family Development Program in 1984. Greater concern has been placed not only on marriage and parenting counselling, reproductive health and gender issues, but also on human resource development and improved status of women.

3.2. Micro Factors

Micro factors refer to individual and family dynamics in terms of changes in the society and the economy. Among these were women empowerment in education and employment, changes in age of marriage, life expectancy, perspections for family planning, and the value of children.

Education Effects

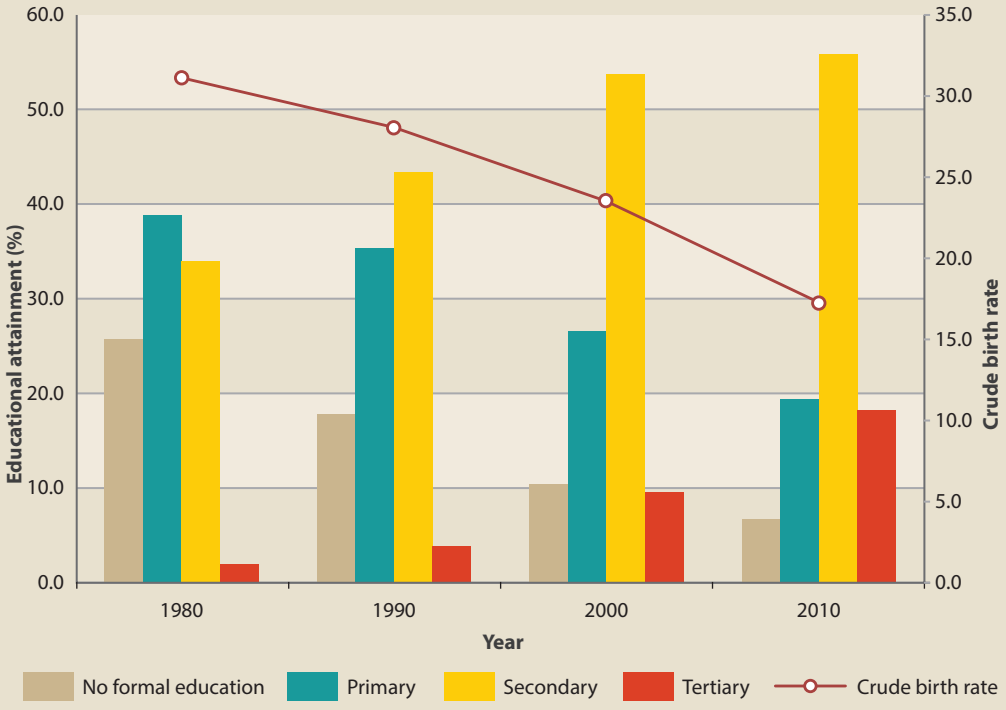
Education plays an important role in every person's life. Apart from helping in reaching a good position in the society, education also changes the way a person thinks, reacts, and manages oneself and the environment, with regard to the family build-up. In this context, education can foresee to encourage delayed marriage and birth control. The capability to attain higher education, especially among women, has caused delays in marriages. This has led to a lapse of women's reproductive years and hence a decrease in the number of births. In the Second Malaysia Plan (1971-1975), the Curriculum Development Centre was established to emphasize upon the availability of vocational and technical trainings besides general education. More technical and vocational schools were built to alleviate the problem of unemployment, especially among the youth who were not interested in general education. [1]

There is an inverse relation between women's education levels and CBRs. During the period of 1982 to 2010, the percentage of women attaining higher education increased from 35.8% to 73.9% while the CBR decreased from 31.0% to 17.2% (Figure 4-4).

During 1982 to 2010, the percentage of primary educational attainment dropped from 38.7% to 19.4%, due to the shrinking number of young children aged 6-12 years. For the same period, percentage of secondary educational attainment increased from 33.8% to 55.6%, while the tertiary education attainment stood at 18.3% in 2010. The remarkable achievement in education is reflected by the reduction in the percentage of 'never attended school' from 25.5% to 6.7%.

FIGURE 4-4

CBR AND EDUCATIONAL ATTAINMENTS OF FEMALES IN MALAYSIA, 1982–2010



Source: Department of Statistics, Malaysia [3, 4]

4. Women's Labor Force Participation

4.1. Key Factors Influencing Female LFPR

Overall, the opportunities for women to pursue higher education have empowered them to participate in the labor market. Simultaneously, expanded education and career options for women have increased their economic independence. One result is that more women are voluntarily choosing singlehood and liking it.

Women's participation in the labor market has increased in the last two decades, even though it remains well below the participation rate for men (figure 4-5). The labor force participation rate (LFPR) among women has remained rather consistent between 44% and 47% for the last three decades.

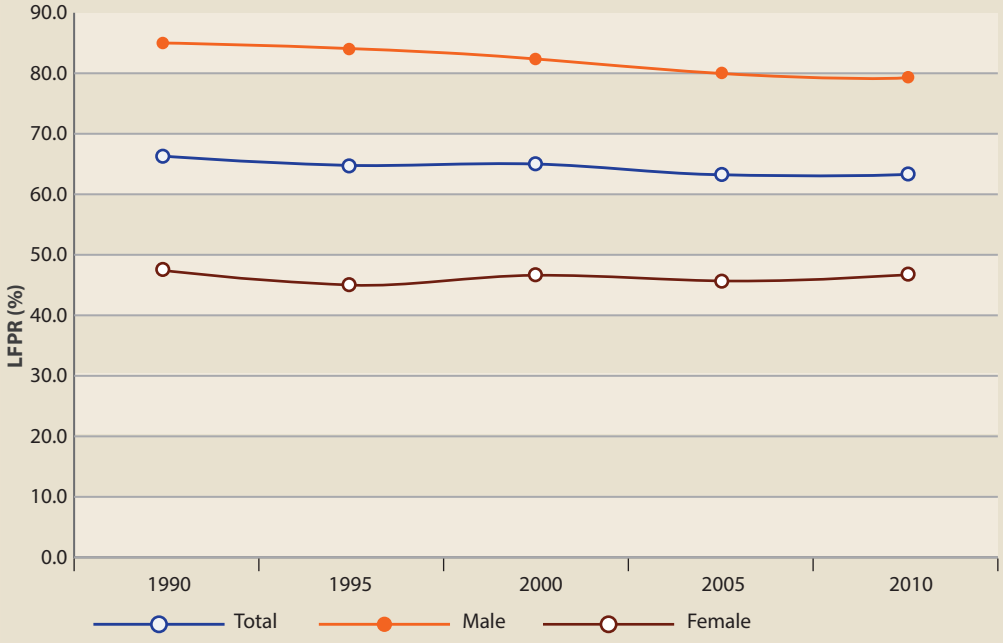
A visible outcome of the National Policy on Women was the inclusion of a chapter, Women in Development, in the Sixth Malaysia Plan (1991–95). This chapter was significant, as it outlined the issues and concerns regarding the full integration of women in development. Given the roles and status of women in the society and the labor market, and the lack of support services, women have been led to combine caregiving and workplace responsibilities. A number of initiatives, such as provision of maternity leaves, tax reliefs, and childcare centers at workplaces, were implemented to support women.

4.2. Gender Gaps and Challenges

One of the salient features of female labor force participation in Malaysia has been a distinctly stagnating participation rate of women, which has remained rather consistent between 44% and 47% for the last three decades. Despite Malaysia having achieved gender parity at the primary,

FIGURE 4-5

MALE AND FEMALE LABOR FORCE PARTICIPATION RATES, 1990–2010



Source: Department of Statistics, Malaysia [5]

secondary, and post-secondary education levels and better-than-parity at the university level, women in Malaysia make up only 36.3% of the labor force, which is significantly less than most of the developed economies.

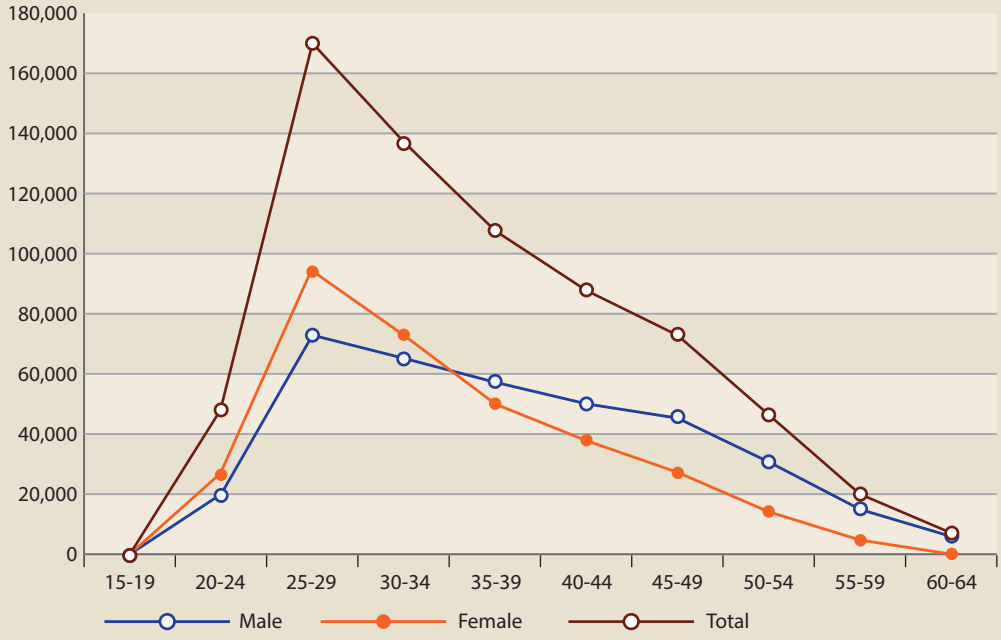
Some of the factors that contribute to the stagnant rate of women's participation in labor workforce in Malaysia can be traced from the baseline data of the Malaysian labor force survey by utilizing a gendered approach as follows:

- **Exit from labor force:** Compared to men, there has been a substantive decline of 5–6% in the number of women in the labor force in the age groups of 25–29 and 30–34, i.e., those in the childbearing and childrearing age groups. Figure 4-6 shows a single-peak pattern for the female age cohorts in labor force participation. In between 1990 and 2000, the peak occurred in the age cohort 20–24. Then, the peak shifted to the age cohort 25–29 from 2005 onwards. Meanwhile, the male age cohorts' profile shows more of a plateau for the same age groups (Figure 4-7). The prime working age for men in the age cohort of 25–44 was close to 100%. The shift in the peak from 20–24 to 25–29 for females could be due to their increased participation in tertiary education and delayed marriages. The exit of women from the workforce in the age groups of 25–29, 30–34, and 35–39 is most likely linked to marriage, childbearing, and childrearing.

- **Early retirement:** There is a steep decline of 8–9% in the female labor force participant rate in the age groups of 45–49 and 50–54 (Figure 4-6). The decline is even steeper at 15.1% for the age groups of 50–54 and 55–59. The decline in the participation rates for ages 45 and above had been increasing dramatically between 1990 and 2010. This shows

FIGURE 4-6

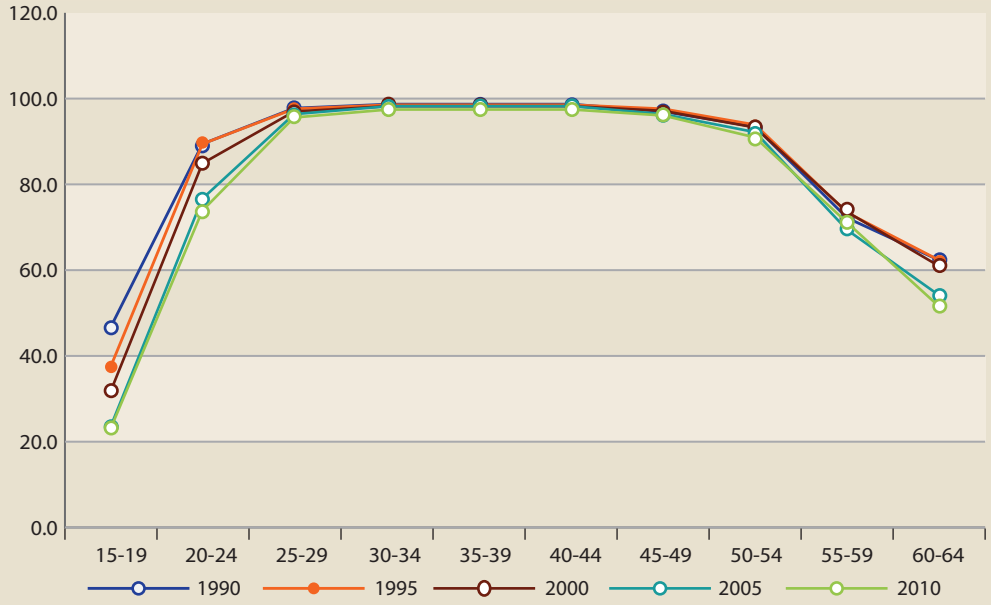
FEMALE LABOR FORCE PARTICIPATION RATES BY AGE GROUPS, 1990–2010



Source: Department of Statistics, Malaysia [5]

FIGURE 4-7

MALE LABOR FORCE PARTICIPATION RATES BY AGE GROUPS, 1990–2010



Source: Department of Statistics, Malaysia [5]

that the nature and the cause itself for early retirement had been changing. Traditionally, retirement has meant the end of work after a career of full-time jobs. However, frequent entries and exits from workforce for childcare, for elder care or due to layoffs, among other reasons, may have resulted in many women workers not taking the traditional linear career paths. Moreover, there is a possibility that a large percentage of the women's workforce is employed in part-time, temporary, and contractual jobs in career paths with no clear trajectory. Hence, the concept of retirement may have a very different meaning for these workers. Although the trends and patterns of the Malaysian labor force participation is similar to the global labor force participation, there are some distinct features that differentiate the Malaysian context. One of the key features of female labor force participation rate is the single-peak pattern, as discussed above. This single-peak pattern seems to persist despite an overall increase in the initial entry of females in the labor force. The challenge that confronts the nation is to reduce the gender gaps that exist in the Malaysian labor market toward a more sustainably increased labor force participation trend.

4.3 Barriers for Women to Enter the Labor Force

It must be recognized that any efforts to reduce the stagnation of women in the labor force require gender inequalities in the labor market to be addressed. A study to support the development of national policies and programs to increase and retain participation of women in the Malaysian labor force in 2013 conducted by the Ministry of Women Family and Community Development (MWFCD) and United Nations Development Programme (UNDP) [2] found that the main barrier to working was childcare issues, followed by women's lack of skills, and the lack of appropriate qualifications, as shown in Table 4-1:

TABLE 4-1

BARRIERS FOR WOMEN TO ENTER THE LABOR FORCE

Reasons given	(%)
Childcare issues	44.1
Lack of skills	33.1
Lack of appropriate qualification	32.1
Age factor	27.7
Distance/transportation problems	24.8
Lack of confidence	22.6
Pay not adequate	22.2
Employers not interested	12.4

Note: Barriers to enter the workforce stated by women currently not working; n=501

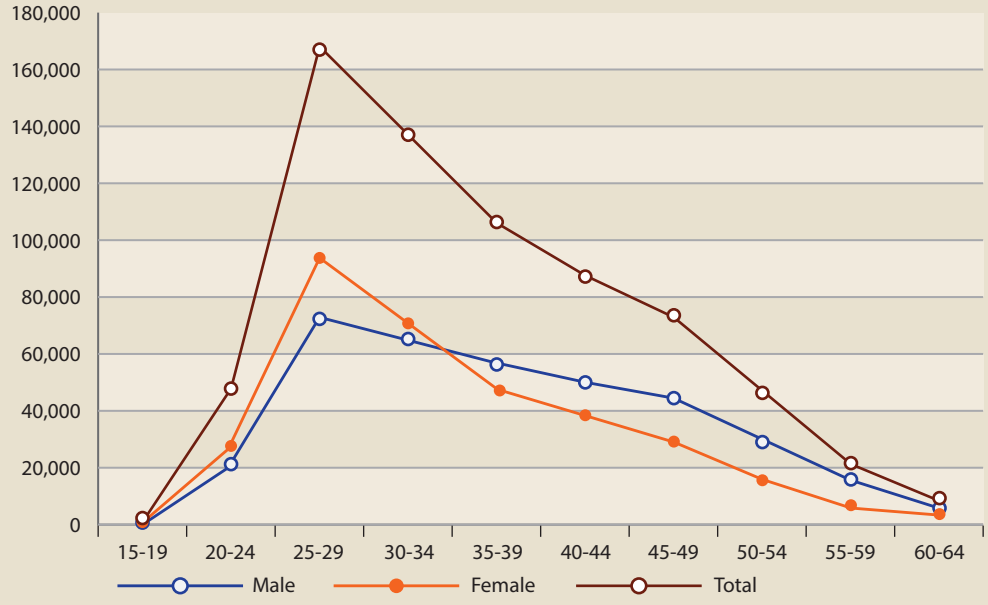
4.4 Impact of FLPR on National Productivity

The numbers of both female and male professionals reach the peak for the age group of 25–29 (Figure 4-8). However, the number of female professionals thereafter declines at a faster rate compared to the male professionals.

Women have been primarily responsible for home and children. In fact, after so much investment in education, women who are leaving the labor force at ages 30 years or above and never return to the labor force result in the country losing out on productivity.

FIGURE 4-8

NUMBER OF PROFESSIONALS BY AGE GROUPS AND GENDER, 2010



Source: Department of Statistics, Malaysia [5]

4.5 Correlation Approach

The Pearson correlation test was used to test the correlation between the female labor force participation rate and the productivity improvement. From Table 4-2, it can be observed that the female labor force participation rate has a positive correlation that can contribute to the improvement of the national productivity.

TABLE 4-2

CORRELATIONS

		LFPR	Productivity
LFPR	Pearson correlation	1	.711(**)
	Sig. (2-tailed)		.003
	N	15	15
Productivity	Pearson correlation	.711(**)	1
	Significance (2-tailed)	.003	
	N	15	15

** Correlation is significant at the 0.01 level (2-tailed).

5. Challenges and Recommendations

This section addresses the challenges raised on account of demographic transitions by examining the issues regarding the decline in fertility. The main causes of fertility decline are education, notably among women; consequent changes in attitudes toward marriage and childbearing; social and economic; and problems of childcare and other related issues that tend to become more complex with urbanization and industrialization. The policies and programs recommended by the government and the private sector will be highlighted in this section.

5.1. Key Issues

The decline in fertility rate is one of the main challenges arising from Malaysia's demographic transition. The total fertility rate (TFR) was expected to reach replacement level of 2.1 in 2015. Fertility decline would have great impact on the reduction of young people, who are seen as an investment in the future human capital. This factor should be considered to maintain the economic growth and to be a developed nation by 2020. As a result of a low fertility level, Malaysia may need to rely on foreign workers. To reduce the dependency on foreign workers, bringing more women into the workplace would be a necessity. This would not only fulfil the labor demand but also positively impact the economic development and global competitiveness of the country.

Besides, the rising costs of raising children is one of the challenges. Traditionally, women are responsible for household chores and are also the main care providers to the young. Nowadays, with better access to education, more women are part of the workforce. Most of them depend on their family members, neighbors, and childcare centers to take care their young children while they are working. This has incurred additional expenses on childcare. Further, education has become compulsory for children at various stages such as childcare education (up to three years), pre-school education (four to five years), and primary education (six years and more). Investment in early education is a good strategy for developing human capital, which in turn, is an important

source of economic growth. However, the cost of raising children has become a burden, especially for the low-income families with higher number of children and for those who live in urban areas.

5.1.1 Women's Economic Empowerment

There are a number of women's economic empowerment programs conducted by various ministries and government agencies. Examples include, the Women Exporters Programme conducted by the SME Corporation; Incubator Skills Training for Single Mothers (I-KIT); Incubator Entrepreneurship Programme (I-KeuNita); and Women Entrepreneur Programme for Low Income Households. MamaCare Program was launched in 2012 as a pilot project to improve the economic opportunity for woman. It is a holistic postnatal care service for mothers with the aim to help improve the well-being and reproductive health of women and their families. This program trains women and single mothers to be self-employed.

5.1.2 Women in Decision-Making Positions

In the public sector, the percentage of women in decision-making positions has achieved the target of 30%. The percentage of women at super-scale ranks and above has increased from 32.3% in 2010 to 33.7% in 2013. In the corporate sector, the Companies Commission of Malaysia (Suruhanjaya Syarikat Malaysia or SSM) recorded that 27.3% of boards of companies were held by women in May 2014. In 2013, the percentage of women on boards of public listed companies was recorded at 9.8%, whereas in case of the Minister of Finance Incorporated Companies, the percentage was recorded at 15.3%. In private sector, diversity policy has been inculcated through several instruments, namely the Corporate Governance Blueprint 2012 and the Social Index announced by the Prime Minister in 2014.

In the area of politics, the representation of women in Dewan Rakyat was 10.4%, whereas the representation in Dewan Negara was 25.8% as of August 2014. The political representation in Malaysia is fairly low when compared with some other ASEAN and Asian countries. Even in the elections in 2013, the number of women electoral candidates was only 8.6%.

5.1.3 Part-time Regulations

The enactment of the Employment (Part-Time Employees) Regulations 2010 enforced on 1 October 2010 is to encourage more women, particularly the housewives, to participate in the labor force.

5.1.4 Incentives for Establishment of Childcare Centers

The provision of incentives to encourage the establishment of childcare centers in workplaces as well as in the community is to provide affordable and better-quality childcare for children below the age of four.

5.1.5 HEARTS Programme

HEARTS is a pilot program to train 400 women to participate actively in specialized fields such as developing and managing websites, translating, script writing, and financial planning. This program aims to upgrade their knowledge and skills, so that they could be self-employed, work from home, or have flexible working arrangements to increase their household incomes. The program assists in increasing the percentage of employable women's participation in the labor market from 46% to 55%.

5.1.6 Grant for New Childcare Centers

The main objective of this initiative is to provide a social support system that allows children under the age of four to get alternative childcare and early education at better-quality childcare centers.

Objectives of childcare center grants or TASKA establishment grants are following:

- To increase TASKA registrations and enrolments of children in TASKA registered with the department.
- To support efforts to enhance the service quality and reduce the burden of TASKA operators to cover rising operating costs.
- To support the government's policy to increase female labor force in the labor market and address the issues related to foreign maids.

Approximately 400 new private preschools and 580 new private childcare centers were established in 2014.

5.1.7 Subsidy for Childcare Fees

The objectives of giving subsidies for childcare fees are:

- To ease the burden of low-income parents to enable them to cover the costs of childcare fees.
- To increase opportunities for more children to get better quality of care and early education in a TASKA.
- To increase the participation of women in labor market by providing a support system for early care and education for children.

5.1.8 Childcare at the Workplace

According to the Service Circular No. 6 of Year 1989, it is compulsory for all ministries, departments, and agencies to establish childcare centers at workplaces. With the childcare facilities, working women would be able to focus on their careers and increase their productivity. Besides, the childcare centers would ease the women to breastfeed their babies during certain hours until a specific age as encouraged by the World Health Organization (WHO).

The government plays vital roles in providing support for childcare center facilities at workplaces. The incentives given are:

- One-off establishment grant worth RM200,000 for a childcare center in a government-sector workplace.
- Maximum RM180 subsidy per month for childcare center fees for civil servants with total household income below RM5,000 per month for each child sent to a childcare center (as per the 2014 Budget Speech).
- 10% tax exemption to all employers in private sector for childcare center building construction for 10 years.
- A double deduction on the allowances or subsidies provided to the employees and expenses for the maintenance of childcare centers to be given to the employers.

5.1.9 Maternity Leave in Public Sector

In October 2011, the Government improved the maternity leave facility for female civil servants by providing flexibility to self-determine fully-paid maternity leave, which has been extended from 60 to 90 days, subject to a total of 300 days of maternity leave throughout the tenure of the service.

5.1.10 Maternity Leave in Private Sector

The maternity leave in private sector has been extended from 60 days up to 90 days. Meanwhile, local banks have extended fully-paid maternity leave from 60 days to 90 days, effective 10 August 2010 through a collective agreement.

5.1.11 Parenting@work Program

The implementation of the Parenting@work program promotes equal sharing of domestic and family responsibilities between women and men. This program aims to promote parenting knowledge and skills, especially for working couples.

5.1.12 Incentives for Retraining Women

Since 2013, double tax deduction incentive is being given to companies that retrain and employ women who want to be gainfully employed after a career break.

5.1.13 flexWorkLife.my

The government has recently launched the flexWorkLife.my website to enable private companies to offer flexible work arrangements. Employers can advertise job opportunities through this website and tap into the Malaysian talent pool.

5.1.14 Flexible Work Arrangement

Budget 2014 provisioned for incentives for employers who implemented the Flexible Work Arrangement (FWA) that gives flexibility to employees in terms of duration, place, and working hours at the workplace. Training expenses and consultancy fees incurred by employers in implementing FWA would enable further tax deductions. This flexible work arrangement encourages women to return to work after childbirth.

5.2 Policy Issues

The current policy and legal frameworks need to focus on the specific enablers to promote women's participation in the labor force. There is a need to reduce burdens of unpaid work, increase men's participation in unpaid work, improve childcare, better the access to social protection and other capacity-building initiatives to enhance women's skills and potential for work. While many government initiatives have already been put in place to support women in the labor force, and are noteworthy, those appear fragmented, with no clear monitoring mechanisms to measure their effectiveness and outcomes.

6. Conclusion

The participation of women in the labor force is determined by many factors, and those factors have been observed to be similar to many OECD countries. This shows that the traits of rich countries have emerged in the Malaysian society. At the same time, Malaysia is dealing with issues such as wage gaps and gender gaps in the economy, apart from decision-making-level participation in certain high-impact sectors.

The case of Malaysia is also peculiar because women who have left the labor force do not seem to return to labor force for reasons that continue to perplex the government. Today, there isn't any study or reliable data to determine those factors. One of the reasons that could be cited is the migration from formal sector into a more informal sector such as engaging in online business, doing part-time hobbies that help earn pocket money or becoming freelancers, which are seldom captured by the official statistics due to non-disclosure. A more alarming fact is that women leaving the workforce at their prime ages translates into loss of resources at their highest productivity levels.

The changing nature of women's participation in the labor force has been a critical dimension of the development process since the Industrial Revolution. However, the relationship between

participation and economic progress is far from being straightforward. The cross-sectional data indicated that there was a U-shaped relationship between female labor force participation and GDP per capita. This relationship is not robust and not a consistent trend at the country level. Ultimately, women's employment is driven by a range of multifaceted factors, including education, fertility rates, social norms, and the nature of job creation.

Beyond standard labor force participation rates, policymakers should be concerned with whether women could access better jobs and take advantage of new labor market opportunities that arise as a country grows and, in so doing, could contribute to the development process itself. For this reason, policies should consider both supply- and demand-side dimensions, including access to better education and training programs and access to childcare, as well as other supportive institutions and legal measures. These would help ease the burden of domestic duties, enhance women's safety, and encourage private-sector development in industries and regions that could increase job opportunities for women in developing countries.

Particular emphasis is needed on keeping young girls in schools and ensuring that they receive good-quality education, beyond the junior-secondary level, and are able to take advantage of training opportunities. That, in turn, would increase their chances of overcoming other barriers to finding decent employment as an important source of economic growth. Participation of women in labor force would allow them to contribute actively towards their family's economic needs while enjoying a sense of financial independence.

References

[1] Mahari Z. Department of Statistics, Malaysia. Transition in Malaysia: The Changing Roles of Women; 2011.

[2] Ministry of Women, Family and Community Development, Malaysia. Study to Support the Development of National Policies and Programmes to Increase and Retain the Participation of Women in the Malaysian Labor Force: Key Findings and Recommendations; 2013.

[3] Department of Statistics, Malaysia. General Report of The Population and Housing Census; 2005

[4] Department of Statistics, Malaysia. Time Series Data Population and Housing Census, 1911–2000.

[5] Department of Statistics, Malaysia. Labor Force Survey, 1982–2015.

Appendix I

TABLE 1

POPULATION GROWTH IN MALAYSIA, 1980–2010

Year	Population ('000)	Average annual population growth rate (%)
1980	13,879.2	2.4
1990	18,102.4	2.7
2000	23,494.9	2.6
2010	28,588.6	2

TABLE 2

TOTAL FERTILITY RATE BY ETHNIC GROUPS, 1980–2010

Year	Total	Bumiputera	Chinese	Indians	Others
1980	4.0	4.5	3.2	3.4	3.0
1990	3.5	4.3	2.3	2.6	4.1
2000	3.0	3.5	2.6	2.5	1.5
2010	2.1	2.8	1.8	2.0	1.4

TABLE 3

DEMOGRAPHIC TRANSITION IN MALAYSIA, 1911–2010

Year	Crude Birth Rate	Crude Death Rate	Population ('000)
1911	19.4	39.1	2,342.2
1912	23.5	37.8	n/a
1913	23.1	34.0	n/a
1914	24.6	34.3	n/a
1915	25.3	28.9	n/a
1916	24.2	30.6	n/a
1917	27.9	34.2	n/a
1918	25.8	52.9	n/a
1919	24.6	29.4	n/a
1920	27.1	32.3	n/a
1921	27.2	28.5	2,910.2
1922	25.5	25.6	n/a
1923	25.3	24.1	n/a
1924	27.3	23.2	n/a
1925	28.1	22.9	n/a
1927	30.5	30.7	n/a
1928	32.5	28.0	n/a

CONTINUED ON NEXT PAGE

CONTINUED FROM PREVIOUS PAGE

Year	Crude Birth Rate	Crude Death Rate	Population ('000)
1929	32.4	24.6	n/a
1930	36.5	24.1	n/a
1931	33.3	19.1	3,788.5
1932	34.0	18.5	1,622.9
1933	35.5	20.2	n/a
1934	35.4	21.4	n/a
1935	35.9	19.9	1,777.4
1936	38.7	19.2	n/a
1937	37.8	19.9	1,961.4
1938	39.7	19.1	2,089.8
1939	41.0	17.5	2,125.3
1940	39.7	18.6	2,169.3
1947	43.0	19.4	4,908.1
1948	40.4	16.3	4,987.4
1949	43.8	14.2	5,081.8
1950	42.0	15.8	5,226.5
1951	43.6	15.3	5,337.2
1952	44.4	13.6	5,506.4
1953	43.7	12.4	5,706.0
1954	43.8	12.2	5,888.6
1955	43.0	11.5	6,058.3
1956	45.5	11.3	6,251.6
1957	46.2	12.4	6,278.8
1958	43.3	11.0	6,504.6
1959	42.1	9.7	6,702.6
1960	40.9	9.5	6,919.1
1961	41.8	9.2	7,146.7
1962	40.4	9.4	7,383.7
1963	38.1	8.5	8,920.2
1964	38.2	7.7	9,168.4
1965	36.1	7.5	9,436.6
1966	36.7	7.3	9,732.8
1967	34.9	7.2	10,007.4
1968	35.2	7.2	10,252.8
1969	33.3	7.0	10,500.2
1970	32.4	6.7	10,881.8
1971	32.8	6.6	11,159.7
1972	32.2	6.3	11,441.3
1973	31.1	6.3	11,719.8
1974	31.3	6.0	12,001.3
1975	30.7	6.0	12,300.3
1976	30.9	5.7	12,588.1

CONTINUED ON NEXT PAGE

CONTINUED FROM PREVIOUS PAGE

Year	Crude Birth Rate	Crude Death Rate	Population ('000)
1977	30.3	5.8	12,901.1
1978	29.7	5.4	13,200.2
1979	30.4	5.4	13,518.3
1980	30.6	5.3	13,879.2
1981	31.2	4.9	14,256.9
1982	31.0	5.0	14,651.1
1983	30.2	5.1	15,048.2
1984	31.0	5.0	15,450.4
1985	31.5	5.0	15,882.7
1986	30.6	4.7	16,329.4
1987	29.3	4.5	16,773.5
1988	29.7	4.6	17,219.1
1989	26.8	4.6	17,662.1
1990	27.9	4.6	18,102.4
1991	27.6	4.5	18,547.2
1992	27.7	4.5	19,067.5
1993	27.6	4.5	19,601.5
1994	26.7	4.5	20,141.7
1995	26.1	4.6	20,681.8
1996	25.6	4.5	21,222.6
1997	24.8	4.5	21,769.3
1998	23.5	4.8	22,333.5
1999	22.8	4.9	22,909.5
2000	23.4	4.5	23,494.9
2001	21.6	4.4	24,030.5
2002	19.9	4.4	24,542.5
2003	19.4	4.5	25,038.1
2004	19.1	4.5	25,541.5
2005	18.5	4.5	26,045.5
2006	18.1	4.5	26,549.9
2007	18.1	4.5	27,058.4
2008	18.4	4.7	27,567.6
2009	18.5	4.8	28,081.5
2010	17.2	4.6	28,588.6

TABLE 4

CBR AND EDUCATIONAL ATTAINMENT OF FEMALES IN MALAYSIA, 1982–2010

Year	Crude Birth Rate	No formal education	Primary	Secondary	Tertiary	Total
1982	31.0	25.5	38.7	33.8	2.0	100.0
1990	27.9	17.8	35.1	43.2	3.9	100.0
2000	23.4	10.5	26.4	53.5	9.6	100.0
2010	17.2	6.7	19.4	55.6	18.3	100.0

TABLE 5

MALE AND FEMALE LABOR FORCE PARTICIPATION RATES IN PERCENTAGE, 1990–2010

Year	Total	Male	Female
1990	66.5	85.3	47.8
1995	64.7	84.3	44.7
2000	65.4	83.0	47.2
2005	63.3	80.0	45.9
2010	63.7	79.3	46.8

TABLE 6

MALE LABOR FORCE PARTICIPATION RATES IN PERCENTAGE BY AGE GROUPS, 1990–2010

Year	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64
1990	47.3	90.1	97.7	98.6	98.8	98.5	97.6	93.5	72.7	62.6
1995	37.9	89.5	97.9	98.3	98.6	98.0	97.2	93.6	73.4	62.0
2000	32.1	85.2	97.5	98.5	98.6	98.2	97.8	93.3	74.0	60.9
2005	24.6	77.1	96.6	98.1	98.3	97.9	96.7	92.6	69.5	54.3
2010	24.0	74.5	95.8	97.6	98.0	97.8	96.2	91.4	71.1	51.5

TABLE 7

FEMALE LABOR FORCE PARTICIPATION RATES IN PERCENTAGE BY AGE GROUPS, 1990–2010

Year	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64
1990	33.8	63.3	53.3	50.4	48.9	50.1	50.3	43.1	33.1	27.0
1995	26.8	61.1	52.8	49.0	49.2	47.6	45.3	36.9	27.4	21.5
2000	22.1	63.1	61.2	53.5	51.0	52.1	49.3	40.2	28.3	22.1
2005	16.4	56.2	64.3	57.5	52.7	51.4	49.3	39.9	28.5	19.3
2010	13.0	54.1	67.6	61.1	57.1	53.2	50.9	42.6	28.2	17.2

TABLE 8

NUMBER OF PROFESSIONALS BY AGE GROUPS AND GENDER, 2010

Age	Male	Female	Total
15–19	1,100	300	1,400
20–24	19,600	13,000	32,600
25–29	52,700	35,700	88,400
30–34	85,200	36,300	121,500
35–39	95,300	39,500	134,800
40–44	106,300	32,900	139,200
45–49	104,500	26,300	130,800
50–54	84,600	14,800	99,400
55–59	54,300	7,600	61,900
60–64	24,600	2,900	27,500

Appendix II

TECHNICAL NOTES TO THE LABOR FORCE SURVEY

Introduction

The main objective of Labor Force Survey (LFS) is to collect information on the structure and distribution of labor force, employment, and unemployment. LFS provides statistics at national and state levels as well as for urban and rural areas. The comprehensive and systematic approach in data collection and processing has been maintained over a period of time with the aim of obtaining comparable time-series statistics.

The LFS is implemented based on the guidelines and recommendations of the ILO with reference to the manual on concepts and methods of surveys of economically active population, employment, unemployment, and underemployment.

Data Collection

The LFS is carried out using the personal interview method. During the survey period, trained interviewers visit households in selected living quarters (LQs) to collect information on all household members including their demographic particulars. In terms of field operations, detailed information on labor force particulars is collected from all members of household aged 15 years and above. Field checks are undertaken to identify and correct any errors or omissions at the time when the survey is conducted. In addition to this, selected households are interviewed again to check the quality of the field work.

Reference period is the reference week of the survey, which refers to seven days preceding the commencement date of the interview which are 1–7, 8–14 and 15–21 of the respective month.

Concepts and Definitions

Working age refers to household members who are between 15 to 64 years (in completed years on the last birthday) during the reference week, and who are either in the labor force or outside the labor force.

LFS uses the actual status approach, where a person is classified on the basis of his or her labor force activity during the reference week. The activity status is categorized as follows:

1. **Labor force:** Labor force refers to those who are in the age group of 15–64 years (in completed years on the last birthday) and who were either employed or unemployed during the reference week.

2. **Employed:** All persons who worked at least one hour at any time during the reference week for pay, profit or family gain as an employer, employee, own-account worker or unpaid family worker.

   They are also considered as employed if:
   - They did not work during the reference week because of illness, injury, disability, bad weather, leave, labor dispute, and social or religious reasons but had a job, farm, enterprise or other family enterprise to return to.
   - They were temporarily laid off with pay and would definitely be called back to work.
   - They were employed less than 30 hours during the reference week because of the

nature of their work or due to insufficient work and were able and willing to accept additional hours of work. This group is underemployed.

3. **Unemployed:** The unemployed are classified into two groups, namely, the actively unemployed, and the inactively unemployed. The actively unemployed include all persons who did not work during the reference week but were available for work and were actively looking for work during the reference week. Inactively unemployed persons include the following categories:

    - Persons who did not look for work because they believed no work was available or that they were not qualified.
    - Persons who would have looked for work if they had not been temporarily ill or had it not been for bad weather.
    - Persons who were waiting for results of job applications.
    - Persons who had looked for work prior to the reference week.

4. **Outside labor force:** All persons not classified as employed or unemployed are classified as outside labor force. This category consists of housewives, students (including those going for further studies), retired, disabled persons, and those not interested in looking for a job.

Labor force participation rate is defined as the ratio of the labor force to the working age population between 15 to 64 years, expressed as a percentage. The formula is as follow:

$$\text{Labor force participation rate} = \frac{\text{Number of persons in the labor force in the specified category}}{\text{Number of persons in the working age (15–64 years) in the same category}} \times 100$$

Sampling Frame

The frame used for the selection of sample for LFS 2014 is based on the Household Sampling Frame, which is made up of enumeration blocks (EBs) created for the 2010 Population and Housing Census and is updated from time to time. EBs are geographically contiguous areas of land with identifiable boundaries created for survey operation purposes, which on average contain about 80 to 120 living quarters. Generally, all EBs are formed within gazetted boundaries, i.e., within mukim or local authority areas.

Sample Design

A stratified two-staged sample design is adopted, namely:

1. **Primary strata:** This is made up of the states in Malaysia.
2. **Secondary strata:** This is made up of the urban and rural strata.

Two-stage sample selections are implemented and samples are drawn randomly. The first-stage units of sample selection are the EBs, while the second-stage units are the LQs within the EBs. All households and persons within the selected LQs are canvassed. At every stage of selection, the units are selected systematically with equal probability within each level of the secondary strata.

Sample Size

The sample size for this survey is required to represent the overall population at the fixed level of analysis. This sample size has accounted for the following elements:

1. Findings from the previous survey.
2. Level of sampling design.
3. Desired error.

To finalize the sample size, cost, time, and human resources are the factors that are taken into consideration. On average, around 100,000 LQs are selected annually.

Seasonal Adjustment

The annual data is disseminated without seasonal adjustment.

CHAPTER 5

AGING SOCIETIES AND GENDER MAINSTREAMING IN THE PHILIPPINES

Dr. Ronahlee A. Asuncion
Officer-in-Charge
School of Labor and Industrial Relations
University of the Philippines Diliman

One of the major commitments of the erstwhile President Benigno S. Aquino III was the upliftment and improvement of the labor situation of the Philippines. This commitment is enshrined in the Philippine Development Plan (PDP) 2011–16 [1]. It is a medium-term strategic policy framework that serves as guide by the government on specific goals to be met by 2016. With this framework, it is hoped that various government offices and instrumentalities would put in collective effort and steadfast commitment toward achieving those goals.

In addition, at the 2000 UN Millennium Summit, the Philippines, among more than a hundred nations, adopted the eight Millennium Development Goals (MDG) [2] set by the United Nations to:

1. Eradicate extreme poverty and hunger.
2. Achieve universal primary education.
3. Promote gender equality and empower women.
4. Reduce child mortality.
5. Improve maternal health.
6. Combat HIV/AIDS, malaria and other diseases.
7. Ensure environmental sustainability.
8. Global partnership for development.

With this guiding framework, this research looks into the state of labor force participation of the women in the Philippines, the challenges and issues that women face both in the world of work and health, the ways in which these impact their productivity, and the steps taken by the government toward women's empowerment.

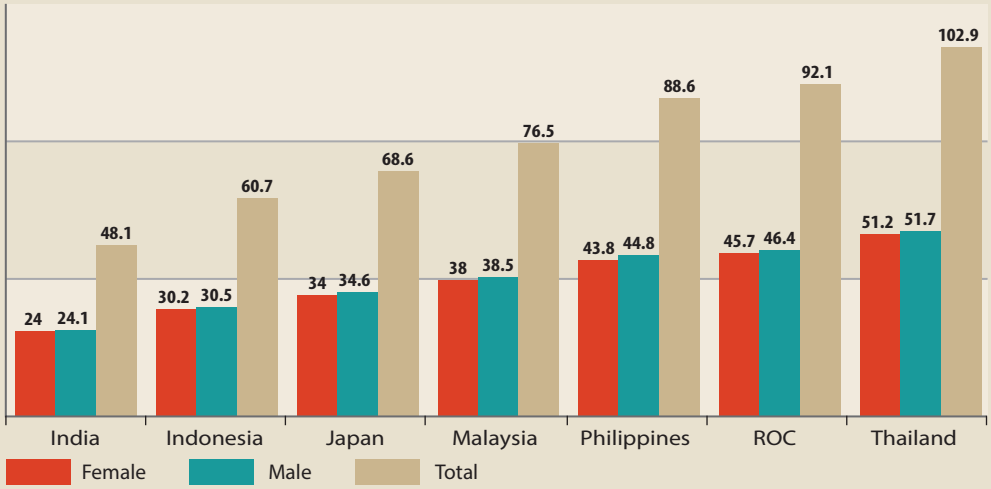
Data from secondary sources were gathered from various documents, books, and websites relevant to the study. Surveys conducted by government institutions and other organizations were used as far as practicable and available to be able to establish trends and patterns. Analyses and interpretations of data from various reliable sources were likewise utilized to further substantiate the study.

1. Demographic Profile

The population of the Philippines increases steadily every year. It is considered one of the most populous countries worldwide as it ranks 12th globally in terms of population; seventh in Asia and second in southeast Asia. According to the Philippine Commission on Women (PCW) [3], the difference in the sex ratio has consistently been minor since the eighties. Of the 102.9 million Filipinos in 2015, the female population was nearly equal to the male population, as shown in Figure 5-1. Somehow, there has been a fair balance in terms of ratio between the two sexes.

FIGURE 5-1

PHILIPPINES' POPULATION IN MILLION, 1980–2015



Source: Philippine Commission on Women (www.pcw.gov.ph)

The World Factbook [4] in its July 2015 estimate of the population identified the median age of Filipinos to be 23.2 years. Females had a slightly higher median age at 23.7 years while for males it was 22.8 years. This gap is not really significant, considering that there is only a 0.9-year median-age difference between sexes.

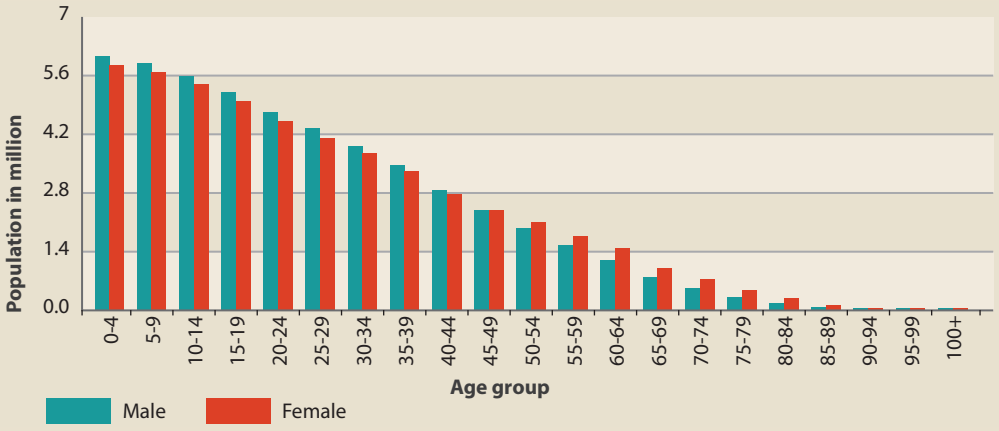
In terms of age structure, 36.72% were in the age group of 25–54 years and 34.02% were up to 14 years old (Figure 5-2). Men marginally outnumbered women in both age groups. Those 65 years and older comprised the lowest percentage of the total population, at 4.28%. The figure suggests that the country does not have an aging population problem. It has better distribution of population in various age groups unlike in East Asia and Pacific where the population is aging faster [5].

1.1 Life Expectancy

Life expectancy is the expected lifespan of a person born in a particular year. The WHO [6] describes it as an indicator of the mortality pattern of a population across age groups. It is the expected average number of years that a newborn would live considering the present mortality rates. In the World Health Statistics 2014 [7] report, it was stated that life expectancy was rising as manifested by the findings that, "a girl born in 2012 can expect to live around 73 years and a boy to the age of 68." This meant that they had a longer life expectancy of six years compared to those who were born in 1990 as concluded by the same report.

FIGURE 5-2

MALE-FEMALE POPULATION STRUCTURE BY AGE GROUPS, JULY 2015 ESTIMATES



Source: Central Intelligence Agency (www.cia.gov)

In 1997, the average life expectancy of Filipinos was 66.32 years. In the same year, men had an average life expectancy of 63.44 years while women had an expectancy of 69.35 years. In 2013, a marked increase was noted where the average life expectancy was pegged at 68.13 years. For men, it increased by 1.35 years to reach 64.79 years; whereas for women, it increased by 2.29 years to become 71.64 years, when compared to 1997 [8]. The World Health Rankings [9] reported in 2013 that the top ten causes of death in the country were coronary heart disease, stroke, influenza and pneumonia, diabetes mellitus, tuberculosis, hypertension, lung disease, kidney disease, breast cancer, and asthma.

The general observation that women live longer than men is also experienced in the Philippines. The United Nations Development Program (UNDP) [6] reported that females have had consistently higher life expectancy at birth than males since the 1980s (Figure 5-3). Through the years, this gap is becoming more pronounced in the Philippines. During 2010–15, Filipino women had a life expectancy of 72.2 years while for men it was 65.3 years.

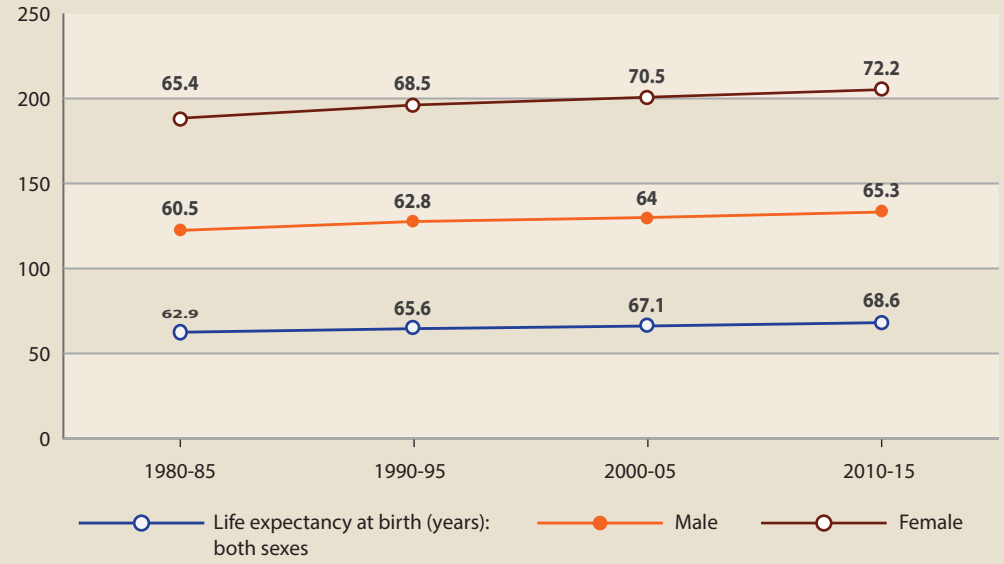
The 2000 Census-based projections of the Philippine Statistics Authority (PSA) [10] showed that the National Capital Region (NCR) as well as Regions I, II, III, IVA and VII had higher life expectancies at birth than the national average. Females in Region I enjoyed the highest life expectancy, at 74.72 years, followed by NCR at 74.35 years and Region III at 74.21 years. However, females in the Autonomous Region of Muslim Mindanao (ARMM) had the shortest life expectancy at 60.43 years, while Regions XIII and XI had better life expectancies, at 69.29 years and 69.91 years, respectively. The male life expectancy followed the same regional pattern as the one for females, except that the Region IX ranked third in the shortest life expectancy at birth.

1.2 Mortality Rate

Infant mortality rate, as defined by the PSA [10] refers to those infants who died below one year of age per 1,000 live births in a given year. The maternal mortality rate refers to the number of maternal deaths per 1,000 live births in a given year.

FIGURE 5-3

LIFE EXPECTANCY AT BIRTH



Source: World Population Policies, United Nations (www.un.org)

Based on the preliminary findings of the 2003 National Demographic and Health Survey (NDHS) [10], in the period 1998–2002, there was a decrease of 29 deaths among one-year-old infants per 1,000 live births as compared to 35 deaths per 1,000 live births in the period 1993–97. A decrease in mortality rate among children below five years old was also noted. It declined from 48 deaths per 1,000 live births to 40 deaths per 1,000 live births. The decrease in mortality rates is attributed to maternal health care, increasing percentage of women giving birth in hospitals, clinics, and health centers, and improved tetanus toxoid coverage. However, compared to Vietnam, Brunei, Singapore, Thailand, and Malaysia, the infant mortality rate in the Philippines is still high, according to the PSA [10].

There is a link between the economic status and the education levels of mothers and the infant mortality rate. The PSA [10] explained that children of mothers who are economically well-off and educated have more chances of survival as these mothers have better access to healthcare facilities during pregnancy and delivery.

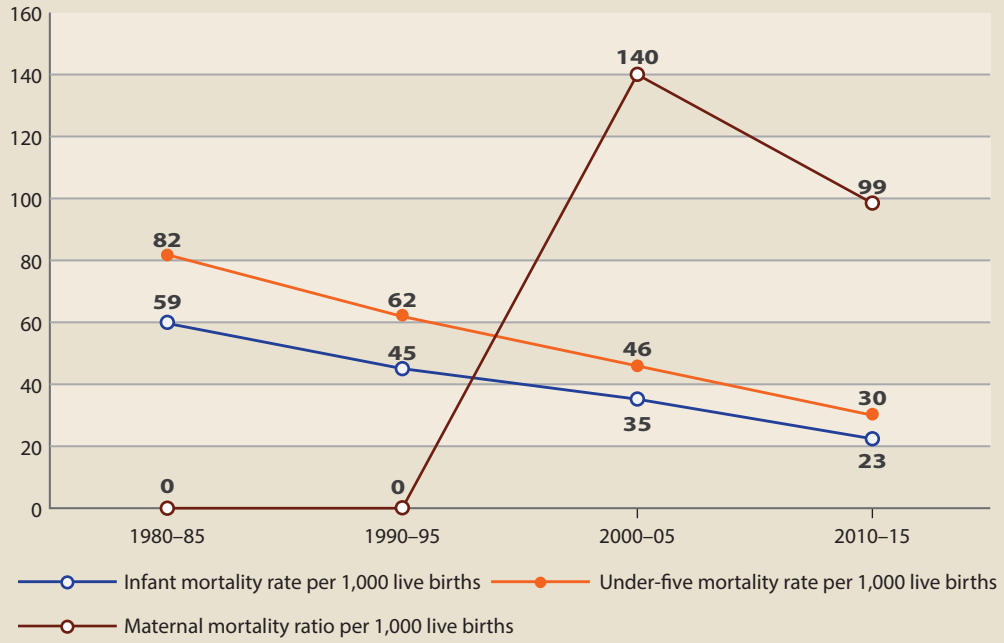
As it is now, the country has not achieved the fifth MDG of reducing the maternal mortality ratio to 52 maternal deaths per 100,000 live births in 2015. For the past 25 years, the ratio ranges from 110 to 130 deaths which is a far cry from the MDG target. Manuel Dayrit [11], former Secretary of the Department of Health of the Philippines explained that having a national health insurance coverage was not enough to improve maternal care in the country. Facilities, trained staff, medicines, supplies, and effective leadership at all levels of governance were necessary to significantly reduce the high maternal mortality ratio.

1.3 Fertility Rate

The total fertility rate (TFR) indicates the total number of births a woman would have until the end of her childbearing years, given that in those years she would bear children at the

FIGURE 5-4

MORTALITY RATES OVER TIME



Source: World Population Policies, United Nations (www.un.org)

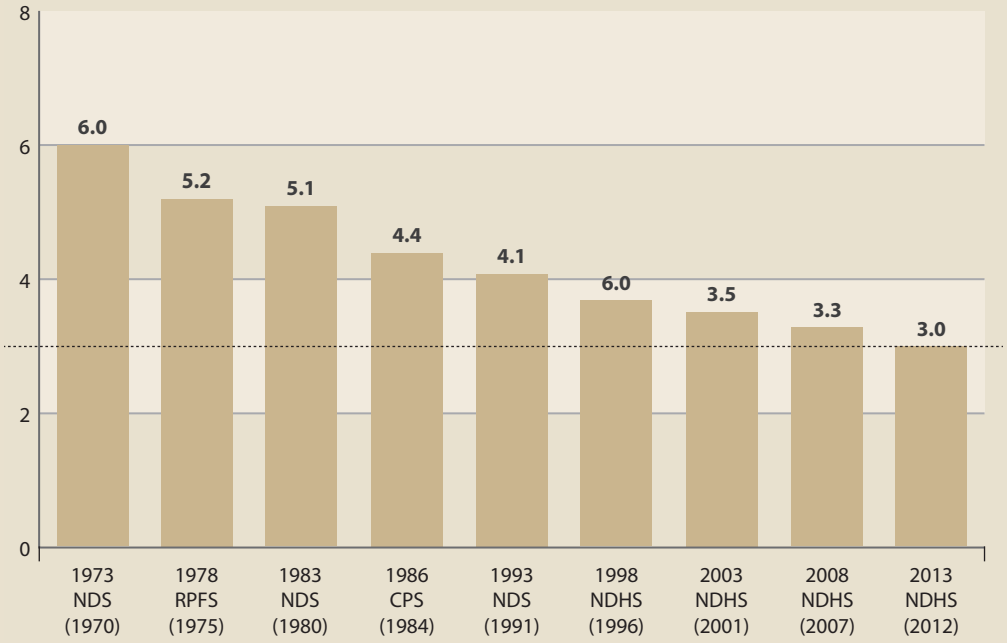
currently observed age-specific fertility rates. The PSA [10] defines it as the average number of children a woman would have by the time she reaches the age of 50, if she were to experience the average specific fertility rates of a given year.

According to the UN [12], between 1995 and 2000, there was a dramatic change in the fertility patterns globally. Based on the 2015 Revision of World Population Prospects [13], there are differences in childbearing patterns and the TFR has reached levels as low as 2.5 children per woman. Eastern Europe, southern Europe, and eastern Asia have the lowest fertility rates, at below 1.6 children per woman. While middle and western Africa have the highest fertility rates of more than five children per woman, Asia, Latin America, and the Caribbean have the same fertility rate of 2.2 children per woman. The UN [12] explained that it was difficult to identify the single, major factor that would explain the decline in fertility rate globally as this could be attributed to a combination of socioeconomic factors such as decline in mortality, female education and labor force participation, urbanization, and family planning programs.

The Philippines continues to experience a steady decline in its fertility rate (Figure 5-5). From a high of 6.0 in 1973, it went down to 3.0 in 2013, based on various survey data gathered by the NDHS [10]. It was also revealed that between 2007 and 2012, the TFR of the country declined annually at a rate of 1.8%. Women in lower income brackets have the tendency to bear more children where the average is 5.2 children per woman as compared to an average of 1.9 children per woman in case of the financially well-off brackets. Likewise, the NDHS data indicates that women with elementary education bear an average of 4.5 children while women with college education bear an average of 2.3 children.

FIGURE 5-5

TRENDS IN TOTAL FERTILITY RATE



Source: National Health and Demographic Survey (www.psa.gov.ph)

While there is an evident unabated decline in the fertility rate in the country, it is worth noting that the Philippines still had the highest TFR among the ASEAN countries in 2010 as Table 5-1 suggests.

TABLE 5-1

TOTAL FERTILITY RATES OF ASEAN MEMBER STATES VS JAPAN

Year	1960	1970	1980	1990	2000	2001
Cambodia	6.3	5.9	5.9	5.7	3.8	2.6
Indonesia	5.7	5.5	4.4	3.1	2.5	2.1
Japan	2.0	2.1	1.8	1.6	1.3	1.4
Laos	6.0	6.0	6.3	6.2	4.2	2.8
Malaysia	6.3	4.9	3.8	3.5	3.1	2.6
Myanmar	6.1	6.1	4.6	3.5	2.4	2.0
Philippines	7.2	6.3	5.1	4.3	3.8	3.1
Singapore	5.5	3.0	1.8	1.8	1.6	1.3
Thailand	6.2	5.6	3.4	2.1	1.7	1.6
Vietnam	7.1	7.4	5.4	3.6	2.0	1.8

Source: National Statistical and Coordination Board (www.nscb.gov.ph/)

Table 5-2 shows the total fertility rate for the three years preceding the survey of the NDHS [14]. The table shows that the status of women in terms of their educational and economic standing affects their fertility rates. Women who belong to the lowest wealth quintile bear more children

than those who belong to the wealthiest households. The table shows their fertility rates at 5.2 and 1.7, respectively.

The place of residence has an effect on fertility rate. Women who live in urban areas tend to have less children as compared to their rural counterparts. From among the regions, the NCR, which is the center of government, business, industry, and commerce in the country, has the lowest fertility rate at 2.3. The Bicol region and the ARMM have the highest fertility rates, at 4.2 and 4.1, respectively.

Women who earned college education have the lowest fertility rate at 2.1 while those women who attended school or finished elementary grades have the highest fertility rate at 4.6. This is closely followed by those who have no education at 3.8. This fertility rate disparity between women from different demographic characteristics is consistent and apparent through the years.

TABLE 5-2

FERTILITY RATES BY BACKGROUND CHARACTERISTICS, 2013

Background characteristic	Total fertility rate
Residence	
Urban	2.6
Rural	3.5
Region	
National Capital Region	2.3
Cordillera Administrative Region	2.9
I – Ilocos Region	2.8
II – Cagayan Valley	3.2
III – Central Luzon	2.8
IVA – CALABARZON	2.7
IVB – MIMAROPA	3.7
V – Bicol Region	4.1
VI – Western Visayas	3.8
VII – Central Visayas	3.2
VIII – Eastern Visayas	3.5
IX – Zamboanga Peninsula	3.5
X – Northern Mindanao	3.5
XI – Davao	2.9
XII - SOCCSKSARGEN	3.2
XIII – Caraga	3.6
ARMM	4.2
Education	
No education	3.8
Elementary	4.6
High school	3.3
College	2.1
Wealth quintile	
Lowest	5.2

CONTINUED ON NEXT PAGE

CONTINUED FROM PREVIOUS PAGE

Background characteristic	Total fertility rate
Second	3.7
Middle	3.1
First	2.4
Highest	1.7
Total	3.0

Source: National Health and Demographic Survey (www.psa.gov.ph)

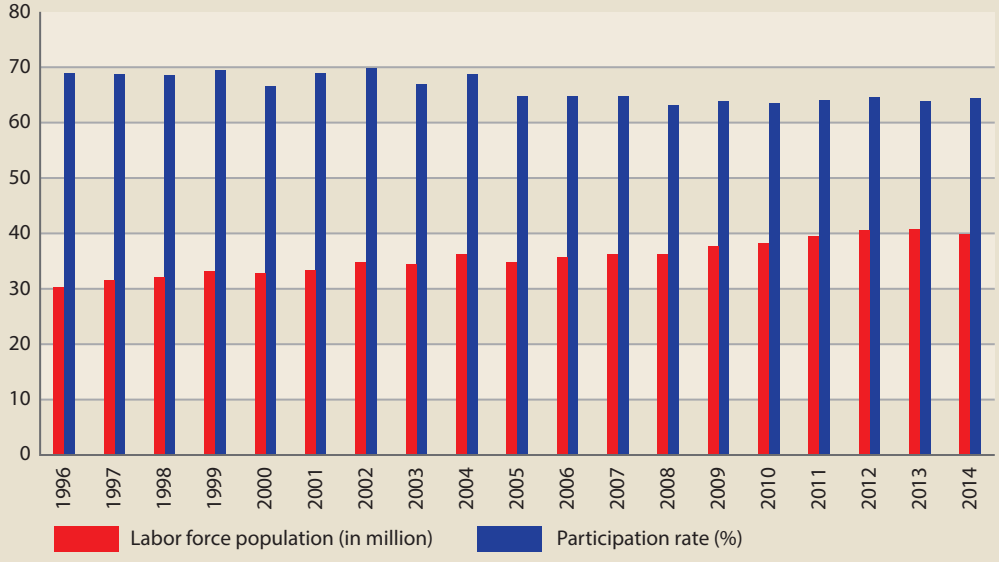
2. Labor Force Participation

The PSA [10] defines labor force as the population comprising those 15 years old and above, who contribute to the production of goods and services in the country. This includes both employed and unemployed persons. In October 2000, a 0.7% increase in the Philippine labor force was posted by the PSA [10] with respect to the same period a year ago. In terms of labor force participation, there was a decline from 65.7% in October 1999 to 64.3% in October 2000. The labor force participation rate is the ratio of the total labor force to the total household population of 15 years and above [10].

Figure 5-6 shows that for more than for two decades now, the Philippines has consistently maintained its more than 60% labor force participation rate. The data was taken from the April Labor Force Survey's preliminary results, except for the years 2007 and 2013, for which the data was taken from the January preliminary survey results [10]. The Trading Economics [15] puts the average labor force participation rate of the Philippines at 65.83% for the period 1990–2015. The economy of the country grew steadily from 2001 to 2004 but experienced declines in 2005, 2006, and 2008. In 2010, however, it recovered. Continuous remittances from Overseas Filipino Workers (OFW) and the revitalized manufacturing, merchandise exports, and service-based industries helped the recovery of the Philippine economy. Still, the labor force participation rate did not change.

FIGURE 5-6

LABOR FORCE POPULATION AND PARTICIPATION RATES



Source: Philippine Statistics Authority (www.psa.gov.ph)

The Department of Labor and Employment (DOLE) [16] described the employment situation of the country from 2001 to 2010 as a 'boom and bust pattern.' Economic growth did not translate into more employment, which grew at an average of 2.9 annually as against the annual economic growth of 4.7% during the period. This was attributed to extreme weather disturbances that affected the agricultural workers who comprised a large share of the country's employment, at 33% to 37%. These workers were specifically affected in the years 2000, 2003, 2005, 2009, and 2010.

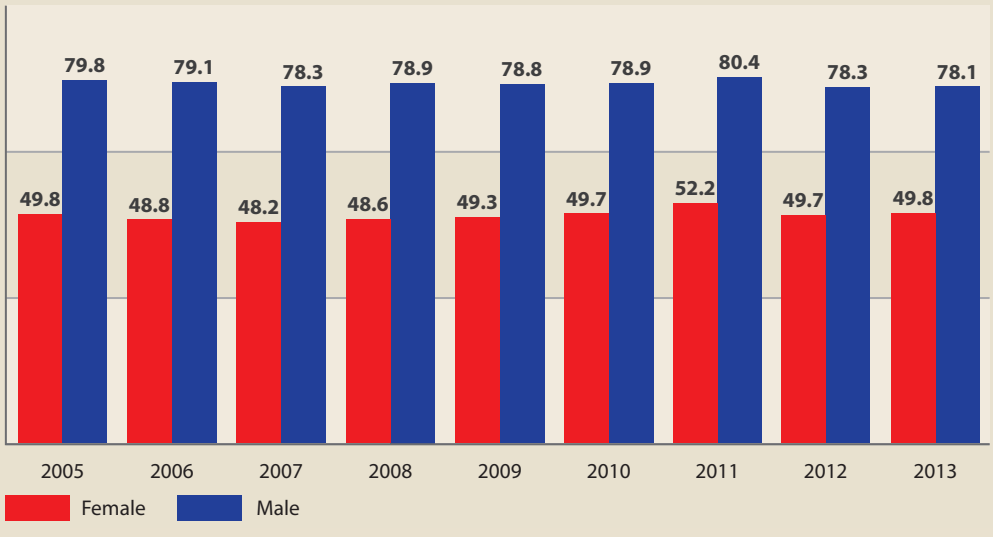
There still exists a big disparity in the labor force participation rate between men and women. Figure 5-7 shows that since 2005, the labor force of the country has always been dominated by men, although there was a very slight increase of 0.1% in the labor force participation rate of women from 2012 to 2013. The ADB [17] explains that this situation is an indication of 'underutilization of women's labor in the paid labor market, which arises from inferior employment and decent work opportunities, human capital differences, and unpaid domestic labor and care constraints."

2.1 Employment

According to the PSA [10], employed persons are those who, during the reference period, are 15 years and older as of their last birthday and who are either at work or with a job or business but not at work. This means that those at work "are persons who did some work, even for one hour during the reference period." Those with a job or business but not at work are "persons who have a job or business even though not at work during the reference period because of temporary illness, injury, vacation or other leaves of absence; bad weather or strike or labor dispute; or other reasons. Likewise, persons who are expected to report for work or to start operation of a farm or business enterprise within two weeks from the date of the enumerator's visit are considered employed." The reference period is the 'past week' or past seven days preceding the date of visit of the enumerator or the interviewer. The Labor Force Survey (LFS) is conducted quarterly nationwide.

FIGURE 5-7

LABOR FORCE PARTICIPATION BY GENDER



Source: Philippine Statistics Authority (www.pcw.gov.ph)

The highest percentage of employed males are concentrated in the 35–44 age group, closely followed by the 45–54 age group (Table 5-3). The opposite is true of the employed females. A majority of them are in the 45–54 age group of workers, closely followed by the 35–44 age group of workers. In both the sexes, however, it is the 15–19 age group that has consistently the lowest number of employed persons. It can be assumed that this age group comprises most likely the students.

TABLE 5-3

EMPLOYMENT TO POPULATION RATIO BY AGE GROUPS AND GENDER, 2010–14

	2010		2011		2012		2013		2014	
Age group	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**
15–19	33.2	19.7	35.6	20.7	34.5	20.2	33.2	18.4	33.7	18.8
20–24	63.5	40.4	64.8	40.8	65.2	40.8	65.2	41.4	66.3	42.5
25–34	85.7	50.6	86.1	51.1	86.1	50.7	85.7	50.8	86.2	52.3
35–44	92.4	60	92.6	60.8	92.1	60.8	91.9	60.5	92.4	62.2
45–54	90.2	63.7	90.2	64.6	89.9	64	89.7	64.3	90.5	65
55–64	78.2	54.7	78.6	56.1	77.2	55.3	76.4	55.6	77.4	56.3
65 and over	48.3	28.5	47.1	28.1	46.1	27.6	45.9	27.3	46.3	27.6
Average	72.5	46.3	73.3	47	72.8	46.7	72.4	46.5	73.2	47.6

Source: Philippine Statistics Authority (www.psa.gov.ph)

Note that the above ratio was computed based on: one, the total employed divided by the total household population of 15 years old and above, multiplied by 100; and two, the average of four survey rounds conducted in January, April, July, and October. The data for 2014, however, is only based on average estimates of the April, July, and October surveys, which did not include the province of Leyte due to the massive destruction caused by Typhoon Yolanda (Haiyan) (Table 5-4).

TABLE 5-4

EMPLOYED PERSONS BY NUMBER OF HOURS WORKED PER WEEK, BY GENDER (IN THOUSAND)

Indicator	January		April		July		October	
	Male	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**
Both sexes (average)	38,461		39,158		38,344		39,000	
Worked less than 40 hours (part-time)	8,685	5,650	9,223	6,277	7,244	5,080	8,056	5,272
Worked 40 hours and more (full-time)	14,311	9,372	13,907	8,891	15,733	10,008	15,389	10,022

Source: Philippine Statistics Authority (www.psa.gov.ph)

In a book titled Filipino Women, Issues and Trends, published in 1995 by the National Commission on the Role of Filipino Women and the ADB [18], it was stated that while more and more women joined the labor force, there still was a wide gap in the numbers of men and women who were employed. It also mentioned the inequality in working conditions, such as pay and occupational hierarchy. The gap has not changed even now. Table 5-5 confirms that there are more men who are employed than women.

TABLE 5-5

EMPLOYED PERSONS BY GENDER (IN THOUSAND)

	2010	2011	2012	2013	2014
Male	21,921	22,573	22,849	23,150	23,365
Female	14,114	14,619	14,751	14,968	15,286

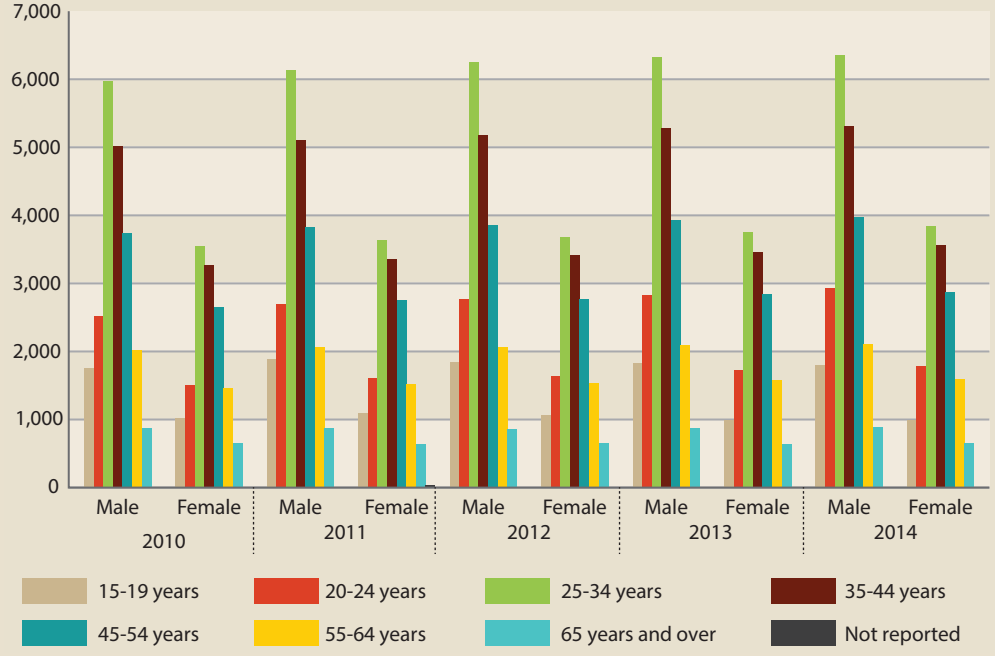
Source: Philippine Statistics Authority (www.psa.gov.ph)

Shahani [19] in her article, Engendering Development: The Status of Women in the Philippines, explained that in 2012, there still were more employed men, at 78.4%, as compared to women, at 50.4%. This was despite the fact that there was an increase in the percentage of professionally licensed women in 2010. This situation, according to her, is a manifestation of the fact that educated Filipino women are underutilized in the growing economy. The ADB also noted the same observation. According to the ADB [17], women have significantly lower employment rates than men. This gender gap had reached 26.2% points in terms of employment rate in 2012. The ILO [20] echoed the same analysis. The Philippine labor force was dominated by men despite the fact that in 2008, there was a faster growth in the labor force of women, at 13.6%, as against 10.1% in the case of men. The ILO [20] further observed that in 2013, the labor force participation rate was 78.1% for men but only 49.9% for women.

In terms of age groups, both sexes have the same highest number of employed persons (Figure 5-8) in the 25–34 years age group followed by the 35–44 years age group. As more and more Filipinos enter the labor force, the Philippine government is faced with a huge task of creating enough jobs that would sufficiently address the demand.

FIGURE 5-8

EMPLOYED PERSONS BY AGE GROUPS AND GENDER (IN THOUSAND), 2010–14



Source: Philippine Statistics Authority (https://psa.gov.ph)

The NCR consistently had the lowest employment rates for both male and female workers for the period 2010 to 2014 (Table 5-6). However, in terms of actual numbers, there was a different scenario. Table 5-7 shows that the Cordillera Administrative Region (CAR) had the lowest number of employed persons. It also shows that Cavite, Laguna, Batangas, Rizal, and Quezon (CALABARZON) had the largest number of employed males during 2010–14 while the CAR has the lowest number of employed males in the same period. This observation is also applicable to the employed females, except for the year 2010 when the NCR had the largest number of employed females.

TABLE 5-6

REGION WITH THE LOWEST EMPLOYMENT RATE

	2010		2011		2012		2013		2014	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
NCR	87.4	89.9	87.6	90.2	88.3	90.8	88.6	91.2	88.5	91.5

Source: Philippine Statistics Authority (https://psa.gov.ph)

TABLE 5-7

LOWEST NUMBER OF EMPLOYED PERSONS BY REGION AND GENDER (IN THOUSAND)

	2010		2011		2012		2013		2014	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Cordillera Administrative Region	419	288	435	295	434	294	439	296	444	308

Source: Philippine Statistics Authority (https://psa.gov.ph)

The difference in the employment rate and the actual number of persons employed can be attributed to how the employment rate is computed. Employment rate is the ratio, of the total number of persons employed to the total labor force, multiplied by 100. Labor force is the sum of all employed and unemployed persons. In addition, rates were computed based on the averages of four survey rounds conducted in January, April, July, and October [10].

With regard to the number of employed persons, the ARMM had the highest number of employed males while the Zamboanga Peninsula had the highest number of employed females during the period 2010–14 (Table 5-8 and Table 5-9)

TABLE 5-8

HIGHEST NUMBER OF EMPLOYED PERSONS BY REGION AND GENDER (IN THOUSAND)

	2010		2011		2012		2013		2014	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Region IV-A CALABARZON	2,596		2,681	1,985	2,728	2,024	2,782	2,060	2,927	2,170
NCR		1,916								

Source: Philippine Statistics Authority (https://psa.gov.ph)

TABLE 5-9
REGIONS WITH THE HIGHEST EMPLOYMENT RATES

	2010		2011		2012		2013		2014	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
ARMM	97.1		97.5		97.5				97.6	
Region II Cagayan Valley		96.3			97.5	96.8	97.4			
Zamboanga Peninsula				97.1				96		96.4

Source: Philippine Statistics Authority (https://psa.gov.ph)

Overall, there has been a significant difference in the employment rates between males and females. That this big gap in numbers has been consistent over the years only affirms the historicity of this trend.

2.2 Unemployment

According to the PSA [10], the unemployed are "persons in the labor force who are reported as: (1) without work; (2) currently available for work; and (3) seeking work or not seeking work because of the belief that no work is available, or awaiting results of a previous job application, or because of temporary illness or disability, bad weather, or waiting for rehire or job recall." The change in definition is in accordance with the international standard definition of unemployment. The old definition of the unemployed considered only those "without work and looking for work or without work and not looking for work due to valid reasons."

TABLE 5-10
UNEMPLOYMENT (IN THOUSAND)

Year	Unemployed
2007	2,654
2008	2,716
2009	2,831
2010	2,859
2011	2,814
2012	2,826
2013	2,801
2014	2,740

Source: Philippine Statistics Authority (https://psa.gov.ph)

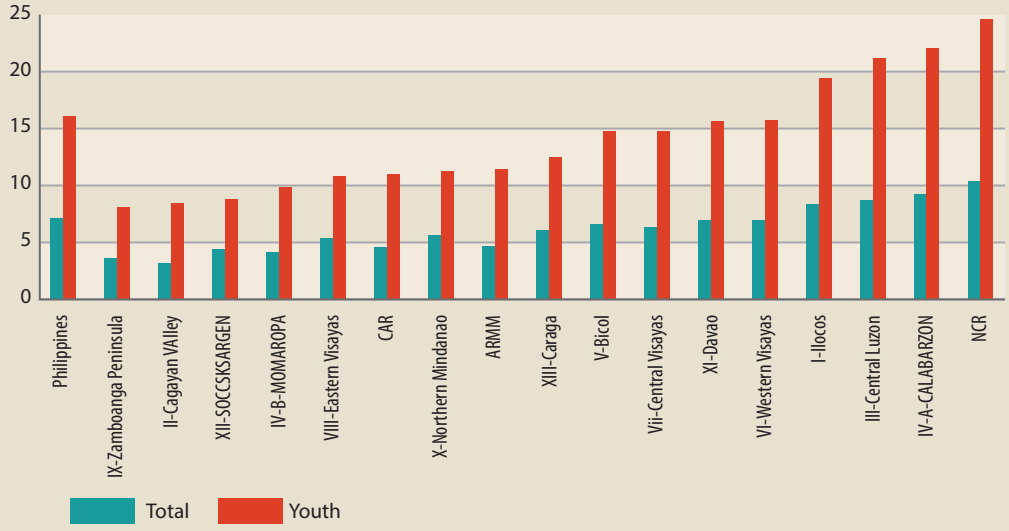
Trading Economics [15] estimated that between 1994 and 2015, the unemployment rate in the country averaged at 8.78%. However, it went up to 13.90% in the first quarter of 2000 and came down to 5.70% in the fourth quarter of 2015.

As shown in Table 5-10, there have been little changes in the number of the unemployed in the country. This was also the case for the period from 2005 to 2010, according to the DOLE [21] when unemployment was not sensitive to economic developments and the labor market. The DOLE [21] further explained that this could be due to the significant portion of self-employed and unpaid family

workers. The PCW [3] revealed that not all employed men and women were paid for their works. In October 2010, there were an estimated 4.3 million unpaid family workers in family-owned or operated farms or businesses. Of these, 2.4 million or 56.7% were women while 1.8 million or 43.3% were men. Figure 5-9 clearly illustrates that women were still at a great disadvantage, specifically if working for a family-owned business or farm.

FIGURE 5-9

PERCENTAGE OF TOTAL YOUTH UNEMPLOYMENT BY REGION, 2013



Source: Philippine Statistics Authority (http://www.ilo.org)

The youth population in the age group 15–24 had the largest number of unemployed persons in 2013. In terms of region, the NCR continued to have the highest unemployment rate while the ARMM had the lowest unemployment rate.

With regard to the unemployment difference between males and females, males had higher unemployment rates than females as shown in Figure 5-10.

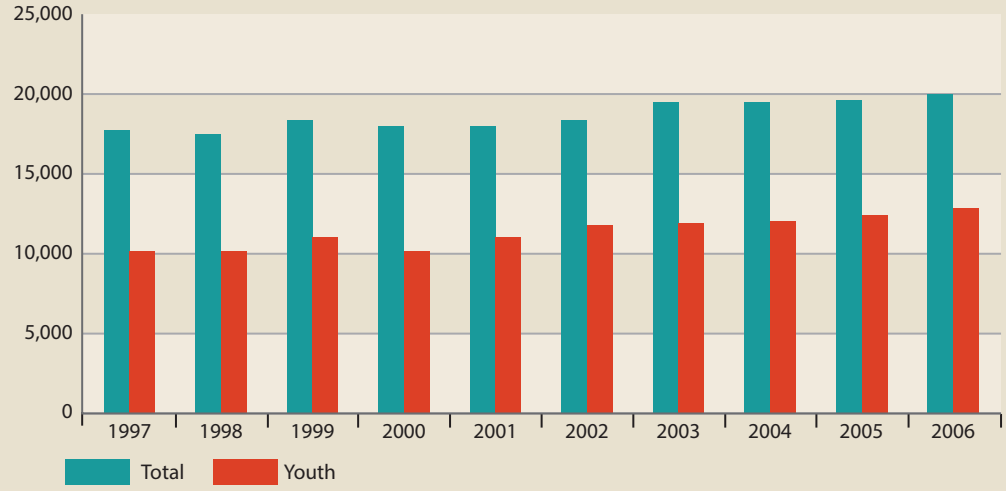
3. Determinants of Labor Force Participation Rate

The differences in human capital endowments come into play in the employment of women. These are: types of work; position; the industry or sector where they work; age; marital status; number of children; level of education; and the region or the geographical origin.

Figure 5-11 shows that a majority of those employed belong to the 'no grade completed' category, closely followed by those who either finished or did not finish elementary grades. The PCW [3] reported that in school year 2010–11, more girls than boys completed elementary and secondary educations. The female completion rate at the elementary level was 77.14%, while the male completion rate was 67.65%. This was equivalent to a Gender Parity Index (GPI) of 1.14, i.e., 114 females versus every 100 males. Considering the figures, the average dropout rate at the elementary level was naturally lower for females (5.02%), compared to males (7.45%).

FIGURE 5-10

UNEMPLOYED MALES AND FEMALES (IN THOUSAND)



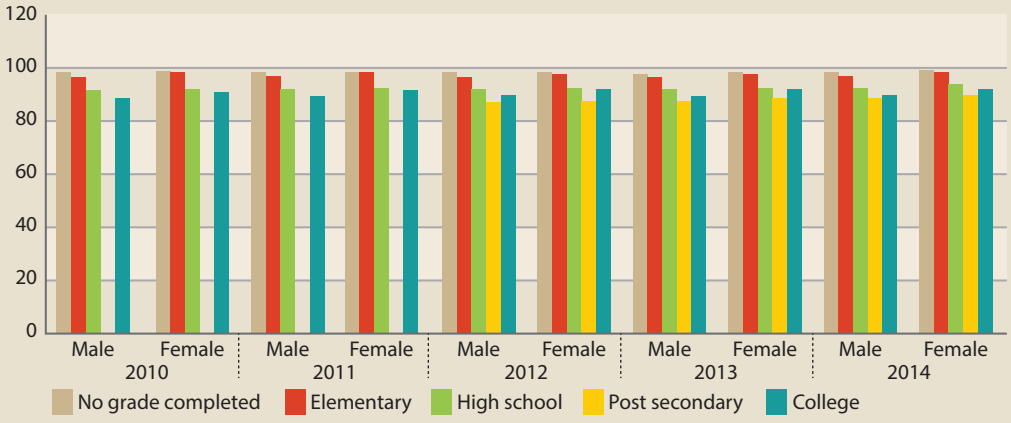
Source: Philippine Statistics Authority (https://psa.gov.ph)

With regard to the completion rate at the secondary level too, females had higher rate at 80.27% than males at 69.88% in the same school year. The GPI was 1.15, which means 115 girls completed versus every 100 boys who completed. This was also the finding of the UNDP [22] in its Thematic Paper on MDG 3: Promote Gender Equality and Empower Women, which stated that Filipino females have maintained higher survival and completion rates in all levels of education. It attributed this situation to either lower motivation of Filipino males to go to school or their need to work to financially help their families.

For the school year 2005–06, the PCW [3] reported that females had the highest enrolments in medical and allied disciplines, followed by business administration and related disciplines. From

FIGURE 5-11

EMPLOYMENT RATE BY HIGHEST GRADE COMPLETED AND GENDER, 2010–14



Source: Philippine Statistics Authority (https://psa.gov.ph)

July 2005 to August 2006, a majority of the female enrollees and graduates in vocational courses were in housekeeping and guestroom maintenance.

In July 2010, most of the professional females were licensed teachers and nurses. Women dominated in professions such as midwives, nutritionists or dietitians, social workers, pharmacists, librarians, guidance counselors, dental hygienists, interior designers, teachers, and nurses.

Shahani [19] stated that though women had an edge in literacy, there still was a gap in employment. She explained this phenomenon as due to:

> *"Gender discrimination in a largely patriarchal society (which) remains a persistent problem in many institutions. Expected to do the bulk of reproductive labor, including child rearing and domestic chores, women are often kept out of the job market. They also have difficulty in pursuing professional careers and higher paying jobs when companies are unable to provide facilities for child-care. Women have thus been hindered from pursuing the same opportunities as men by cultural and institutional barriers that make it impossible to combine family and work."*

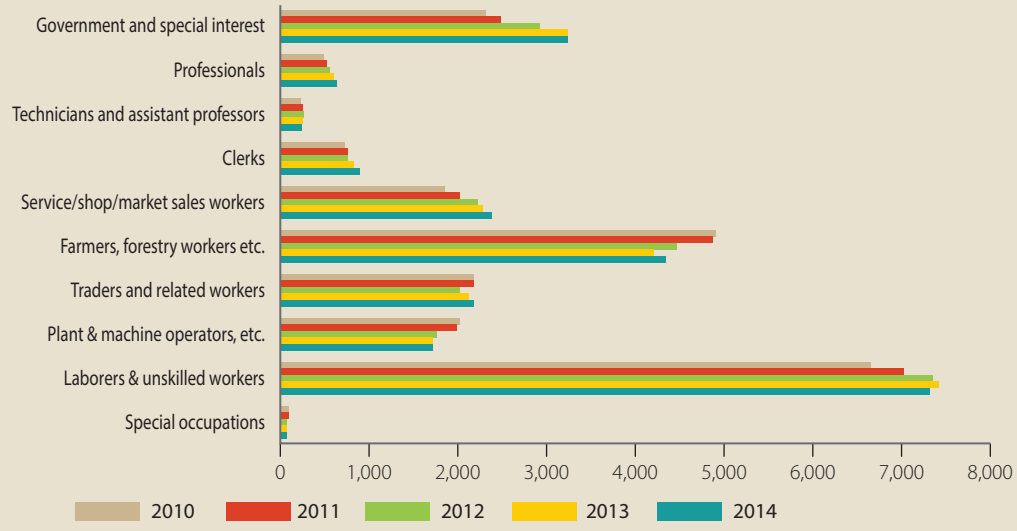
She further explained that this situation can also be attributed to: "mismatches between education and employment, sexual harassment, and other forms of micro-aggression in the workplace that keep women from certain kinds of jobs; high maternal and neonatal mortality rates; and cultural and economic pressures that compel educated women to stay at home and care for the family."

For the period 2010–14, a great majority of males were laborers and unskilled workers (Figure 5-12). They were closely followed by farmers, forestry workers, and fishermen. This was not surprising considering that the Philippines is an agricultural country and its geographical characteristic is archipelagic in nature.

In the comparable period of 2010–14, a majority of female Filipino workers were laborers and unskilled workers just like in the case of males (Figure 5-13). However, there were more Filipino

FIGURE 5-12

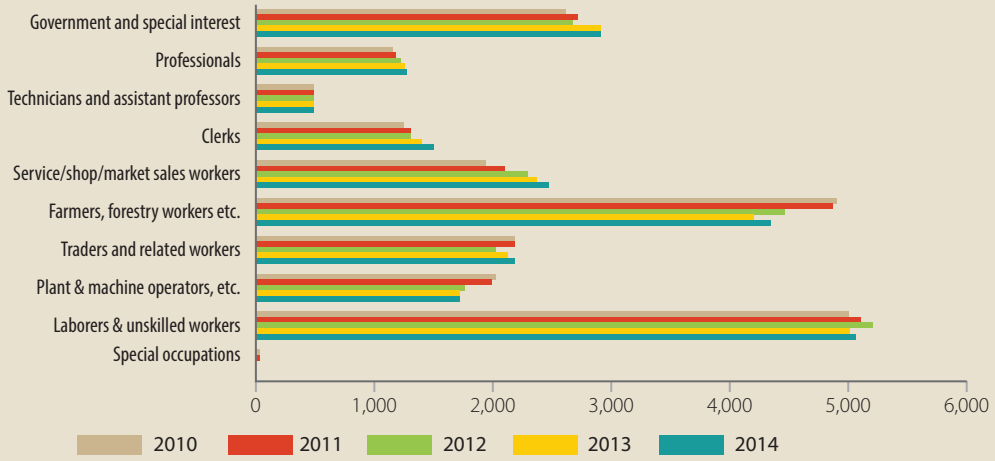
EMPLOYED MALES BY MAJOR OCCUPATIONS



Source: Philippine Statistics Authority (https://psa.gov.ph)

FIGURE 5-13

EMPLOYED FEMALES BY MAJOR OCCUPATIONS



Source: Philippine Statistics Authority (https://psa.gov.ph)

women who worked for government and special interest organizations as corporate executives, managers, managing proprietors, and supervisors. Here, the disparity in the level of education among Filipino women was notable. Naturally, those who were college graduates had a greater chance of landing better jobs in terms of security, pay, and work conditions. However, according to the UNDP [22], women are still outnumbered by men in decision-making positions. For example, at both the national and local levels and in executive and legislative bodies, there were more men who participated in the 2004 elections while women had a mean participation rate of only 18.2%.

The disparity between employed male and female workers in terms of class of workers is huge. Tables 11 and 12 show that in 2014, a significant number of males (17,319) worked for private establishments while the corresponding number was much smaller for females (5,185). The commonality, however, was that both males and females were highly engaged in 'self-employment without any paid employee.'

TABLE 5-11

EMPLOYED MALES BY CLASS OF WORKER (IN THOUSAND)

Year	Wage and salary workers				Self-employed without any paid employee	Self-employed without employer at own family-operated farms or businesses	Worked without pay at own family-operated farms or businesses (unpaid family workers)
	Worked for private households	Worked for private establishments	Worked with pay at own family-operated farms or businesses	Worked for govt/govt corporations			
2010	1,926	14,565	111	3,025	10,858	1,394	4,157
2011	1,950	15,431	112	3,044	10,994	1,354	4,306
2012	1,993	16,377	121	3,000	10,626	1,335	4,147
2013	1,969	17,114	127	3,037	10,668	1,272	3,930
2014	1,925	17,319	120	3,043	10,869	1,210	4,166

Source: Philippine Statistics Authority (https://psa.gov.ph)

TABLE 5-12

EMPLOYED FEMALES BY CLASS OF WORKER (IN THOUSAND)

Year	Wage and Salary Workers				Self-employed without any paid employee	Self-employed without employer at own family-operated farms or businesses	Worked without pay at own family-operated farms or businesses (unpaid family workers)
	Worked for private households	Worked for private establishments	Worked with pay at own family-operated farms or businesses	Worked for govt/govt corporations			
2010	1,626	4,283	30	1,550	3,977	328	2,319
2011	1,645	4,540	34	1,568	4,065	328	2,438
2012	1,680	4,761	35	1,576	4,017	336	2,346
2013	1,650	5,059	35	1,610	4,080	306	2,227
2014	1,619	5,185	40	1,609	4,173	286	2,375

Source: Philippine Statistics Authority (https://psa.gov.ph)

Overall, the trend and pattern of female labor force participation (FLFP) has hardly changed over the years. Filipino males have higher employment participation rates than females. Across regions, there is a wide disparity in human capital endowments, not only between men and women but even among women themselves. Left unsolved, this situation would continue to persist in the years to come as evidenced by the historical data.

4. Key Factors Influencing FLFP

4.1 Drivers of FLFP

1. **Demographic profiles of women:** Studies by Bañez-Sumagaysay [23], Andam and Malilong [24], Candelaria and Esguerra [25], and Encarnacion [26] have shown that age, husband's income, educational attainment, family size, presence of young children, and domestic help contributed to the rise in FLFP. According to the World Development Report 2012 [27], time-use patterns of men and women differ, and married women are significantly affected in terms of time used for household chores than men. It noted that married women spent 30% more time on housework than the single women. This situation prevented them from engaging in paid work. However, Bañez-Sumagaysay [23] explained that wives were pushed to look for paid employment to support a large family. If the incomes of husbands could not support the family, wives would most likely look for employment. Paqueo and Angeles [28] studied the labor force participation of wives in the Philippines. They concluded that the 'additional worker effect' was the overriding factor when the husband's income could not financially sustain the family. Hence, the family income influenced whether a woman decided to look for paid work or not.

TABLE 5-13

EMPLOYMENT RATE BY AGE GROUP AND GENDER

	2010		2011		2012		2013		2014	
Age group	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**
15–19	85.7	83.2	87.2	84.3	87.1	83.5	86.4	83.9	87.6	85.7
20–24	82.1	78.7	83.3	80.0	83.8	80.6	83.9	81.2	84.6	81.8
25–34	91.5	92.4	91.9	92.6	92.2	92.6	92.0	91.8	92.2	92.8
35–44	96.4	97.7	96.4	97.6	96.3	97.5	96.2	97.3	96.6	97.7
45–54	96.4	98.4	96.5	98.6	96.4	98.3	96.5	98.5	96.7	98.8
55–64	96.7	98.8	96.9	98.6	96.6	98.6	96.5	98.5	96.9	98.9
65 and over	98.4	99.1	98.5	99.1	98.4	98.8	98.5	99.0	98.5	99.2
Average	92.4	93.1	92.7	93.4	92.8	93.3	92.7	93.2	93.1	93.9

Source: Philippine Statistics Authority (https://psa.gov.ph)
Note: The rates were computed based on the average of the four survey rounds conducted in January, April, July, and October.

Based on Table 5-13, the employment rates for both males and females were consistent during 2010–14. They were high for the age group of 65 years old and above, and low for the age group 20–24 years. (The employment rate is the ratio of the total employed to the labor force multiplied by 100.)

During the five-year period, there was no significant change in terms of the total average employment rate for both the sexes. However, for females, there was a significant rise in the employment rate for the age group 25–34. This could be attributed to the reason that women get married in this age group and start to build their families, and therefore an additional income becomes necessary. The employment rate generally rose steadily for the higher age groups. Women, it seems, have to engage in paid work to support the growing financial needs of the family. At this point, they need to balance both their productive and reproductive roles.

Table 5-14 shows the significant effect of educational attainment on employment of females. Throughout the years under consideration, males consistently dominated the employment arena. However, females who earned college degrees or attained higher education, significantly outnumbered the males. This attests to studies that the level of education is a major driver of FLFP. This situation creates a domino effect. According to the ADB [29], educated women who enter the workforce most likely delay marriages and childbearing, but in turn, they produce children with better human capital endowments.

TABLE 5-14

PERCENTAGE DISTRIBUTION OF EMPLOYED MALES AND FEMALES BY EDUCATIONAL ATTAINMENTS

	2010		2011		2012		2013		2014	
Educational attainment	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**
No grade completed	2	2	2	2	2	2	2	2	2	1
Elementary	33	26	33	26	33	25	32	24	31	23

CONTINUED ON NEXT PAGE

CONTINUED FROM PREVIOUS PAGE

	2010		2011		2012		2013		2014	
High school	41	37	41	38	41	38	42	38	43	38
Post-secondary	0	0	0	0	4	4	4	5	5	5
College undergraduate	13	14	13	14	9	9	9	10	9	9
Graduate and higher	11	21	11	21	11	22	11	22	12	23

Source: Philippine Statistics Authority (https://psa.gov.ph)

2. **High female labor supply:** The ILO [20] reported that the labor market in the Philippines was fast growing. Based on historical data, the number of females had consistently been higher than males in the country. Also, in terms of education, females were more likely to finish schools than males as shown in Figure 5-14. The high supply of female labor, coupled with high educational attainments, gave them an edge in landing jobs. Hence, one can conclude that there is a direct relationship between educational attainment and employment.

It is then no surprise that the most number of employed women are in Region IVA- CALABARZON, as can be seen in Table 5-15. Next to the NCR, Region IVA has the maximum number of women who were either able to enter the college, graduate, or have higher educational attainments.

TABLE 5-15

EMPLOYED WOMEN WHO ENTERED OR GRADUATED FROM THE COLLEGE OR HAD HIGHER EDUCATION

Region	2010	2011	2012	2013	2015
National Capital Region	**985**	**997**	**908**	**963**	**980**
Cordillera Administrative Region	113	121	111	112	116
Region I	244	153	213	223	231
Region II	148	155	139	150	152
Region III	506	518	450	468	488
Region IVA-CALABARZON	**734**	**793**	**675**	**689**	**716**
Region IVB-MIMAROPA	126	138	122	124	134
Region V	220	229	216	223	232
Region VI	393	593	345	361	369
Region VII	374	379	363	367	392
Region VIII	187	189	178	182	98
Region IX	140	150	134	138	150
Region X	247	248	223	218	250
Region XI	194	212	205	207	226
Region XII	178	188	152	154	167
Caraga	115	127	123	128	131
Autonomous Region in Muslim Mindanao	66	62	62	64	73

Source: Philippine Statistics Authority (https://psa.gov.ph)

3. **Changing role of women:** The roles of Filipino women have changed over a period of time. Many Filipino women today are employed and have become heads of their families. This is in sharp contrast with the traditional perception on the reproductive roles of women and the sociocultural expectations from a domesticated wife (Table 5-16). Data from the PSA [10] reveals that an increasing number of employed women are heads of households. However, it should be noted that overall, the employed male household heads still far outnumber the females, notwithstanding their marital status, which may be single, married, widowed, divorced or separated, annulled or unknown.

TABLE 5-16

EMPLOYED HOUSEHOLD HEADS BY GENDER

	2010	2011	2012	2013	2014
Male	12,675	12,684	12,919	13,026	12,951
Female	1,829	1,902	1,930	2,038	2,014

Source: Philippine Statistics Authority (https://psa.gov.ph)

4. **Job opportunity and availability of flexible work arrangements:** Export processing zones attract labor-intensive industries such as electronics, garments, and footwear where the workforce tends to be predominantly female [30]. In July 1994, the Philippines enacted Republic Act 7916, which provides for the legal framework and mechanisms for the creation, operation, administration, and coordination of special economic zones in the country. As of June 2013, the Philippines has four public economic zones located in Baguio, Cavite, Mactan, and Pampanga, which generate employment opportunities for the local labor force [31].

TABLE 5-17

EMPLOYED FEMALES BY REGION (IN THOUSAND)

Region	2010	2011	2012	2013	2015
National Capital Region	1,916	1,960	1,963	2,036	2,094
Cordillera Administrative Region	288	295	294	296	308
Region I	688	726	690	717	756
Region II	495	523	518	532	536
Region III	1,389	1,450	1,473	1,522	1,575
Region IVA-CALABARZON	1,897	1,985	2,024	2,060	2,170
Region IVB-MIMAROPA	472	499	480	465	497
Region V	781	782	839	850	847
Region VI	1,183	1,213	1,180	1,183	1,263
Region VII	1,209	1,248	1,265	1,288	1,356
Region VIII	624	643	652	678	387
Region IX	512	529	522	517	509
Region X	768	797	806	778	835
Region XI	612	655	677	660	717

CONTINUED ON NEXT PAGE

CONTINUED FROM PREVIOUS PAGE

Region	2010	2011	2012	2013	2015
Region XII	587	615	620	620	631
Caraga	368	379	389	415	420
Autonomous Region in Muslim Mindanao	325	321	361	352	383

Source: Philippine Statistics Authority (https://psa.gov.ph)

The economic zones have significant impact on female workers. Data shows that except in 2010, the Region IVA-CALABARZON has led in terms of number of women who are employed. This region is composed of Cavite, Laguna, Batangas, Rizal, and Quezon. These areas are home to agro-industrial economic zones, IT parks and centers, medical tourism zones, manufacturing economic zone, and tourism economic zone [31].

The availability of jobs that can be done from home or teleworked is also a good opportunity for female workers to participate in the labor force. These give women a sense of work-life balance because of their physical presence at home. Frianeza [32] found that because of home-work subcontracting, women are able to do productive work in areas such as garments, handicrafts, shoes, toy manufacturing, food processing, metal craft, leather craft, and furniture making.

5. **Expansion of the service sector:** The growing demand for services accounts for the rise of women working in this sector. In the Philippines, the ILO [20] observed the rising number of women in services, call centers, and the electronics industry. In 2008, a study by the ADB [17] reported that a majority 55% of all BPO workers in the Philippines were women. The study further explained that the BPO sector had become a major source of employment for educated women.

6. **Government policies:** No less than the Philippine Constitution [33] recognizes the need to protect the rights and equality of all workers. Measures and various laws have been enacted to boost FLFP in the country, and are identified and elaborated in the later part of the paper.

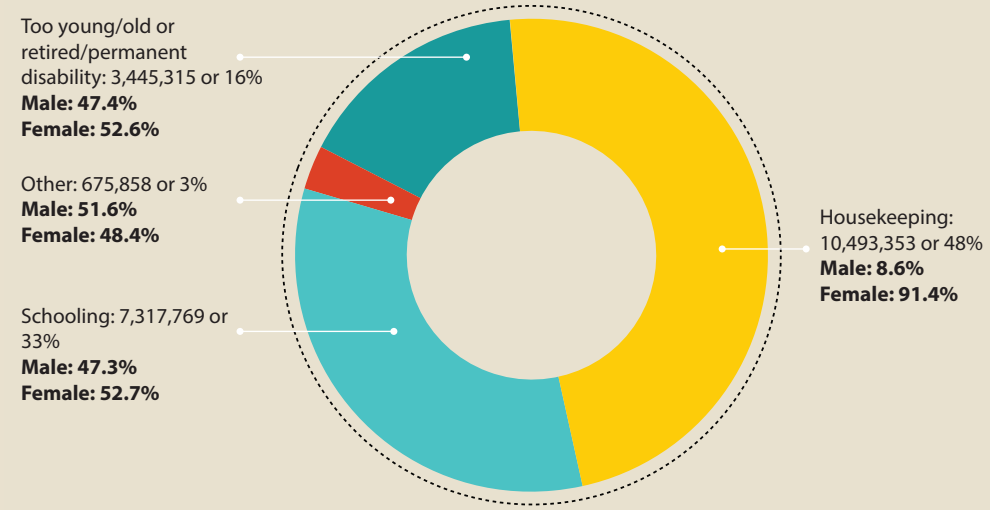
4.2 Barriers to FLFP

1. **Reproductive role of women:** The work of women is generally divided into productive and reproductive works [34]. Productive work is where a woman provides her labor. It is a process of survival as it satisfies basic human necessities such as food, shelter, and clothing. Reproductive work includes domestic labor. Eviota [34] further explained that it comprises the bearing of children and performing the day-to-day tasks of taking care of children and maintaining the household. This reproductive role of women is a major barrier to their participation in the labor force.

2. **Domestic work and social norms:** When it comes to domestic work, the time-use patterns of men and women are strikingly different. Although there is a change of perception regarding women's roles, cultural expectations in terms of domestic responsibilities are still ingrained. Figure 5-14 clearly indicates that a woman's place is still generally perceived to be the home, as a significant majority of them are engaged in housekeeping. This stereotype of women's role is deeply ensconced in the sociocultural values of Filipinos. According to Medina [35], Filipinos follow the traditional division of labor, where the husband is the breadwinner and

FIGURE 5-14

DISTRIBUTION OF FILIPINOS NOT IN THE LABOR FORCE



Source: Philippine Statistics Authority (https://psa.gov.ph)

the wife is in charge of the domestic affairs. In this backdrop, marital status becomes a hindrance to women's entry in the labor force. Based on the Decent Work Statistics Online Database report of the DOLE [36], in 2011, 31% of working-age women said that they were not in the labor force due to household or family duties, compared to only 3% of men who also said the same thing. MacPhail [37] also found it to be the reason why Filipino women were constrained to do paid work.

3. **High fertility rate:** As shown in Table 5-1, the Philippines in 2010 still had the highest TFR among ASEAN countries although it declined over the years. Usually, women who come from poor families had more children than women who are financially well-off. In a study by Bloom, et al. [38], it was stated that fertility reduction increased FLFP, reduced population growth, and increased the capital-labor ratio. A decline in population would give the working-age population better chances of being employed. In fact, the study concluded that the decline in fertility rate would have long-term economic benefits as more investments could be channeled into children's health and education.

4. **Unintended consequences of government policies.** Labor laws such as RA 679 Maternity Leaves has counterproductive effects on women. Employing women is perceived to be costly by employers because of maternity leave benefits. Employed women in the private sector, married or not, are entitled to a 60-day maternity leave with pay provided that they have rendered an aggregate service of at least six months. Women employed in the public sector also enjoy the same benefit, provided they are married and have rendered the service for at least two years. Under the Magna Carta of Women [3], a special leave benefit is accorded to women who underwent surgery caused by a gynecological disorder. A woman employee who rendered continuous aggregate employment service of at least six months for the last twelve months is entitled to a special leave benefit of two months with full pay, based on her gross monthly compensation.

5. **Gender gap in human capital:** The type of training as well as education that women earn constrain them to join the labor force according to the study by the ADB [17]. That same study explained that although there was gender parity in the primary and secondary educations, that did not translate into paid work because qualitative differences still existed as a consequence of gendered segregation in trainings and tertiary education.

6. **Lack of opportunity/available jobs suitable to women:** While there is an increase in FLFP in the services sector, according to the ADB [17], this can be a reflection of "a lack of decent work opportunities, a growing need for incomes in increasingly marketized economies, or rising landlessness pushing people into work for very low return." The services sector, it further explained, was "large and heterogeneous in productivity, incomes, and amount of decent work." The lack of opportunity or available jobs suitable to women is also related to the type of training and education that women earned. This may be attributed to a mismatch in the jobs available versus the knowledge and skills that women have. Further, this can also be attributed to differences in the levels of economic development, infrastructure, and technology among the various regions of the country. For example, a big gap exists between the NCR and the ARMM in terms of infrastructure, job opportunities, and economic growth, among other things.

7. **Lack of access to credit and services:** Women have very limited access to credit and financial services. Having access to these services can pave the way for women to engage in businesses. In addition, limited access to health services naturally limit the FLFP. Given this, women's biological make-up definitely serves as a constraint to them participating in the labor force. In 2011, the Family Health Survey [10] revealed that for every 100,000 live births in the Philippines, 221 mothers died during pregnancy and childbirth or shortly after childbirth. Many poor Filipinos are unable to access healthcare services, primarily due to financial constraints, lack of quality infrastructure and equipment, and geographical barriers, among others [39].

8. **Trade policies:** The export-oriented development strategy of the country which is basically focused on electronics, food processing, automobile parts, and textiles and garments does not lead to an increase in FLFP in the manufacturing sector, compared to other sectors [17]. Pushing for certain products and services further affects gendered employment according to the same ADB study.

9. **Natural disasters:** The Philippines is geographically located along the typhoon belt in the Pacific. As such, in a year, the country is visited with an average of 20 typhoons. Of these, five are destructive, according to the Asian Disaster Reduction Center (ADRC) [40]. Natural disasters destroy whatever achievements are made in terms of jobs, livelihoods, and other sources of income. For example, millions of workers and families were displaced when the Bohol earthquake and the Super Typhoon Haiyan hit the country. Recovery, rehabilitation, and reconstruction take time and this impacts those who are already engaged in vulnerable jobs the most [20]. Natural disasters therefore serve as a double whammy to women since they are usually engaged in vulnerable employments with limited income and social security.

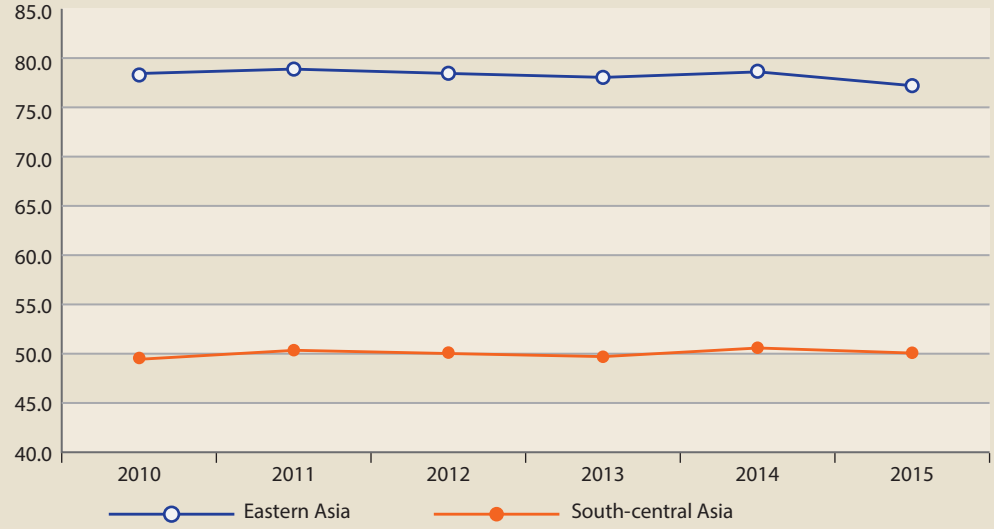
5. Impact of FLFP on Productivity

The impact of FLFP in the Philippines is immense. It greatly affects various and sometimes overlapping dimensions of life. Low FLFP in the country has multiple fallouts, which are discussed ahead.

1. **Slower economic growth:** Women's participation in the labor market is important for the growth and stability of the economy as it results in significant marcroeconomic gains [41]. The wide gap in employment between men and women presents an untapped potential of women in the labor force (Figure 5-15), which is a major barrier in achieving a more robust economy.

FIGURE 5-15

LABOR FORCE PARTICIPATION RATE BY GENDER



Source: Philippine Statistics Authority (https://psa.gov.ph)

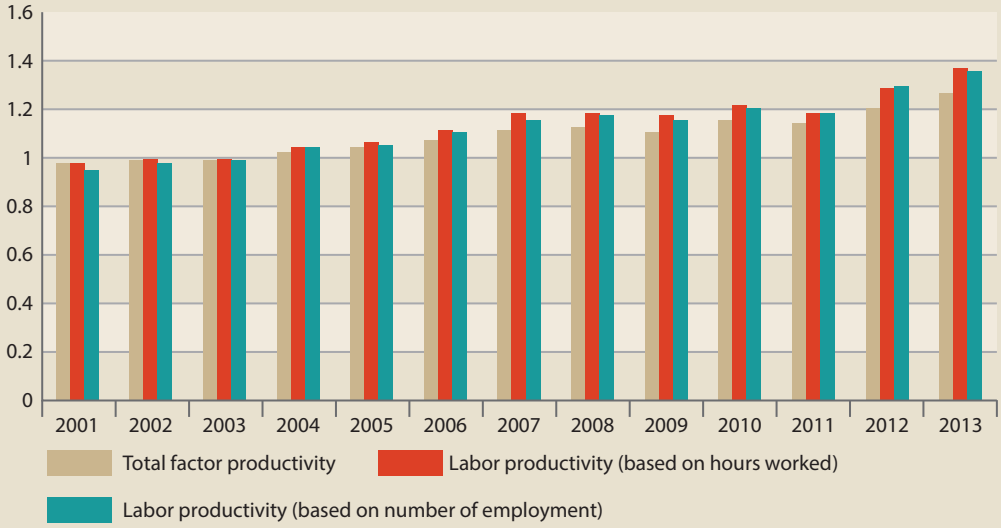
Figure 5-16 shows that from 2001 to 2013, there were increases in total factor productivity, labor productivity based on hours worked, and labor productivity based on the number of employment. However, the Philippines was yet to significantly increase its productivity so that inclusive growth could be felt by a majority of Filipinos. Perhaps this slow productivity performance could be attributed to the low FLFP. In 2014, Cuberes and Teignier [42] looked into the effects of gender gaps on gross domestic product in select countries, including the Philippines. They found that there was an almost 40% reduction in income per capita if women were not part of the labor force.

2. **Lesser or limited employment opportunities:** Untapped potential of women means lesser or limited employment opportunities. An employment gap reflects the problem of gender unequality in the labor market. According to the ADB [17], there was only 1% increase in women's employment in the non-agriculture sectors from 2000 to 2011.

Agriculture, hunting, and forestry comprise the leading industry grouping where male Filipino workers are engaged. This is not surprising, considering that the Philippines is an agricultural country. This is followed by the industry grouping comprising wholesale and retail trade, repair of motor vehicles, motorcycles, and personal and household goods. Transport, storage, and communication comprise the third, while construction and manufacturing are the fourth and fifth industries, respectively, where most Filipino workers are employed.

FIGURE 5-16

PHILIPPINE PRODUCTIVITY INDICES



Source: APO Productivity Database 2015 ver. 1 (September 30, 2015, www.apo-tokyo.org)

Table 5-18 shows the various industries where females have employment opportunities. Based on the table, a large majority of female Filipino workers are in the industry group of wholesale and retail trade and personal and household goods. Female Filipino workers are also in agriculture, hunting, and forestry just like their male counterparts. Manufacturing is the third most siginificant industry where female Filipino workers are employed, followed by the groupings of other community, social and personal service activities; and activities of households as employers, and undifferentiated goods and services-producing activities of households for own use and education. According to the ADB [17], opportunities for women are in the agriculture, industry, manufacturing, and services (tourism and public service) sectors, as well as in entrepreneurship.

TABLE 5-18

PERCENTAGE OF EMPLOYED MALES BY MAJOR INDUSTRY GROUPS, 2010–14

	2010	2011	2012	2013	2014
Agriculture, hunting and forestry	34	34	33	32	31
Fishing	6	6	6	5	5
Mining and quarrying	1	1	1	1	1
Manufacturing	8	8	7	7	7
Electricity, gas, steam, and water supply	1	1	0	0	0
Electricity, gas, steam, and airconditioning supply	0	0	0	0	0
Water supply, sewerage, waste management, and remediation activities	0	0	0	0	0
Construction	9	9	9	10	10

CONTINUED ON NEXT PAGE

CONTINUED FROM PREVIOUS PAGE

	2010	2011	2012	2013	2014
Wholesale and retail trade; repair of motor vehicles, motorcycles, and personal and household goods	13	13	0	0	0
Wholesale and retail trade; repair of motor vehicles and motorcycles	0	0	12	12	12
Hotels and restaurants	2	2	0	0	0
Transport, storage, and communications	12	11	0	0	0
Transportation and storage	0	0	11	11	11
Financial intermediation	1	1	0	0	0
Financial and insurance activities	0	0	1	1	1
Real estate, renting, and business activities	3	4	0	0	0
Real estate activities	0	0	0	0	0
Public administration and defense; Compulsory social security	5	5	5	5	5
Education	1	1	1	1	1
Health and social work	1	1	1	1	1
Other community, social and personal service activities	2	2	3	3	3
Private households with employed persons	1	1	0	0	0
Extra-territorial organizations and bodies	0	0	0	0	0
Water supply; sewerage, waste management, and remediation activities	0	0	0	0	0
Accommodation and food service activities	0	0	3	3	3
Information and communication	0	0	1	1	1
Professional, scientific, and technical activities	0	0	0	0	0
Administrative and support service activities	0	0	3	3	3
Arts, entertainment, and recreation	0	0	1	1	1
Activities of households as employers; undifferentiated goods and services-producing activities of households for own use	0	0	0	0	0
Other service activities	0	0	3	3	3

Source: Philippine Statistics Authority (https://psa.gov.ph)

TABLE 5-19

PERCENTAGE DISTRIBUTION OF EMPLOYED FEMALES BY MAJOR INDUSTRY GROUPS, 2010–14

	2010	2011	2012	2013	2014
Agriculture, hunting, and forestry	21	21	20	19	19
Fishing	1	1	1	1	1
Mining and quarrying	0	0	0	0	0
Manufacturing	9	9	9	9	9
Electricity, gas, steam, and water supply	0	0	0	0	0
Electricity, gas, steam, and airconditioning supply	0	0	0	0	0

CONTINUED ON NEXT PAGE

CONTINUED FROM PREVIOUS PAGE

	2010	2011	2012	2013	2014
Construction	0	0	0	0	0
Wholesale and retail trade; repair of motor vehicles, motorcycles, and personal and household goods	30	30	0	0	0
Wholesale and retail trade; repair of motor vehicles, and motorcycles	0	0	28	29	28
Hotels and restaurants	4	4	0	0	0
Transport, storage and communications	1	1	0	0	0
Transportation and storage	0	0	1	1	1
Financial and intermediation	2	2	0	0	0
Financial and insurance activities	0	0	2	2	2
Real estate, renting, and business activities	3	3	0	0	0
Real estate activities	0	0	1	1	1
Public administration and defense; compulsory social security	5	5	5	6	5
Education	6	6	6	6	6
Human health and social work activities	2	2	2	2	2
Other community, social, and personal service activities	3	3	10	10	10
Private households with employed persons	12	11	0	0	0
Activities of households as employers; undifferentiated goods and services-producing activities of households for own use	0	0	3	3	3
Activities of extra-territorial organizations and bodies	0	0	0	0	0
Water supply; sewerage, waste management and remediation activities	0	0	0	0	0
Accommodation and food service activities	0	0	6	6	6
Information and communication	0	0	1	1	1
Professional, scientific, and technical activities	0	0	1	1	1
Administrative and support service activities	0	0	2	2	2
Arts, entertainment and recreation	0	0	1	1	1

Source: Philippine Statistics Authority (https://psa.gov.ph)

Tables 5-18 and 5-19 show the common industries that both the sexes are heavily engaged in but also show the differences in terms of occupational segregation. Estavillo and Ilagan [43] explained that the sexual segregation of occupation is because "employers believe that they do not possess the necessary physical strength; the notion that females are docile and submissive so they are not fit for supervisory positions; employer's conception that female workers are more expensive in terms of social benefits such as paid maternity leave; and designation of child-care roles to women."

This sexual segregation of occupation results in industry restrictions, which in turn derease the already limited employment opportunities for Filipino women. This situation naturally leads to hampered career advancement, notwithstanding their qualifications. In addition, as the World Bank Report [44] explains, removing the inequality of opportunity in economic participation could increase worker productivity between 7% to 18%.

Gonzales et al. [45] cited that empirical evidence based on previous studies points to the fact that fertility and education are drivers of FLFP. However, while education facilitated the participation of women in the labor market in the Philippines as women had higher completion rates in all levels of education, there still was a major problem. Due to a lack of employment opportunities, women were forced to take up jobs locally or abroad that did not match their levels of education, experience, and abilities. According to a report by the DOLE that was published in the Philippine Labor and Employment Plan 2011–16 [16], a majority of Overseas Filipino Workers (OFW) are women. In any case, women who are employed locally and abroad become vulnerable to unfair labor practices such as underpayment, poor working conditions, and various forms of sexual, physical, psychological, and verbal abuses.

3. **Lesser pay and lesser social protection or absence of it:** Gender equality in terms of wage remains to be a perennial issue in the country. A World Bank Report [44] stated that Filipino women got only 76% of what men earned and were likely to work in small firms, informal sectors, and lower-paid occupations and sectors.

Based on the number of women in waged employment, there is little improvement in gender equality in the labor market [17]. The ADB estimated that the proportion of women's annual earnings to men's annual earnings stood at less than 60%. Clear segregation of occupations between sexes was still very apparent along with a lack of formal employment opportunities for women. In terms of social protection, the ADB [17] further explained that female workers in the Philippines usually experienced lesser means to decent work and social protection since they were more likely to engage in vulnerable employments. Wage gaps could therefore lead to decent-work gaps as well.

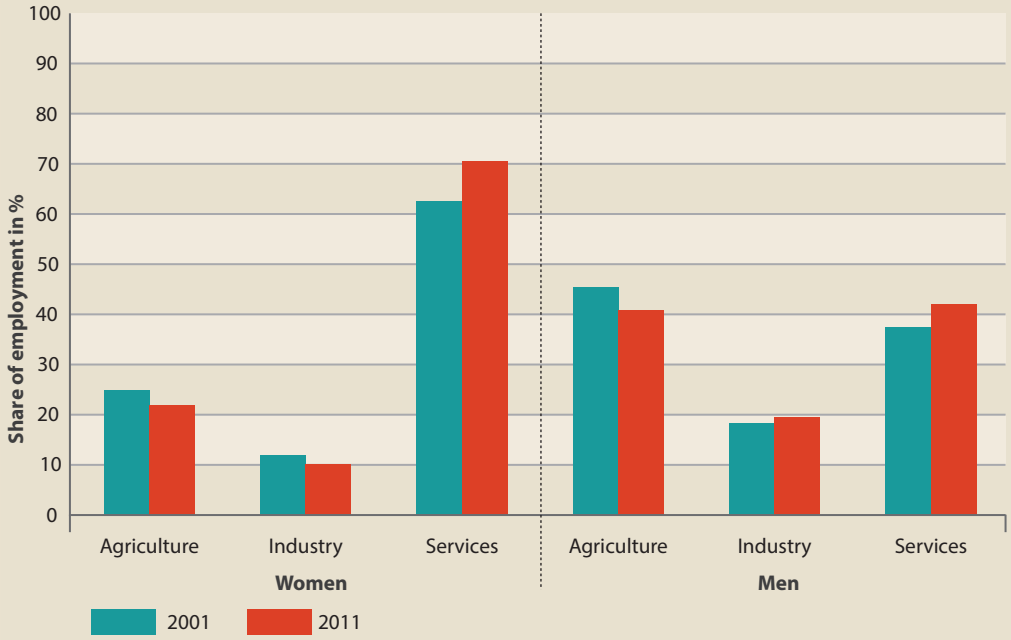
4. **Higher engagement in informal and precarious works:** Relatively less employment opportunities for women in the formal sector have resulted in a spillover effect to the informal sector. Women are also attracted to work in the informal sector as it allows them to do productive work from the comforts of their homes [32]. The National Statistical Coordination Board (NSCB) Resolution No. 15, series of 2002 [10] officially defined informal sector as "household unincorporated enterprises which consist of both own-account enterprises and enterprises of informal employers." However, although there is an increase in wage employment, the number of women workers in the Philippines with precarious work increased from 23.9% to 24.7% in all sectors during 2000–11 as against a corresponding decline for men workers from 30.9% to 28.5% in the same period [36].

The PSA [10] identified 10.5 million informal-sector operators in 2008. There were 14.8 million Filipino workers in the economy, of which 6.056 million (41%) were women and 8.759 million (59%) were men. According to the DOLE [46], from 2004 to 2009, a majority of informal workers and employers were in agriculture (6.754 million); followed by wholesale and retail trade (3.945 million); fishing (1.033 million); and transport, storage, and communication (1.030 million). In terms of contribution to the GDP of the country, it is estimated that the informal sector contributed about 45%.

5. **Low representation in key positions:** Men still dominate key positions with decision-making power. The executive and legislative bodies of the country reflect this phenomenon. The ADB [29] noted that women who work for government in the Philippines are usually in gender-stereotyped occupations such as in health and education sectors.

FIGURE 5-17

EMPLOYMENT SHARES BY ECONOMIC SECTORS, 2001 AND 2011



Source: Department of Labor and Employment. (http://www.dole.bles.dole.gov.ph)

6. **Slow or limited career advancement:** Based on the employment share of women by economic sector, employed women were heavily concentrated in the services sector in 2001 and 2011 (Figure 75). This presents a gender-stereotyping effect in terms of jobs for women, perpetuated by a continued practice. Hence, limited employment opportunities for women naturally lead to slow or limited career advancement. Breaking the glass in areas dominated by men, such as in hardware and software technology-based jobs, is still a challenge for women in the labor market.

7. **Low participation in policy-making:** Owing to the fact that a majority of women are engaged in positions with no decision-making power, they have low or no participation in crafting crucial policies that could affect them.

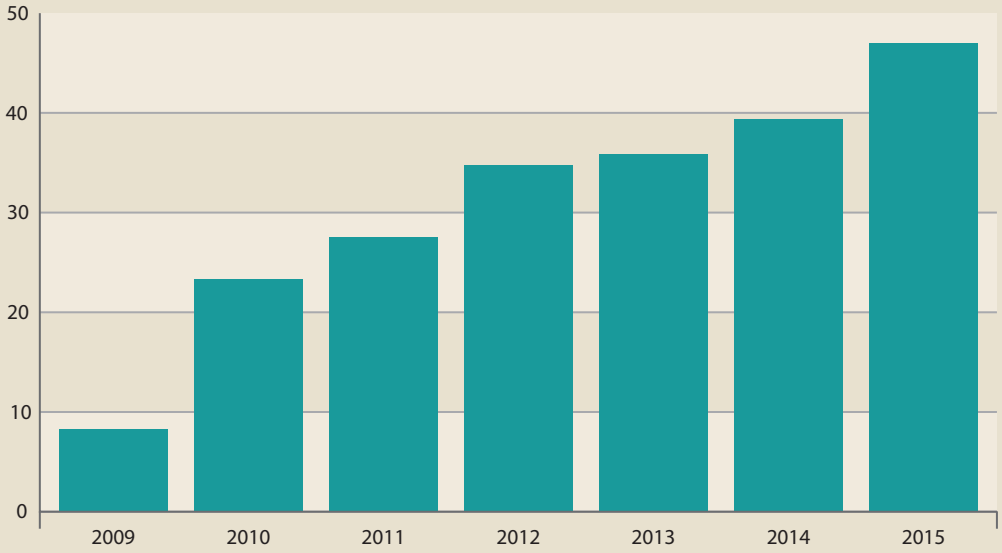
8. **Lesser access to resources and credit:** This dimension may be viewed both as a barrier to FLFP as well as an impact on productivity of women. Women who are either unemployed or in unstable employment conditions naturally find it difficult to have access to credit. This cycle, where women have lesser access to credit to begin with, is consequently perpetuated. Thus, a cycle of poverty and the poor quality of life that goes with it, continues. This intergenerational effect was articulated in a report by World Bank Country Director Motoo Konishi [44] who stated, "Healthier, better educated mothers have healthier, better educated children, so if we can make the right decisions and allocate the right resource now, we are also investing in the next generation of Filipinos." Moreover, having no access to productive inputs, such as land and credit, reinforces gender segregation in access to economic opportunities according to the World Development Report 2012 [27]. In the Philippines, the Micro, Small and Medium Development Plan for 2011–16 [47] reports that inadequate access to credit is due to the difficulty in complying

with requirements such as collaterals, payment terms particularly the interests and charges, nature of the business, and getting consent from the husband.

9. **Perpetuation of gender digital divide:** The ICT can serve both as a window and a means to level the playing field in the labor force participation between men and women. In the Philippines, there is increased use of internet as shown in Figure 5-18. However, according to Rappler [48], the top online activities are devoted to social media (47%), online shopping (29%), videos (19%), online and mobile games (15%), and location-based search (13%). The use of ICT for education, training, and employment is therefore not maximized.

FIGURE 5-18

INTERNET GROWTH IN PHILIPPINES (IN MILLION)



Source: http://www.rappler.com/

The Philippine Legislators' Committee on Population and Development Foundation, Inc., and WomensHub (Philippines) [49] reported an acute gender digital divide between the young, city-based, educated, and middle-class men and the elderly, rural-based, and undereducated women. They observed that this situation was a result of the historical inequities between men and women in the country, which was further reinforced by the existing global financial and technological structures. According to them, science and technology is still dominated by males in terms of education and employment. Considering this situation, ICT has created a new form of inequality as well as reinforced or perpetuated the perennial problem of inequality between men and women in the country.

6. Policies and Measures to Boost FLFP

FLFP increases in the absence of discrimination against women and in the presence of legally guaranteed rights and equality as well as institutions that create and support an enabling environment that addresses the problems, challenges, and needs of women in the labor market. Over the years,

significant steps have been undertaken by the Philippine government to ensure that the welfare of women is promoted and protected. The following landmark policies are considered to boost FLFP in the country:

1. **The 1987 Philippine Constitution (Article III: Bill of Rights Section 8; Article XIII: Labor Section 3):** The 1987 Philippine Constitution, Article III Section 8 guarantees the right of the people, including those employed in the public and private sectors, to form unions, associations, or societies for purposes not contrary to law. Specifically, Article XIII Section 3 is dedicated to labor. It provisions that:

    a The state shall afford full protection of labor, local and overseas, organized and unorganized, and promote full employment and equality of employment opportunities for all.

    b The state shall guarantee the rights of all workers to self-organization, collective bargaining and negotiations, and peaceful concerted activities, including the right to strike in accordance with law. They shall be entitled to security of tenure, humane conditions of work, and a living wage. They shall also participate in policy and decision-making processes affecting their rights and benefits as may be provided by law.

    c The state shall promote the principle of shared responsibility between workers and employers and the preferential use of voluntary modes in settling disputes, including conciliation, and shall enforce their mutual compliance therewith to foster industrial peace.

    iv The state shall regulate the relations between workers and employers, recognizing the right of labor to its just share in the fruits of production and the right of enterprises to reasonable returns on investments, and to expansion and growth.

2. **Republic Act No. 6727 (Wage Rationalization Act):** The Act sets the minimum wage to protect the welfare of workers. It specifically establishes a new mechanism for minimum wage determination through the creation of the National Wages and Productivity Commission (NWPC) and the Regional Tripartite Wages and Productivity Boards (RTWPBs) in all regions of the country.

3. **Labor Code Chapter I Employment of Women:** This chapter of the Labor Code has specific provisions such as facilities for women (Art. 132); Maternity Leave Benefits (Art. 133); prohibition of discrimination (Art. 135); stipulation against marriage (Art. 136); prohibited acts (Art. 137); and classification of certain women workers (Art. 138).

4. **RA 9710 (Magna Carta of Women):** The Magna Carta of Women levels the playing field by making productive resources and economic opportunities equally available to both men and women.

5. **RA 10354 (The Responsible Parenthood and Reproductive Health Act of 2012):** This law ensures that the state shall protect and promote the right to health of women in particular, especially the mothers, and the people in general and instill health consciousness among them.

6. **RA 8972 (Solo Parents' Welfare Act of 2000):** In addition to other leave benefits that workers are entitled to under the Philippines laws, solo parents are entitled to parental leave and employers should provide them with flexible work schedule. The law also provides that no employer should discriminate them on the matter of terms and conditions of employment. A comprehensive program of services is also provided to solo parents by various government agencies. These programs include housing benefits, educational benefits, medical assistance, services related to counseling, livelihood, parental effectiveness, stress management, and other special assistances like legal, temporary shelter, self-concept or ego building, crisis management, and spiritual enrichment services.

7. **The Gender-Responsive Economic Actions for the Transformation of Women (GREAT Women)*:*** This is a capacity development project that started in 2006. It aims to ensure an environment that promotes and supports gender-responsiveness for economic empowerment. At present, the project is in its second phase which focuses on women's micro-entrepreneurship. The PCW is the lead executing agency of the project, together with other relevant national government agencies and the provincial and municipal local government units.

   The GREAT Women Project is aligned with the Republic Act 10644 or the *Go Negosyo Act*, which encourages the establishment of micro, small, and medium enterprises as a way to promote job generation and inclusive growth, and to reduce poverty and foster national development.

8. **RA 10151 (an Act allowing the employment of night workers):** Article 158 of this Act is specifically devoted to women night workers. It provides measures to protect women night workers, particularly before and after childbirth and during pregnancy. The law likewise ensures that:
   a A woman worker shall not be dismissed or given notice of dismissal, except for just or authorized causes provided for in the Labor Code that are not connected with pregnancy, childbirth, and childcare responsibilities.
   b A woman worker shall not lose the benefits regarding her status, seniority, and access to promotion which may attach to her regular night work position.
   c Pregnant women and nursing mothers may be allowed to work at night only if a competent physician, other than the company physician, shall certify their fitness to render night work, and specify, in the ease of pregnant employees, the period of the pregnancy that they can safely work.

9. **RA 10028 (an Act expanding the promotion of breastfeeding):** This law provides for the creation of "an environment where basic physical, emotional, and psychological needs of mothers and infants are fulfilled through the practice of rooming-in and breastfeeding."

10. **Republic Act 9262 (Antiviolence Against Women and Their Children):** This Act defines violence against women and their children, and provides for protective measures for victims and prescribes penalties to offenders.

11. **RA 7877 (Anti-sexual Harassment Act):** Passed in 1995, this Act declares sexual harassment as unlawful in the employment, education or training environment, and stipulates the corresponding sanctions.

12. **RA 8353 (Anti-rape Law):** This law expands the definition of rape as a crime, reclassifies it as a crime against persons, and amends Act No. 3815 or the Revised Penal Code.

13. **RA 8505 (Rape Victim Assistance and Protection Act):** This law mandates the establishment of a 'rape crisis center' in a government hospital, a health clinic or in any appropriate place, in all provinces and cities.

14. **RA 7322 (Increasing Maternity Benefits in Favor of Women Workers in the Private Sector):** Subject to some conditions, current female employees who give birth, have abortion or miscarriage are entitled to 100% of their present basic salary, allowances, and other benefits for sixty days.

15. **RA 6725 (an Act strengthening the prohibition on discrimination against women with respect to terms and conditions of employment):** This law states that it is unlawful for any employer to discriminate against any female employee, either in terms of a lesser compensation compared to male employees, or in terms of promotion and training opportunities, and study and scholarship grants.

16. **Republic Act 10361 (The Domestic Workers Act):** In essence, this law institutes policies for the protection and welfare of domestic workers. This is a very important piece of legislation, considering that the vast majority of domestic workers are women. In 2010, 85% of domestic workers were women, according to the Labor Force Survey [10].

17. **Technical Education and Skills Development Authority (TESDA) and Technical and Vocational Education and Training (TVET) programs:** Women can avail these technical and vocational education and training programs for free so they can have better opportunities and access to work and employment.

18. **RA 7192 (The Women in Development and Nation Building Act):** Cognizant of the role of women in nation building and to ensure equality in terms of rights and opportunities, this law mandates the PCR to provide assistance so that gender-responsive government policies are formulated nationwide.

19. **Philippine Plan for Gender-Responsive Development (PPGD) 1995–2025:** According to PCW, "the PPGD lays out development goals and strategies that will make gender equity innate in public programs and policies. This 30-year perspective plan ensures that women-friendly policies can take root and flourish despite the barriers posed by traditional attitudes and stereotyping."

20. **Micro, Small and Medium Enterprise Development Plan for 2011–16:** This plan is envisioned to answer the problems that beset the growth and development of the micro, small, and medium enterprises by focusing on the business environment, access to finance, access to markets, and productivity and efficiency.

21. **Public Employment Service Office Act of 1999:** This Act mandates local governments nationwide to give full employment and equality of employment opportunities for all. A public employment service office in all local government units serves as the focal office responsible for carrying out the mandate.

22. **Gender and Development Budget Policy in 1995:** Considered a milestone in the promotion of women empowerment, it mandates all national government agencies, government owned and controlled corporations, state universities and colleges, and local

government units to allocate at least 5% of their annual budgets to programs and activities that promote gender equality.

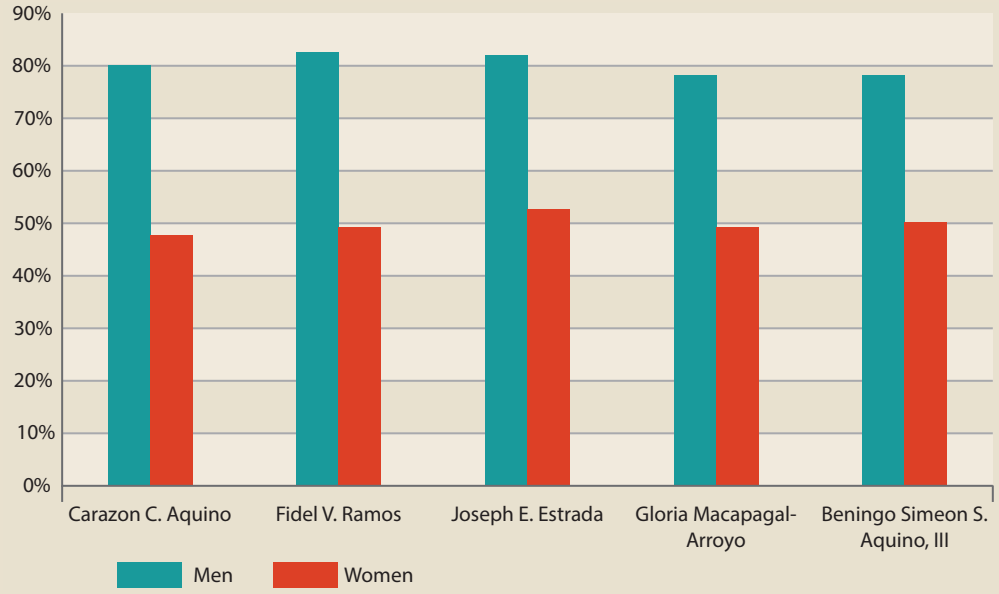
23. **Ratification of ILO Conventions:** The country has ratified various ILO Conventions such as: Convention No. 100 on equal remuneration for men and women workers for work of equal value; Convention No. 110, which prescribes the working condition of women workers in plantations, particularly with regard to pregnant women and its corresponding maternity leave; Convention No. 111 on discrimination in respect of employment and occupation; and Convention No. 122 on employment policy that guarantees full opportunity to all workers notwithstanding their gender, among others.

If the report of the World Economic Forum [50] can be considered an indicator of the country's success in advancing women's empowerment and closing the gender gap, then the country is in the right direction and quite successful in this regard. According to its 2015 Global Gender Gap Index, the World Economic Forum [50] reported that the Philippines ranked seventh out of 145 countries. The country got an overall score of 0.790 in the gender gap index, based on how women fared in economic, educational, health-based, and political aspects. The score of the country is good news as the highest possible score is 'one.'

However, the consistently low FLFP across five different Presidents' regimes tells a different story. Despite efforts by the governments to promote gender equality, women still lag on the labor front. Gender equality then remains to be an elusive dream. Figure 5-19 attests to the fact that women are still at a disadvantaged position, considering the big disparity between the percentage of employed men and women in the country. This persistent condition presents a major challenge to all stakeholders, and calls for a comprehensive review of the laws and their implementations and monitoring mechanisms so that a level playing field is created and nurtured.

FIGURE 5-19

PERCENTAGE OF WOMEN AND MEN IN THE WORKFORCE FOR FIVE SUCCESSIVE ADMINISTRATIONS



Source: http://www.gmanetwork.com/

7. Conclusion: An Integrated Approach

The Philippines has come a long way in addressing certain gender equality issues. In fact, in 2006, the UNDP [51] reported in its Human Development Report that the Gender Development Index (GDI) of the country improved and its Gender Empowerment Measure (GEM) increased. However, the same report stated that even with the positive developments for Filipino women, the improved GDI and increased GEM do not "necessarily translate into positive measurable changes in the roles and status of women in the country." Related to this, the ADB [17] report on gender equality in the labor market in the Philippines identified various gaps in the labor market, such as labor force participation, unpaid domestic and care work, human capital, labor market outcomes, employment, decent work, and social protection. Indeed, the Philippines must address these gaps if it wants to achieve gender equality in various aspects of work-life. It is in this light that an integrated approach to addressing the gender gap is necessary. A simple solution cannot address a very complicated problem that is culturally deep-rooted.

It is easy to say that in order to solve the problem, the barriers such as job-education mismatch, lack of proper skills, lack of access to basic services, unavailability of jobs, trade policies, and other factors that hinder more participation of women in the labor force, should be properly addressed. The UN [22] has outlined several key points in order to achieve gender equality. These include: removing barriers to education for women; creating decent work; increasing the roles of women in decision-making through positive action; investing in sexual and reproductive health programs; better reporting mechanisms on progress, gaps, and opportunities for women; investing in infrastructure, labor saving technologies, and gender-responsive economic stimulus packages; strengthening accountability on gender discrimination; and increasing investments in gender equality.

Gender equality has a multiplier effect on development. In the Philippines, significant economic development or inclusive growth is yet to be realized despite the number of laws enacted to boost FLFP. The gender divide is still very much evident. Thus, in addition, it is suggested to:

1. Have increased and better coordination among government agencies so that the full benefits of the laws are felt by its intended recipients.
2. Have better preparedness against natural disasters and better response measures.
3. Have increased women representation and voice in the community and in the workplace.
4. Step up efforts of government in reviewing the policies related to women, specifically those that serve as barriers to FLFP.
5. Revisit the implementation and monitoring of these policies.
6. Integrate gender sensitivity and awareness in school curricula across all levels of education.
7. Ensure that women are properly skilled so that they are able to better meet the needs of various industries and at the same time be competitive.

The problem of gender inequality on the labor front in the Philippines is complicated. The reasons why women are left behind in the labor force participation are significantly related to other major problems such as poverty, government inefficiency, misuse of government resources, and sociocultural beliefs, among others. This is not a problem of the government alone. At the end of the day, all Filipinos have a role to play in addressing this problem. Change of mindsets cannot be achieved overnight. It is necessary to address the problem both at the macro and micro levels, as well as on the cultural, economic, social, political, structural, and behavioral fronts.

Lastly, genders should not be competitors but partners in achieving inclusive growth and development. In the Philippines, FLFP is still low, and there is a wide disparity in human capital

endowments even among women themselves across regions. The country should redouble its efforts to harness the potential of women so that the gender divide could become a thing of the past. As long as challenges, issues, and concerns of women workers are not addressed, gender equality in the labor force in the Philippines will remain an impossible dream.

References

[1] National Economic and Development Authority. Philippine Development Plan 2011-2016. www.neda.gov.ph. Accessed on 9 November 2015.

[2] United Nations. Millennium Development Goals. www.millenniumproject.org/goals/. Accessed on 9 November 2015.

[3] Philippine Commission on Women. http://www.pcw.gov.ph. Accessed on 10 November 2015.

[4] The World Factbook. www.cia.gov. Accessed on 19 January 2016.

[5] The World Bank. Rapid Aging in East Asia and Pacific Will Shrink Workforce and Increase Public Spending. www.worldbank.org. Accessed on 2 August 2016.

[6] World Health Organization. http://www.who.int/. Accessed on 19 January 2016.

[7] UN News Centre. Life expectancy rising, but UN report shows 'major' rich-poor longevity divide persists. http://www.un.org. Accessed on 19 January 2016.

[8] Country Economy. http://countryeconomy.com/. Accessed on 19 January 2016.

[9] World Health Rankings. http://www.worldlifeexpectancy.com/. Accessed on 19 January 2016.

[10] Philippine Statistics Authority. https://psa.gov.ph. Accessed on 10 November 2015.

[11] Dayrit, M. Philippines Struggles to Lower Maternal Mortality. http://www.scidev.net/asia-pacific/health/opinion/philippines-struggles-to-lower-maternal-mortality.html; 27 February 2015. Accessed on 19 January 2016.

[12] United Nations. World Fertility Patterns 2015. http://www.un.org/. Accessed on 1 August 2016.

[13] United Nations. World Population Prospects. https://esa.un.org; 2015. Accessed on 10 November 2015.

[14] National Statistical and Coordination Board. www.nscb.gov.ph/. Accessed on 10 November 2015.

[15] Trading Economics. http://www.tradingeconomics.com/. Accessed on 19 January 2016.

[16] The Philippine Labor and Employment Plan 2011-2016. Department of Labor and Employment. http://www.dole.gov.ph/. Accessed on 21 December 2015.

[17] Asian Development Bank. Gender Equality in the Labor Market in the Philippines. http://www.adb.org, 2013. Accessed on 10 November 2015.

[18] National Commission on the Role of Filipino Women and Asian Development Bank. Filipino Women, Issues and Trends. www.pcw.gov.ph; 1995. Accessed on 19 January 2016.

[19] Shahani L.R. Engendering Development: The Status of Women in the Philippines. www.philstar.com. Accessed on 19 January 2016.

[20] ILO. Philippine Employment Trends 2015. http://www.ilo.org. Accessed on 11 November 2015.

[21] Public Service Employment Office. http://www.ble.dole.gov.ph. Accessed on 11 November 2015.

[22] United Nations Development Program. Thematic Paper on MDG 3 Promote Gender Equality and Empower Women. www.ph.undp.org; 2015. Accessed on 19 January 2016.

[23] Bañez-Sumagaysay M. Women, Work and Wages in a Paddy Economy. Review of Women Studies; 2000, 10: 1–2, 96–111.

[24] Andam Z.R.B., Malilong P.A.E. The Status of Women in the Philippine Labor Market: Estimating Labor Force Participation, Wage & Unemployment Differentials. Undergraduate Thesis. School of Economics, University of the Philippines Diliman, October; 1996.

[25] Candelaria C.R.D., Esguerra P.E.O. The Wife's Labor Force Participation in the Philippines: A threshold analysis. Undergraduate Thesis. School of Economics, University of the Philippines Diliman, October; 1993.

[26] Encarnacion J. Family Income, Education, Labor Force Participation & Fertility. In: Flieger W., Smith P., eds. A Demographic Path to Modernity. QC: University of the Philippines Press; 1975.

[27] World Development Report 2012. Gender Differences in Employment and Why They Matter. http://dx.doi.org/10.1596%2F9780821388105_ch5; September 2011, pp. 198–253. Accessed on 2 August 2016.

[28] Paqueo V., Angeles E. An Analysis of Wife's Labor Force Participation in the Philippines and the Threshold Hypothesis. http://www.econ.upd.edu.ph/dp/index.php/dp/article/view/372; August 1979. Accessed on 2 August 2016.

[29] ADB. Women in the Workforce: An Unmet Potential in Asia and the Pacific; 2015. http://www.adb.org/. Accessed on 12 August 2016.

[30] ILO. Export Processing Zones Growing Steadily. www.ilo.org. Accessed on 2 August 2016.

[31] Manasan R.G. Export Processing zones, special economics zones: do we really need to have more of them? www.pids.gov.ph; 2013. Accessed on 9 November 2015.

[32] Frianeza M.P. Women in the Informal Sector in the Philippines: A Situationer. http://journals.upd.edu.ph; 2012. Accessed on 9 November 2015.

[33] The 1987 Philippine Constitution.

[34] Eviota E.U. The Political Economy of Gender. Raintree Publishing Inc.; 1992.

[35] Medina B.T. The Filipino Family. University of the Philippines Press; 1995.

[36] Department of Labor and Employment. Decent Work Statistics. www.bles.dole.gov.ph. Accessed on 9 November 2015.

[37] MacPhailI F. Is gender inequality really so low in the Philippines? East Asia Forum. http://www.eastasiaforum.org; 21 March 2015. Accessed on 10 November 2015.

[38] Bloom D.E., Canning D., et al., Fertility, Female Labor Force Participation, and the Demographic Dividend. National Bureau of Economic Research. http://www.nber.org/papers/w13583; November 2007. Accessed on 1 August 2016.

[39] Terosa C.L., Belandres R.L. Philippines: Towards Expanding Access to Healthcare Services - A Policy Simulation Report. Global Development Network. http://gdn.int, n.d. Accessed on 10 November 2015.

[40] Asian Disaster Reduction Center. http://www.adrc.asia/. Accessed on 8 August 2016.

[41] Elborgh-Woytek K., Newiak M. et al., Women, Work, and the Economy: Macroeconomic Gains from Gender Equity. https://www.imf.org/external/pubs/ft/sdn/2013/sdn1310.pdf; September 2013. Accessed on 2 August 2016.

[42] Cuberes D., Teignier M. Aggregate Cost of Gender in the Labor Market: A Quantitative Estimate. UB Economics Working Paper; 2014, 2014/308.

[43] Estavillo J.Q., Ilagan C. Indicators of Wage Differentials Between Men and Women: A Measure of Discrimination. Undergraduate Thesis. School of Economics, University of the Philippines Diliman, March; 1988.

[44] The World Bank. Philippines: Progress Made in Closing some Gender Gaps but Inequalities Remain. http://www.worldbank.org; 21 June 2012. Accessed on 10 November 2015.

[45] Gonzales C., Jain-Chandra S. et al., Fair Play: More Equal Laws Boost Female Labor Force Participation. https://www.imf.org/external/pubs/ft/sdn/2015/sdn1502.pdf; February 2015. Accessed on 2 August 2016.

[46] Department of Labor and Employment. Workers in the Informal Economy. http://www.dole.gov.ph. Accessed on 11 November 2015.

[47] Spaeth B., Franco J., Roxas S. Enhancing Competitiveness through Gender Mainstreaming: The Role and Status of Women and Men in MSME Development in the Philippines. http://www.gender-in-german-development.net; August 2010. Accessed on 1 August 2016.

[48] Rappler. A Profile of Internet Users in the Philippines. http://www.rappler.com/. Accessed on 2 August 2016.

[49] Philippine Legislators' Committee on Population and Development Foundation, Inc., and WomensHub (Philippines). Gender and ICT in the Philippines: A Proposed Policy Framework. http://old.apc.org/, 28 May; 2003, pp. 1–13. Accessed on 2 August 2016.

[50] World Economic Forum. http://reports.weforum.org/global-gender-gap-report-2015/the-global-gender-gap-index-2015/. Accessed on 14 February 2016.

[51] United Nations Development Program. Human Development Report. hdr.undp.org. Accessed on 19 January 2016.

CHAPTER 6

FLFP IN THE ROC

Dr. Chin-Hui Lydia Hsiao
Associate Professor
Chihlee University of Technology

1. Aging Society in the ROC

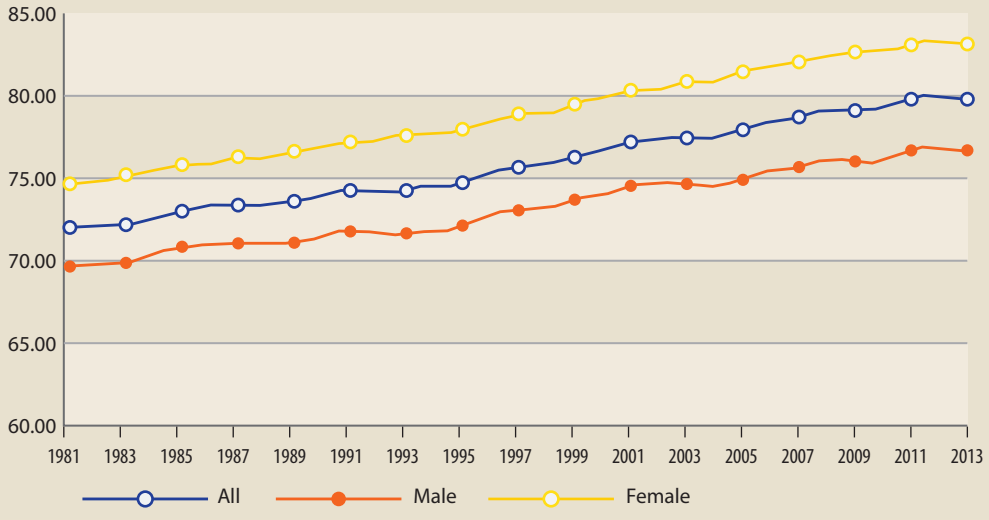
Low fertility rates, aging society, and the reduction of working-age population are now serious problems faced by the Republic of China (ROC). It may be noted here that societies where those 65 years and older account for 7%, 14%, and 20% are internationally referred to as aging societies, aged societies, and hyper-aged societies, respectively. According to the statistics compiled by the Ministry of the Interior (MOI), there were 1,480,000 elderly people in the ROC in 1993, which represented 7% of the ROC's total population. That met the criteria of an aging society mentioned above set by the United Nations. The old-age population has increased, and senior citizens in the ROC comprised 12% of the population in 2014. According to population projections by National Development Council, the ROC would become an aged society in 2018 and a hyper-aged society in 2025. Actually, the ROC is one of the most rapidly aging societies in the world, and this should serve as a stark reminder to the government of the potentially huge economic costs that lie ahead for the nation.

1.1 Life Expectancy Increasing

While living standards and technologies continue to improve, the ROC's population is only getting older. As shown in Figure 6-1 [1], life expectancy in the ROC had an increasing trend in the past

FIGURE 6-1

LIFE EXPECTANCY IN ROC, 1981–2014



three decades, going up by 7.83 years, from 72.01 years in 1981 to 79.84 years in 2013. It crossed the 75-years mark in 1997 and approached 80 years in 2013. The data shows that the ROC's citizens are leading much longer, healthier lives than ever before.

Life expectancy in the ROC reached an average of 79.84 years in 2014, with the average for males being 76.72 years and that for females being 83.19 years, according to the MOI. Life expectancy for citizens in Taipei City (the biggest city in the ROC) reached an average of 83.10 years in 2014, the highest among all the cities and counties in the ROC. When compared with other Asian nations, the ROC's average life span of 79.84 years is longer than that of Indonesia, the Philippines and PR China, but shorter than that of Japan, Singapore, and the Republic of Korea (ROK). The ROC is ranked 34th in the world in terms of highest life expectancy at birth.

While this achievement highlights the substantial progress in human development, the ROC confronts the considerable economic and social challenges of increasingly costly, rapidly aging populations.

1.2 Average Age of Marriage Increasing

The industrialization that took place in the 1970s and 1980s has been accompanied by a rapidly progressing pace of population-aging in the ROC. The increase in educational and job opportunities for women has been accompanied with changes in family values, including delayed marriages and childbearing. As a result, not only has the period in which women are able to give birth shortened, the number of children born in the ROC has also come down. According to the statistics published by the MOI, as shown in Table 6-1 [1], the average age of first marriages in 1983 was 24.6 years. In 2013, it jumped to 29.7 years, up by 5.1 years from 30 years ago. At the same time, marriage rates of Taiwanese women during their childbearing age declined from 60.3% to 43.5% in these past three decades. Between 1983 and 2013, the share of women aged 25–34 who were married dropped 42.1% points, from 82.3% to 40.2%.

Several factors contributed to a steady decline in marriage, including rising divorce rates, an increase in women's educational attainment, labor force participation, and a rise in cohabitation as an alternative or precursor to marriage. Another factor contributing to the decline in marriage rates is the rise in women's earnings relative to men. Cherlin [2] argues that women's higher earning capacity, and the declining economic prospects of young men are the key factors contributing to the decline in marriage in recent years. The recession also exacerbated this trend because of its disproportionate impact on men with fewer job skills and less education [3].

TABLE 6-1

AVERAGE MARRIAGE AGE AND MARRIAGE RATES IN THE ROC

Year	Average age of first marriage (years)	Marriage rates of women during childbearing age (%)				
		Total	15–24	25–34	35–44	45–49
1983	24.6	60.3	20.8	82.3	91.5	90.0
1998	26.0	55.3	9.5	65.5	82.2	82.0
2013	29.7	43.5	2.4	40.2	66.8	70.6

1.3 Total Fertility Rate Declining

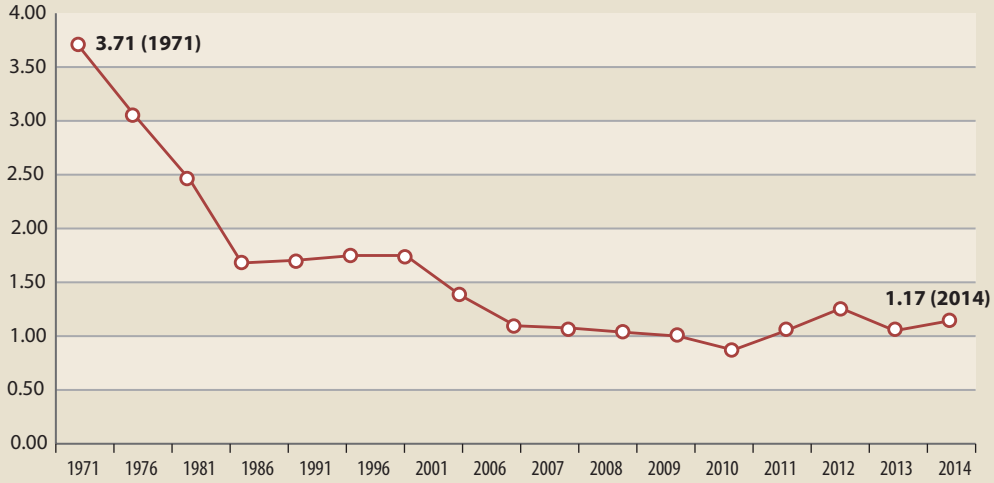
The total fertility rate (the average number of births per woman 15 years old or above) of the ROC used to be as high as seven children in 1950, and it first dropped below the replacement level of 2.2

in 1983. As the ROC made the transition to a post-industrial society since the late 1990s, population-aging was further accelerated due to a dramatic fertility decline from 1.5 in 1998 to a record-low of 0.9 in 2010, albeit there was a slight rebound to 1.1 in 2013 [4].

As shown in Figure 6-2 [1], total fertility rate decreased from 3.71 in 1971 to 1.17 in 2014. By 1984, the fertility rate had dropped below 2.1 births per woman. The figure represents the thirty straight years that the fertility rate has been below the replacement level, i.e., the level that is needed for couples to replace themselves in the population. The ROC has thus become a member of lowest-fertility countries and has not seen any change in its declining fertility trend. The economic and social transformation has led to late marriages, which have been evidenced as one direct factor affecting the transition to below-replacement-level fertility of the Taiwanese society [5].

FIGURE 6-2

AVERAGE NUMBER OF BIRTHS PER WOMAN, 1971–2014



Also, in the ROC, like in other East Asian countries, the delay in childbearing is significant among younger cohorts. As shown in Table 6-2 [1], the average age of women at birth of the first child increased from 24.1 years to 30.4 years between 1983 and 2013, respectively. The peak period of women's childbearing age also shifted from age 25–29 to age 30–34. The percentage distribution of births by birth order also changed. The percentage of Taiwanese women having only one birth increased from 38.5% to 53.5% during the past three decades, while those having three births declined from 28.5% to 10.4%.

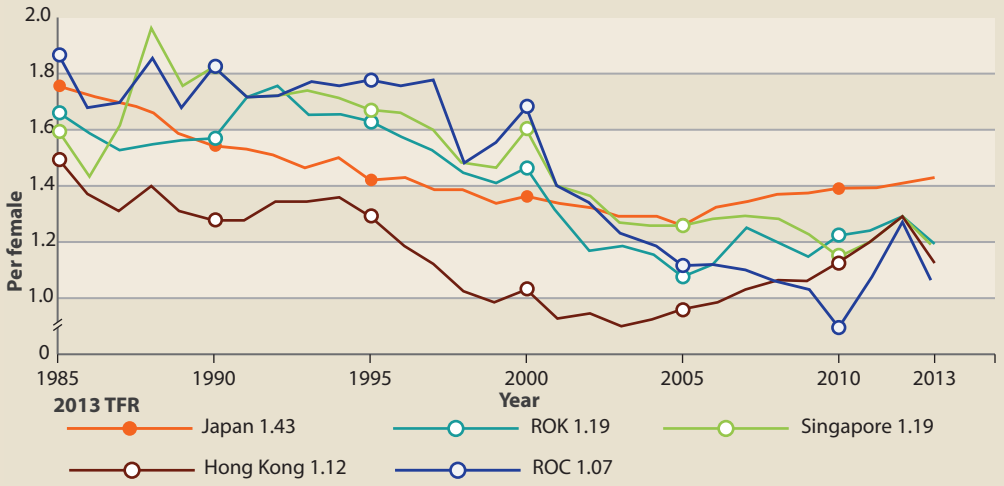
TABLE 6-2

AVERAGE AGE OF TAIWANESE WOMEN AT BIRTH OF THE FIRST CHILD AND TOTAL FERTILITY RATE

Year	Average age at birth of first child (years)	Peak period of women's childbearing age (years)	Total fertility rate (per female)	Distribution of births by birth order (%)		
				1st born	2nd born	3rd born
1983	24.1	25–29	2.2	38.5	33.0	28.5
1998	26.4	25–29	1.5	46.0	34.9	19.2
2013	30.4	30–34	1.1	53.5	36.1	10.4

FIGURE 6-3

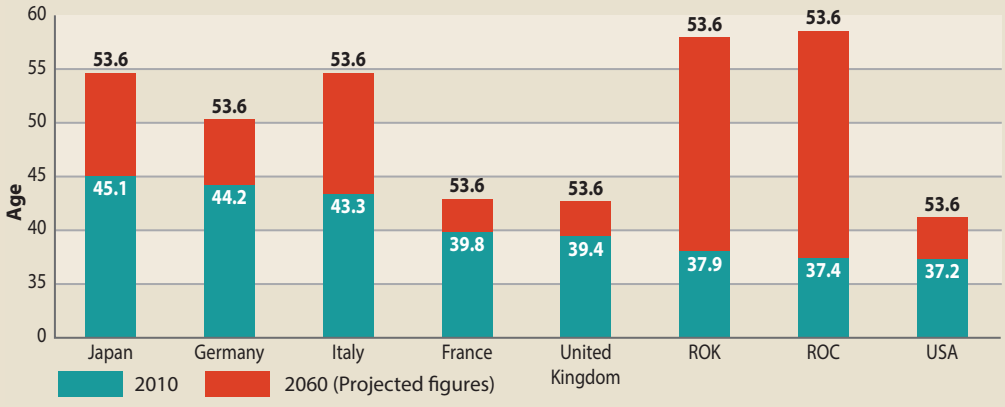
WORKING-AGE POPULATION AS PROPORTION OF TOTAL POPULATION



As in the ROC, fertility rates in East Asia have also fallen catastrophically since the early 1970s and are now the lowest in the world. In Japan, the ROK, Hong Kong, the ROC and Singapore, the total fertility rate hovers in the range of 1.0–1.3 (Figure 6-3) [6]. For a population to replace itself, the total fertility rate needs to be above 2.1. Thus, if these trends in fertility are not substantially reversed, the population of Asia would rapidly shrink as the continent heads into extinction. Derbyshire [7] mentioned two main reasons for this situation: the influence of modernity on women; and the high cost of living, childcare, and education. However, he pointed out the problem in Asia was not modernity and high cost of living but the postmodern self-conscious denial of human agency and subjectivity, and so improving the total fertility rate in Asia would require more than just technical incentives for having children. Derbyshire mentioned that Asia needed to address the self-conscious denial among the populace of the ability, or even desire, to do what previous generations did relatively spontaneously: leaving home, getting into relationships, and having children.

FIGURE 6-3A

MEDIAN AGE OF THE ROC'S POPULATION



As shown in Figure 6-3a [6], in 2010, the mean age (close to the median age) of the population of Japan was 45.1 years, the highest among the countries listed in the graph. The median age of the population of the ROC was 37.4 years, thus ranking it seventh. In 2060, the median age of the population of the ROC would be 58.6 years, higher than any other country listed in the graph; followed by the ROK at 57.9 years, and Japan at 53.6 years.

2. Gender Inequality in the ROC

2-1 Gender Inequality Index[1]

Gender Inequality Index (GII) is a composite index that was proposed in 2010 to measure gender equality worldwide using five indicators across the three dimensions of reproductive health, empowerment, and labor market. (The closer the GII is to '0,' the better it is.)

Shown as Table 6-3 [9], substituting the data into the composite index, the GII of the ROC was 0.055 in 2013. As shown in Figure 6-4 [9], it ranked as the fifth-best compared to the other 152 countries included in the Human Development Report 2014 published by the United Nations Development Program.

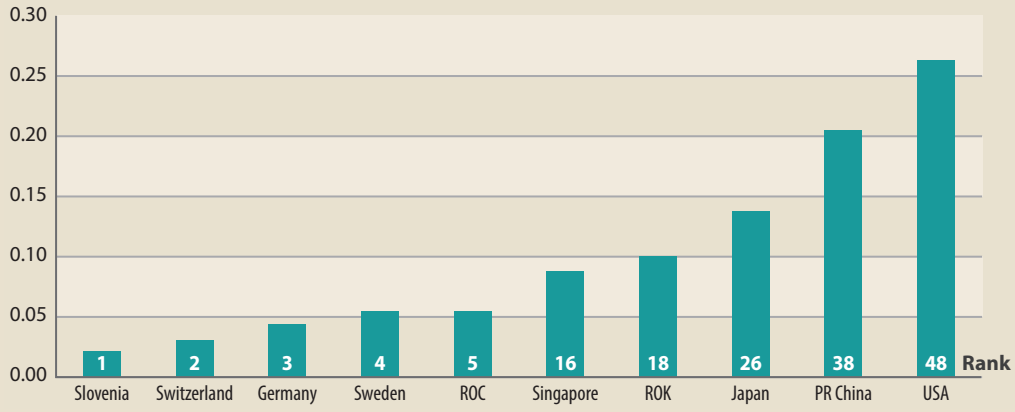
TABLE 6-3

GII INDICATORS OF THE ROC

Dimention	Indicator	Data Year	Value
Reproductive health	Maternal morality ratio (deaths per 100,000 live births)	2010	4
	Adolescent birth rate (birth per 1,000 women ages 15–19)	2013	4
Empowerment	Share of seats in parliament (% held by women)	2013	33.9
	Population with at least some secondary education (% ages 25 and older)	2010	Female: 75.6 Male: 87.5
Labor market	Labor force participation rate (% ages 15 and older)	2012	Female: 50.2 Male: 65.8

TABLE 6-4 (GRAPHICAL REPRESENTATION)

GIIS OF SELECT UN MEMBERS AND THE ROC



1 Directorate General of Budget, Accounting and Statistics, Executive Yuan, ROC, *Gender at a Glance in ROC*, 2015 version

2.2 Gender Wage Gap[2]

In most countries, women as a group earn less money than men. A number of factors account for the gender wage gap: occupational and vertical sex segregation, educational differences, differences in potential experience, employment status, discrimination, and so on. Figure 6-5 [10] shows the gender wage gap in the ROC as the difference between male and female median wages divided by male median wages, for the period 1994–2014, using data from the government's statistics bureau. The ratio of wage gap decreased from 31.83% in 1994 to 17.45% in 2014.

FIGURE 6-5

GENDER WAGE GAP IN THE ROC, 1994–2014

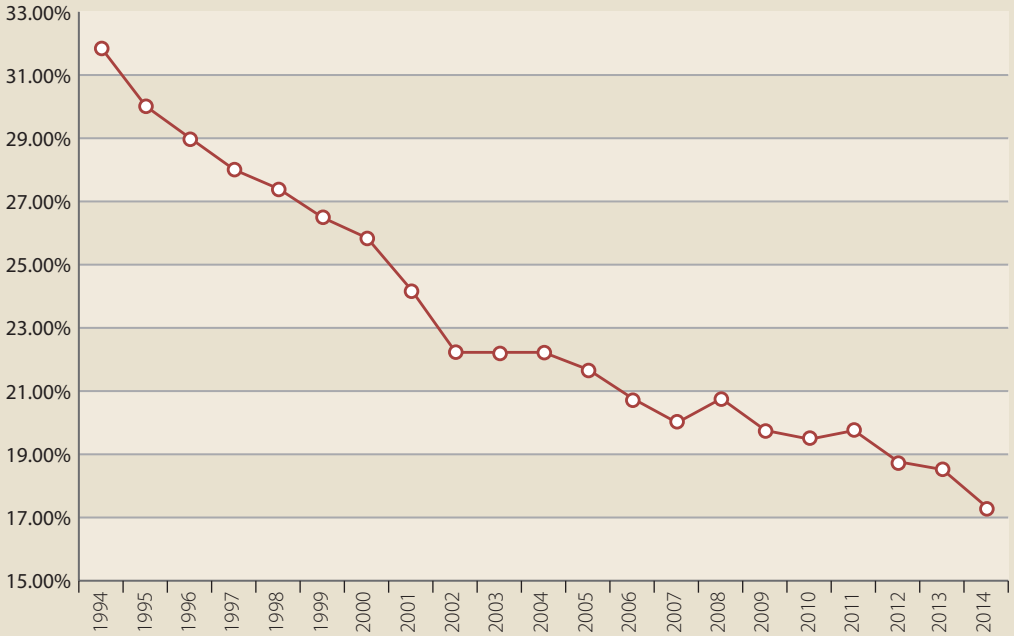
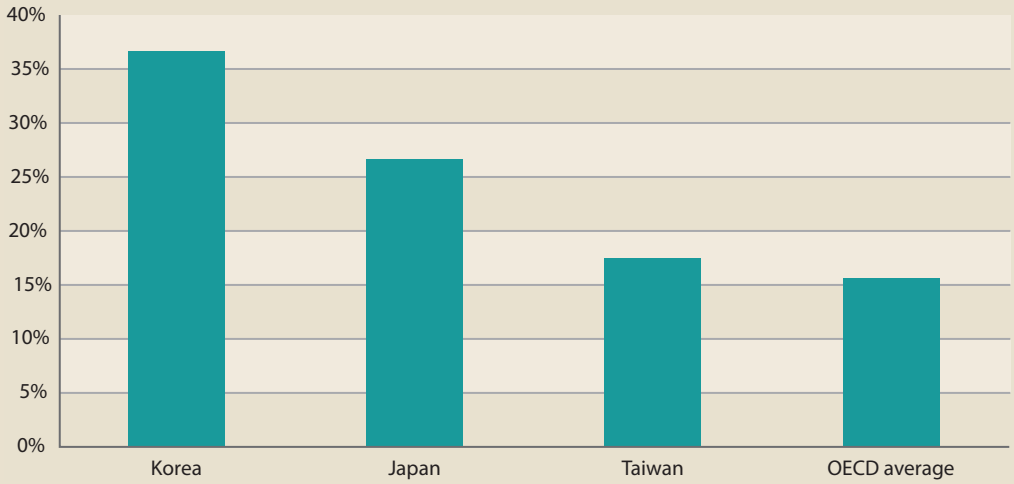


Figure 6-6 [11] shows a comparative view of the gender wage gaps in the ROK (36.60%), Japan (26.59%), the ROC (17.45%), and the OECD average (15.46%) in 2014. The ROC had the lowest gender wage gap among the three Asian countries, though it was higher than the OECD average. Chang and England [12] decompose the gaps of each country and provide explanations for Japan, the ROK, and the ROC. According to their conclusions, much of the gap in case of Japan was explained by differences in occupational status, i.e., more women were employed as part-time workers. On the other hand, educational differences were paramount in the ROK, where more men than women had completed a university degree or higher, thus affording them access to higher-paying and more prestigious jobs. However, in case of the ROC, none of the explanatory factors seemed to account for a large portion of the wage gap, thus leaving room for the speculation that almost certainly discrimination could be playing a large role in the gender wage gap. Another decomposition study of the ROC's wage gap supports the notion that discrimination plays a relatively significant role in the ROC's relatively smaller wage gap [13].

2 For OECD, gender wage gap is defined as the difference between male and female median wages divided by male median wages.

FIGURE 6-6

GENDER WAGE GAPS FOR THE ROK, JAPAN, THE ROC, AND OECD (AVERAGE), 2014



2.3 Gender Educational Attainment Gap[3]

As shown in Table 6-4 [9], referring to the ratio of populations aged 25 and older with at least some secondary education in the ROC, based on the 2014 Human Development Report (HDR), males scored 11.9% higher than females. The gender gap is lower than the ROK and PR China but higher than most of the developed countries, mainly due to unequal accessibility of education for the seniors in their early ages. However, with the popularized concept of gender equality, the schooling of females increased, to the extent that the secondary education net enrolment rate of females overtook that of males after 1988. Consequently, the ratio of females aged 25–49 with upper secondary education or more has reached 89.6%, which is higher than 83.9% in case of males in the ROC.

TABLE 6-4

POPULATION WITH AT LEAST SOME SECONDARY EDUCATION FOR AGES 25 YEARS AND ABOVE

Country	Female	Male	Difference (male-female)
Germany	96.3	97.0	0.7
Slovenia	95.8	98.0	2.2
USA	95.1	94.8	-0.3
Switzerland	95.0	96.6	1.6
Japan	87.0	85.8	-1.2
Sewden	83.5	87.3	0.8
ROK	77.0	89.1	12.1
ROC	75.6	87.5	11.9
Singapore	74.1	81.0	6.9
PR China	58.7	71.9	13.2

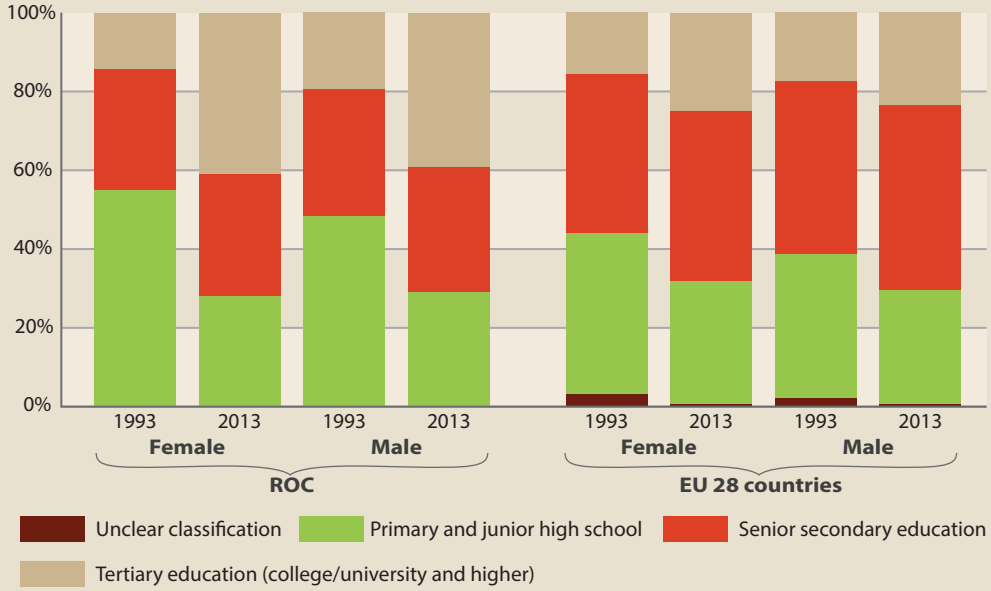
Source: 2014 HDR - Barro, R.J., and Lee, J.W. (2013). A New Data Set of Educational Attainment in the World, 1950–2010; NBER Working Paper 15902.
Note: (1) Data of ROC are based on Barro, R. J., and Lee, J.W. (2013), the same source as 2014 HDR, wherein the data year for Japan, the ROK, and ROC is 2010 and that of the other countries is for the most updated year between 2005 and 2012.
(2) According to the UNPD definition, the indicator referred to the ratio with lower secondary education.

3 Directorate General of Budget, Accounting and Statistics, Executive Yuan, Republic of China, *Gender at a Glance in ROC*, 2015 version

As shown in Figure 6-7 [9], in 2013, 72% of the female population aged 15 and above in the ROC attained secondary education or more, higher than their male counterparts (71.2%) for the first time. In particular, the percentage of females with tertiary education surged 27.1% in 20 years and reached more than 41% in 2013, higher than 39% in case of males. For EU countries, the percentage of female population aged 15–74 that attained secondary education or above was lower than males, and the percentages for both the sexes were lower than those in the ROC. Further, the percentage of women attaining tertiary education in EU countries was lower than that in the ROC by more than 16%.

FIGURE 6-7

EDUCATIONAL ATTAINMENT FOR THE POPULATION AGED 15 YEARS AND ABOVE



As shown in Figure 6-8 [9], in 2013, 20.2% of females aged 60–64 had attained tertiary education, 5.5% lower than their male counterparts in the same age group. With gender equality prevailing in education, the number of females receiving tertiary education has increased dramatically. The percentage of females aged 40–44 (born during 1970–73) with tertiary education surpassed that of their male counterparts. Further, in the age group 25–29, females' tertiary education attainment was 11.9% higher than that of males. In terms of absolute numbers, in the age group 25–44, there were 361,000 more females than males who had received higher education. It is expected that the increase in females' educational attainment and the narrowing of gender gap will influence employment, marriage, family, and other aspects of the society.

2.4 Gender Political and Power Equality[4]

As shown in Figure 6-9 [9], The Civil Servants Election and Recall Act of ROC was amended in 2007 to stipulate that the women's quota of each political party's legislator-at-large seats (including overseas compatriots) shall not be less than 50%, which has effectively enhanced females' influence in the Legislative Yuan. The female representation among parliamentary members reached 33.9% at the end of 2013, in accordance with the objective of the Beijing Platform for Action to enhance women's participation in the decision-making level to 30% and above.

4 Directorate General of Budget, Accounting and Statistics, Executive Yuan, Republic of China, *Gender at a Glance in ROC*, 2015 version.

FIGURE 6-8

TERTIARY EDUCATIONAL ATTAINMENT BY AGE GROUPS, 2013

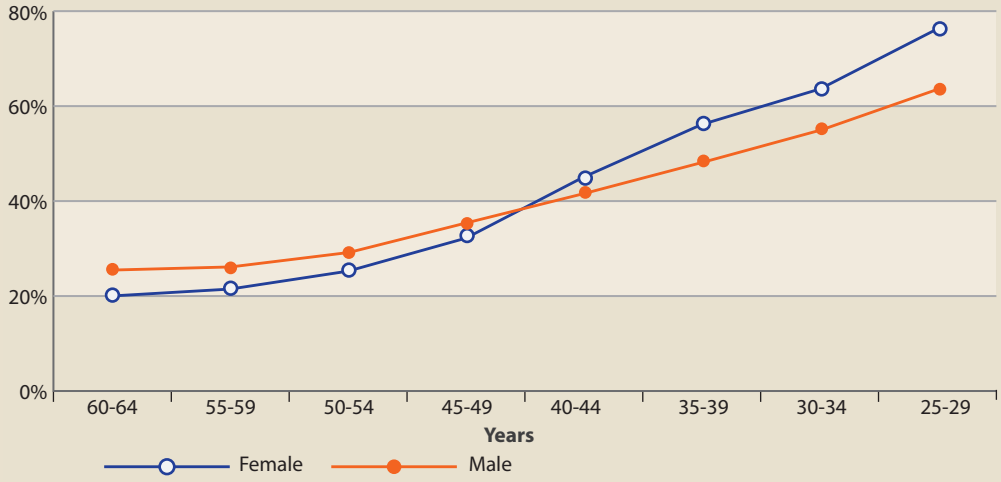
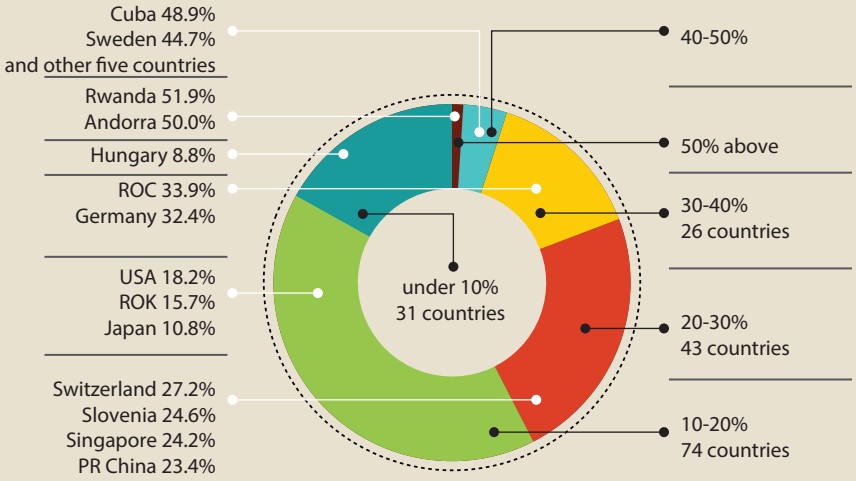


FIGURE 6-9

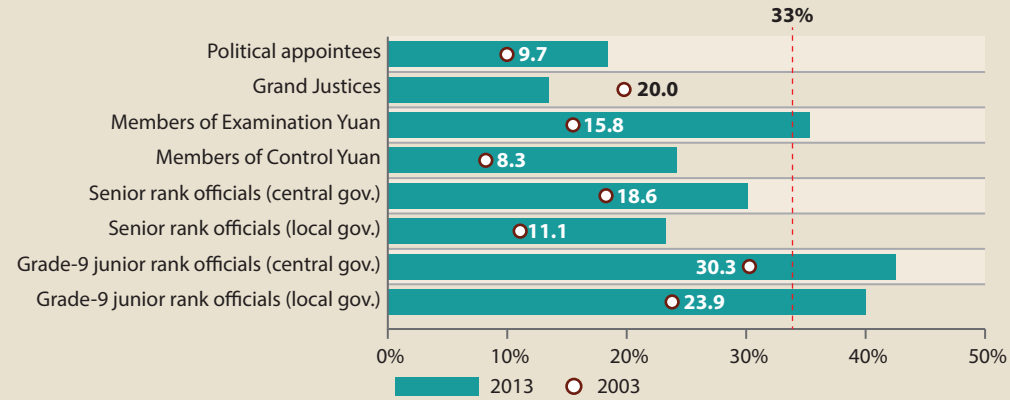
WOMEN'S SHARE OF SEATS IN PARLIAMENT, 2013 (183 COUNTRIES)



To increase females' participation in the decision-making process, a clause of having at least one-third women's representation has been implemented in most of the ROC public sectors. As shown in Figure 6-10 [9], in 2013, women's share among Examination Yuan members reached 35.3%, while their shares among political appointees and Control Yuan members grew nearly two times and three times, respectively, over a period of 10 years. Also, their share among senior-rank officials in central government reached 30%, while in the case of local governments it grew over 23%. Among Grade 9 junior-rank officials, females' share was over 40% in both central and local governments. Further, out of 48,160 supervisors in public sectors, over one-third were females. However, female supervisors accounted for 11.7% of all female public servants, lower than their male counterparts by 3.7%.

FIGURE 6-10

WOMEN'S SHARES IN PUBLIC SECTORS IN 2003 AND 2013[1]

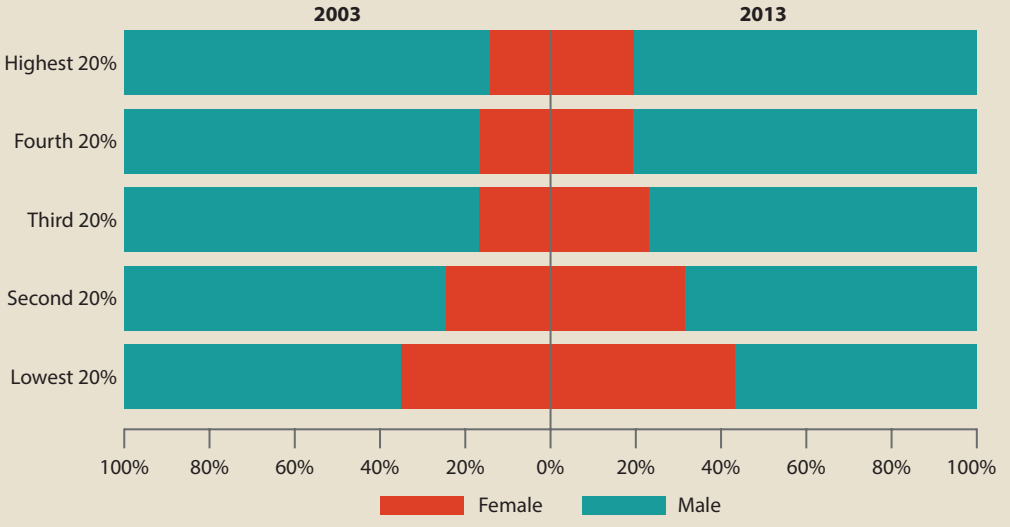


1 The income accounts for earnings in the present year, excluding lump sum retirement payment and savings from the previous year. A person in the household who earns the largest personal share of pay in the family's income is considered to be the economic household head.

With women's increasing education levels and economic-independence awareness, their share as the family's main financial provider also increased over the years. As shown in Figure 6-11 [9], in 2013, females as economic household heads accounted for 27.8%, which amounted to an increase of 6.6% since 2003. Since family types have changed substantially, about half of the economic household heads of the lowest income groups were seniors or retirees, more so as females enjoy about six years of longer life expectancy than males. Notably, the share of female economic household heads for the lowest and next-lowest income groups reached 43.5% and 32.2%, respectively in 2013. This marked increases of 8.6% and 7.8%, for the two income groups, respectively, in the last 10 years, and was slightly higher than the overall increase of 6.6%.

FIGURE 6-11

GENDERS OF ECONOMIC HOUSEHOLD HEADS BY HOUSEHOLDS' DISPOSABLE INCOME QUINTILES



3. Overview of FLFP Trends and Patterns in the ROC

3.1 FLFP Rate an Increasing Trend for Decades

Since the late 1970s, the ROC's male labor force population rate has steadily declined while female labor force participation (FLFP) rate has steadily increased. As shown in Figure 6-12, over the past nearly four decades between 1978 and 2014, FLFP rate had an increasing trend. In 1978, 39.13% of labor force was females, which exceeded 50% in 2012, and reached 50.71% in 2015. However, the growth in female labor force participation began to flatten out in 2007. The change also tells that the proportion of males decreased 11.08%, from 77.96% to 66.88%, during the same period.

Gender gaps in labor force participation rate have narrowed but remain significant in the ROC. Figure 6-13 [10] shows the trend of labor force participation rate by gender. While 39% of females aged 15 or above were in the labor force in early 1978, about 51% of them were present in 2015. This 13% increase in nearly four decades may not seem drastic but has nevertheless occurred amidst concurrent social changes that have reduced men's labor force participation from 78% to 67%. The decline in men's labor force participation rate largely resulted from the ROC's expansion of higher education since the mid-1990s and the overall aging of the population that led to more retired workers. As men spent more years of their early adulthoods in educational institutions, and as the proportion of older, retired men in the population grew, the percentage of men active in the labor market became smaller. While these same social changes affected Taiwanese women too, the increase in married women joining the labor force offset the counteracting social forces, thus resulting in a convergence of labor force participation rates between men and women [14].

On the flip side, as the number of jobs in the labor market has not increased substantially, the rising women's labor participation rate could squeeze men's employment opportunities, with men aged over 40 being most vulnerable. Although it is not clear if male labor force participation in the ROC will continue to decline in future, we expect that female labor force participation (FLFP) will continue to rise in the near future.

TABLE 6-5

LABOR FORCE PARTICIPATION RATE IN THE ROC, 1978–2014 (IN %)

Year	Total	Male	Female
1978	58.76	77.96	39.13
1979	58.73	77.95	39.23
1980	58.26	77.11	39.25
1981	57.82	76.78	38.76
1982	57.93	76.47	39.30
1983	59.26	76.36	42.12
1984	59.72	76.11	43.30
1985	59.49	75.47	43.46
1986	60.37	75.15	45.51
1987	60.93	75.24	46.54
1988	60.21	74.83	45.56
1989	60.12	74.84	45.35
1990	59.24	73.96	44.50
1991	59.11	73.80	44.39

CONTINUED ON NEXT PAGE

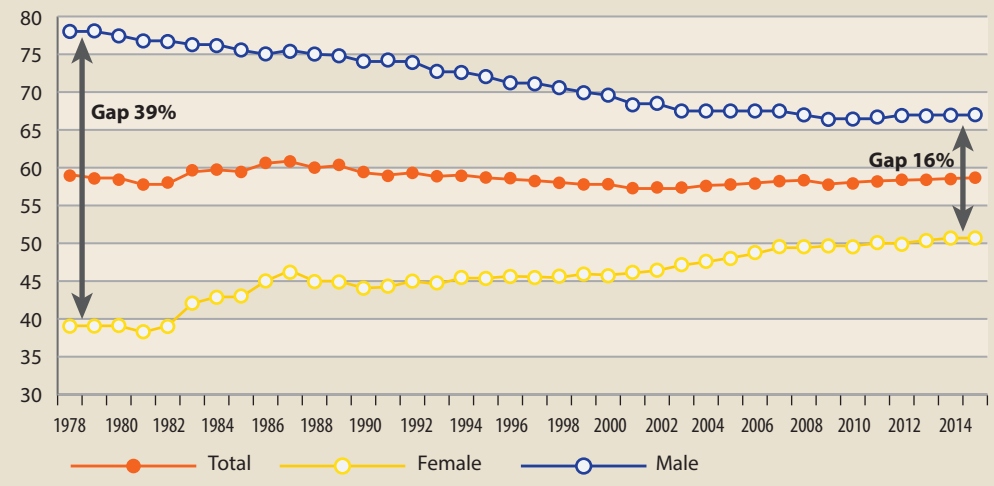
CONTINUED FROM PREVIOUS PAGE

Year	Total	Male	Female
1992	59.34	73.78	44.83
1993	58.82	72.67	44.89
1994	58.96	72.44	45.40
1995	58.71	72.03	45.34
1996	58.44	71.13	45.76
1997	58.33	71.09	45.64
1998	58.04	70.58	45.60
1999	57.93	69.93	46.03
2000	57.68	69.42	46.02
2001	57.23	68.47	46.10
2002	57.34	68.22	46.59
2003	57.34	67.69	47.14
2004	57.66	67.78	47.71
2005	57.78	67.62	48.12
2006	57.92	67.35	48.68
2007	58.25	67.24	49.44
2008	58.28	67.09	49.67
2009	57.90	66.40	49.62
2010	58.07	66.51	49.89
2011	58.17	66.67	49.97
2012	58.35	66.83	50.19
2013	58.43	66.74	50.46
2014	58.54	66.78	50.64
2015	58.63	66.88	50.71

Source: Directorate-General of Budget, Accounting, and Statistics of Executive Yuan, ROC, Yearbook of Manpower Survey Statistics, http://eng.stat.gov.tw/mp.asp?mp=5

FIGURE 6-12

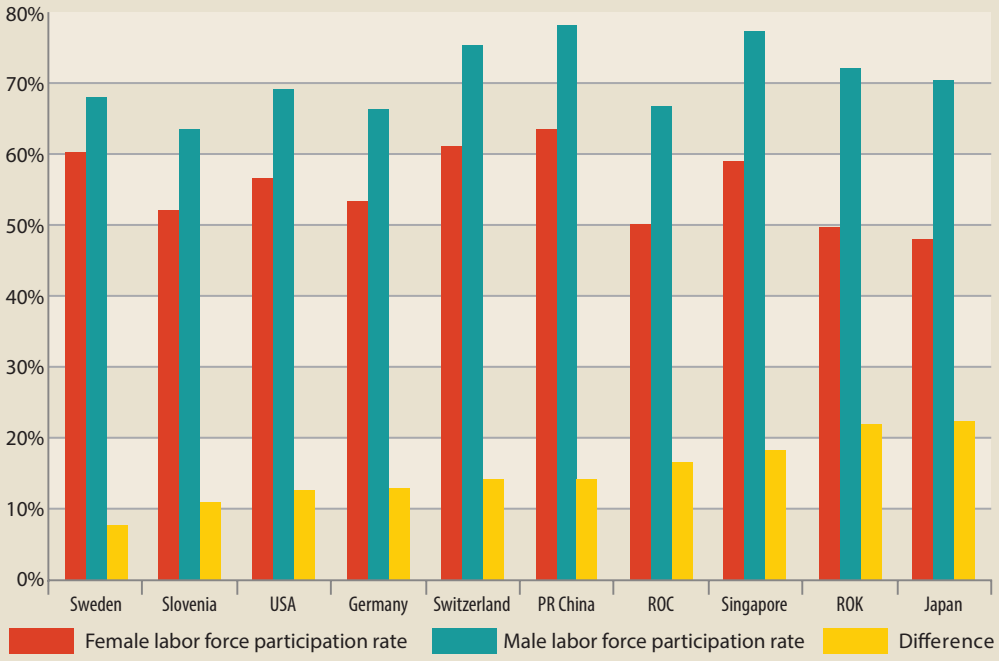
LABOR FORCE PARTICIPATION RATES IN THE ROC, 1993–2014



As shown in Figure 6-13 [9], compared with other countries in 2012, the gender gap of labor force participation rate in the ROC, at 16.6% points, was higher than PR China, Germany, and the USA. However, it was lower than the neighboring Asian countries such as Singapore (18.5%), the ROK (22.1%), and Japan (22.3%). Also, although the gender pay gap continues to exist, the long-term change in women's employment pattern in the ROC has clearly helped reduce the gender inequality in pay.

FIGURE 6-13

GENDER GAPS IN LABOR FORCE PARTICIPATION RATES



Source: 2014 HDR, and manpower survey statistics, DGBAS, Executive Yuan.
Note: The gender gap in labor force participation rate for ages 15 and older is compared with 2012 data according to 2014 HDR.

3.2 FLFP Rates by Age Groups

Going by the FLFP rates by age groups, as shown in Table 6-6 [10], it is obvious that the pattern varied in the past 20 years. In 1993, the age groups of 20–24 and 25–29 had the highest FLFP rates, at 62.66% and 62.08%, respectively. However, since 1997, the second-highest FLFP rate no longer belonged to the age group of 20–24. Instead, the age group of 30–34, usually comprising the married women, had the second highest FLFP rate, at 60.54%.

Figure 6-14 [10] shows the FLFP trend for each age group. Except for the age groups of 15–19 and 20–24, the FLFP trends for other age groups were upward for the two decades. The rate of FLFP for the age groups of 25–29 and 30–34 grew 26.88% and 24.22%, respectively. The age groups of 25–29 and 30–34 emerged as number one and number two, respectively, from the FLFP rate standpoint.

Meanwhile, the FLFP rates for the age groups of 15–19 and 20–24 declined 12.62% and 10.36%, respectively. The downward FLFP rate trends for these groups is ascribed to a generalization of the senior high school and expansion of higher education.

TABLE 6-6

FLFP RATES BY AGE GROUPS IN THE ROC, 1993–2014 (IN %)

	Total	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64
1993	44.89	19.59	62.08	62.66	56.4	58.56	56.92	49.41	40.46	30.81	20.88
1994	45.4	19.43	63.02	63.87	57.75	58.78	58.91	50.61	41.41	30.44	20.14
1995	45.34	18.5	61.57	65.18	58.33	59.07	58.67	51.96	41.3	31.13	21.09
1996	45.76	18	60.82	66.46	60.04	60.18	59.62	53.45	41.78	30.89	21.03
1997	45.64	17.18	59.84	67.18	60.54	60.45	60	53.31	41.48	30.89	20.99
1998	45.6	15.44	59.92	68.65	61.91	61.09	60.33	52.83	41.77	29.72	19.26
1999	46.03	15.03	60.36	69.89	62.58	62.28	60.33	54.33	41.6	30.13	19.01
2000	46.02	14	59.39	71	64.2	62.21	60.98	54.13	42.14	28.84	18.42
2001	46.1	13.24	59.08	71.24	65.53	63.9	60.8	54.9	41.14	27.71	17.3
2002	46.59	12.62	59.23	72.74	66.75	64.28	61.77	54.73	42.6	27.88	17.17
2003	47.14	11.65	57.64	73.86	68.09	66.01	62.42	56.23	44.09	28.59	18.76
2004	47.71	10.47	57.26	76.06	69.51	67.52	63.93	57.64	45	29.1	17.97
2005	48.12	9.85	56.62	77.71	71.35	68.64	64.64	59.09	45.39	29.13	17.78
2006	48.68	9.58	55.96	79.85	73.66	70.42	66.81	59.36	46.39	28.7	17.13
2007	49.44	9.81	56.38	80.79	74.8	71.18	68.79	60.39	48.09	31.58	18.48
2008	49.67	9.39	54.85	81.82	75.5	72.39	69.14	61.72	49.44	33.06	18.56
2009	49.62	9.2	53.57	82.39	76.46	73.35	69.72	62.89	49.56	33.51	18.38
2010	49.89	8.76	53.68	83.69	76.71	74.25	71.17	63.97	50.49	34.33	19.32
2011	49.97	8.44	53.39	86.91	77.5	73.94	71.97	64.63	51.85	35.31	18.38
2012	50.19	8.15	54.73	89.22	78.08	74	73.17	66.09	52.89	36.36	18.67
2013	50.46	7.77	53.92	90.3	79.13	74.59	73.82	68	54.53	38.4	19.09
2014	50.64	6.97	51.72	88.84	80.62	74.54	75.02	69.63	56.11	40.04	22.6

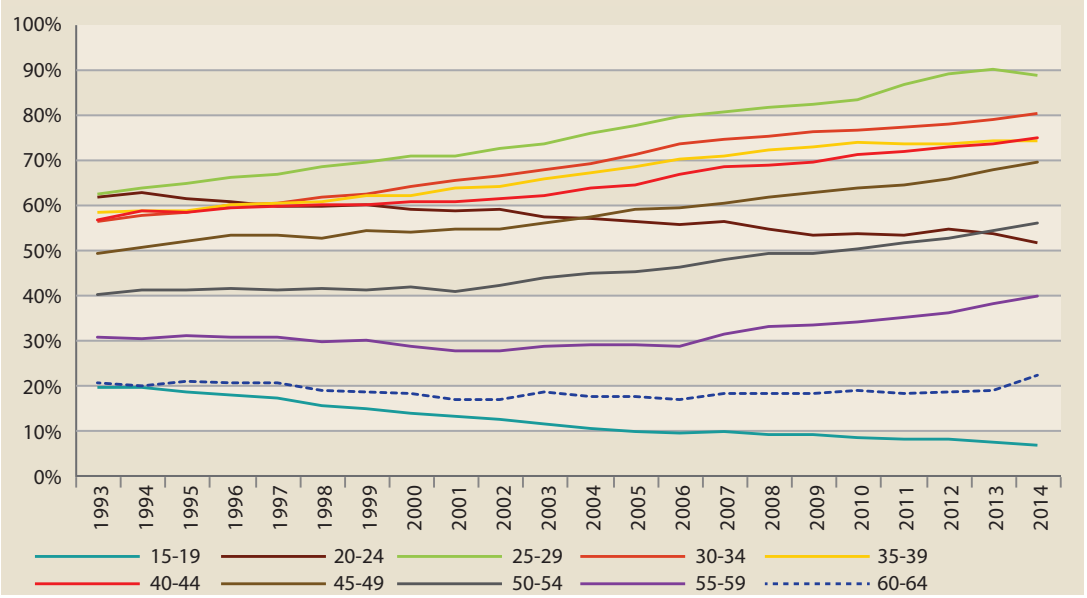


FIGURE 6-14

FLFP RATES BY AGE GROUPS IN THE ROC, 1993 AND 2014

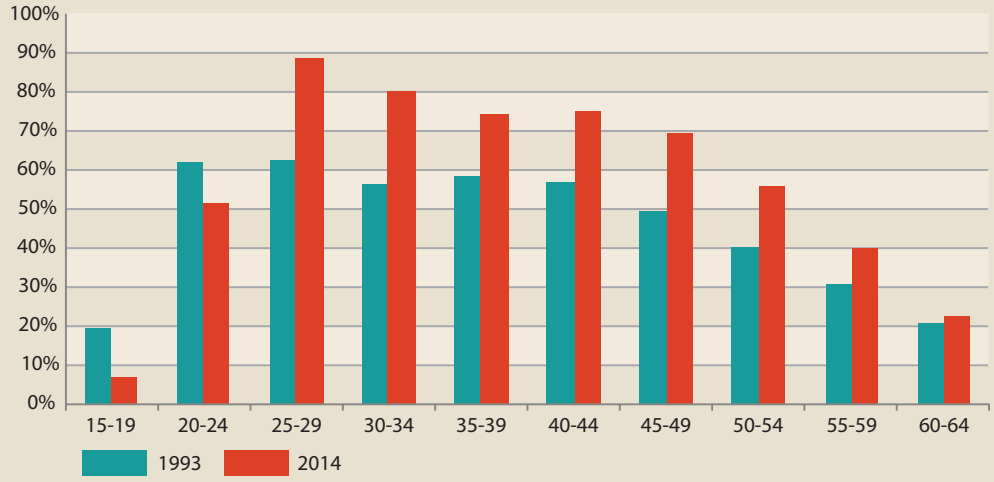


Figure 6-15 shows female labor market participation rates by age groups for various economies. There are three types of FLFP patterns by age groups: M-shaped, inverse-V shaped, and Π-shaped. In both Japan and the ROK, women aged 30–39 were less likely to be in the labor force than those who were 25–29 years of age and those who were in their 40s. Given that ages 30–39 years are roughly the period when women give births and raise young children, and considering that the average age of marriage is around 30 for these societies, the M-shaped labor force participation curve in Japan and the ROK is considered to indicate that many women participate in the labor market after leaving school but before their first child birth. They withdraw from the labor force once they have young children, and return to paid work after their children enter elementary or middle schools [14].

FIGURE 6-15

FLFP RATES BY AGE GROUPS FOR SELECTED COUNTRIES

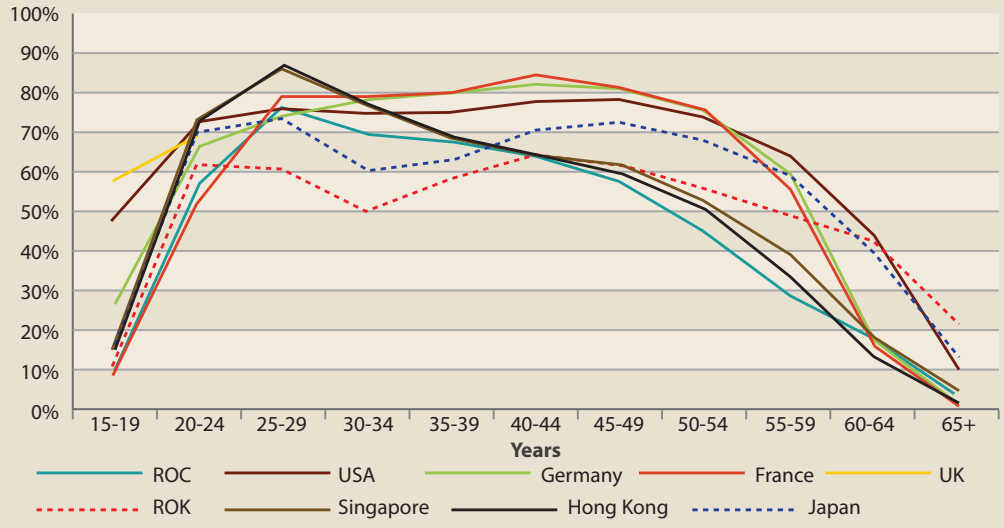


Figure 6-15 [15] also shows inverse-V shaped curve for women in the ROC, Hong Kong, and Singapore. Although women in their 30s are also less likely to participate in the workplace than those 25–29 years old, the rates of female employment in ages 25–40 years in the ROC, Hong Kong, and Singapore were higher than those in Japan or the ROK. Older women had lower levels of labor force participation in these three economies than in Japan and the ROK. This pattern gives the impression that women in the ROC, Hong Kong, and Singapore rarely reenter the labor market after early child rearing and may even withdraw from the labor market after their children enter schools [14].

On the other hand, the USA, Germany and France belong to Π-shaped FLFP curves, which means that women in these countries keep participating in the labor force throughout the ages 20s–60s stably. They are less likely to leave the workplaces due to family factors.

3.3 FLFP Rates by Levels of Educational Attainment

According to the education system in the ROC, the levels of educational attainment are divided into primary school educated, junior high school graduated, senior high school educated, vocational school graduated, junior college educated, university educated, and graduate school educated.

As shown in Table 6-7 and Figure 6-16 [10], going by the rate of FLFP by each level of education attainment, it is very obvious that the group of 'primary school educated' fluctuated the most over the past two decades. The FLFP rate of this group was 34.73% in 1993, but decreased 16.99% over the years and fell to 6.71% in 2014.

The increasing number of female enrolments in higher education has also contributed to the quality of female labor force. Females in the graduate school educated group[5] had the highest rate of labor force participation among all groups. It is evident that higher levels of educational attainment led to higher rates of FLFP. This is consistent with other empirical studies carried out over the past decades. Human capital theory and opportunity cost theory also give reasonable explanations of the positive influence of educational attainment on the FLFP rate.

Figure 6-16 [10] also indicates that the group of junior college educated maintained a rather high FLFP rate in the past two decades. However, the growth of FLFP rate in this group has been erratic, as it went up between 1993 and 2009 but came down in the following years.

TABLE 6-7

FLFP RATES BY LEVELS OF EDUCATIONAL ATTAINMENT, 1993–2007 (IN %)

	Total	Primary school	Junior high school	Senior high school	Vocational school	Junior college	University	graduate school
1993	44.89	34.73	44.97	40.51	54.87	63.65	55.8	
1994	45.4	34.22	45.85	41.45	54.67	66.02	57.65	
1995	45.34	33.39	45.33	41.18	54.42	65.17	59.23	
1996	45.76	32.65	44.66	42.07	54.82	66.01	60.07	
1997	45.64	32.06	44.15	40.38	55.02	66.05	59.67	
1998	45.6	30.53	44.27	40.25	55.35	65.83	59.83	

CONTINUED ON NEXT PAGE

5 Graduate school group data has been separated from university group data since 2011.

CONTINUED FROM PREVIOUS PAGE

	Total	Primary school	Junior high school	Senior high school	Vocational school	Junior college	University	graduate school
1999	46.03	29.65	44.9	39.79	56.02	66.68	58.9	
2000	46.02	28.65	44.77	39.15	56.29	67.4	58.42	
2001	46.1	27.09	45.89	38.72	57.38	67.56	56.4	
2002	46.59	26.63	46.37	38.18	58.53	68.83	54.94	
2003	47.14	26.4	46.38	39.56	58.86	69.42	54.7	
2004	47.71	25.26	46.51	40.35	59.9	70.32	55.21	
2005	48.12	24.23	46.21	40.19	59.98	71.24	56.93	
2006	48.68	23.14	45.75	39.98	60.74	71.69	58.79	
2007	49.44	22.68	45.75	41.04	61.61	71.31	60.23	
2008	49.67	21.68	45.04	41.42	60.87	71.78	61.32	–
2009	49.62	20.44	44.87	40.73	59.55	70.89	62.95	
2010	49.89	20.17	45.51	40.6	59.11	70.54	62.91	–
2011	49.97	19.39	43.86	41.16	59.24	69.46	62.17	67.42
2012	50.19	19.22	43.23	40.45	59	68.81	61.89	67.76
2013	50.46	19.09	43.81	39.69	58.73	67.83	61.35	68.05
2014	50.64	17.74	42.7	39.81	57.87	67.25	61.7	70.06

FIGURE 6-16A

FLFP RATES BY LEVELS OF EDUCATIONAL ATTAINMENT IN THE ROC, 1993–2014

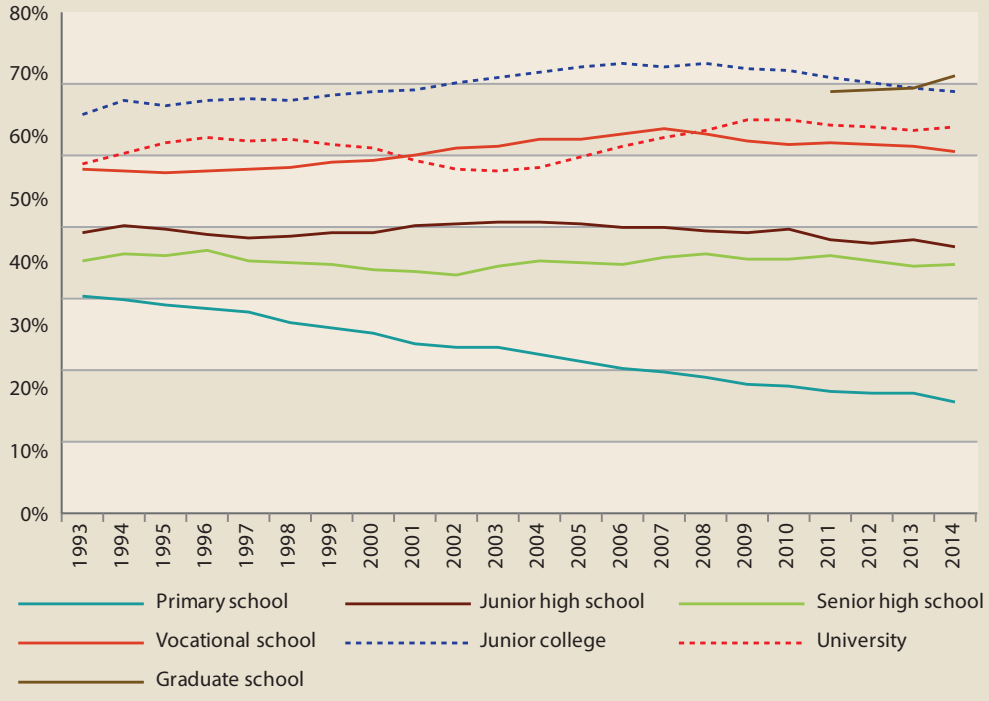
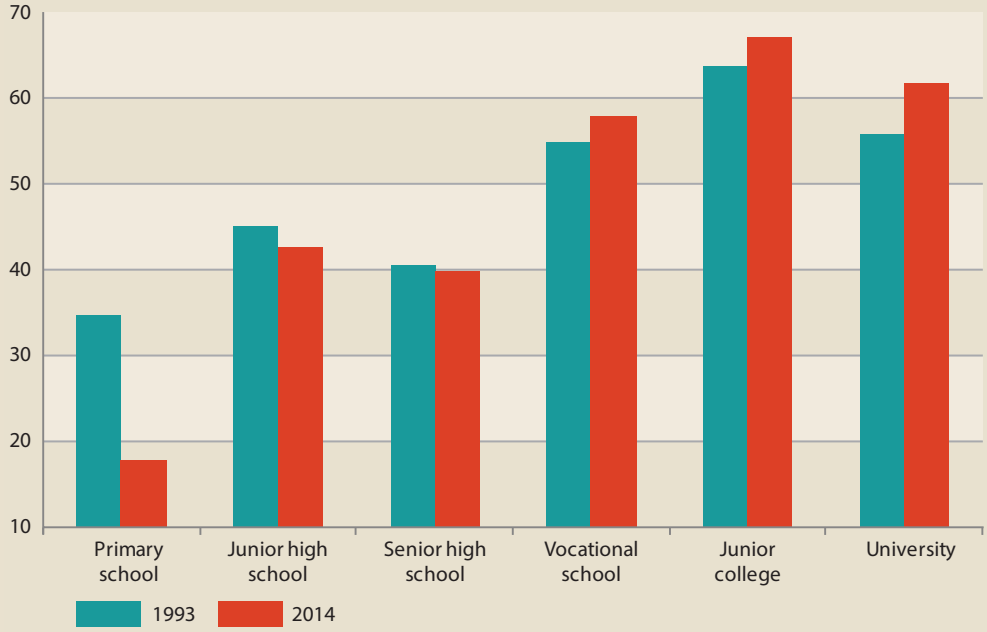


FIGURE 6-16B

FLFP RATES BY LEVELS OF EDUCATIONAL ATTAINMENT IN 1993 AND 2014



3.4 FLFP Rates by Marital Status

Table 6-8 and Figure 6-17 [10] show FLFP rates by marital status. The rate of labor force participation of single females was the highest, in all the years from 1993 to 2014. The labor force participation rate of females who were married or were in cohabitation was 44.29% in 1993, but increased by 5.49% to reach 49.78% in 2014. The labor force participation rate of divorced females and widows was the lowest among all the three groups. It was 26.72% in 1993, though it grew by 3.49% points to reach 30.21% in 2014.

The labor force participation rate of married women was 8.16% lower than unmarried females in 1993, which implied that the family lifecycle and gender-role attitudes adversely affected FLFP, with a large number of females withdrawing from the labor market after getting married. Further, the gap between unmarried and married females' labor force participation rate increased in the following years. The gap between unmarried and married females' labor force participation rate increased from 8.16% in 1993 to 10.9% in 2014.

On the other hand, as Taiwanese women's educational attainment has increased with time, the female population as a whole has gained incentives to continue their jobs after childbirths. The increase in married women's employment, however, ultimately led to a disproportionately large percentage of dual-earner families among the well-educated. In other words, upper and upper-middle class families increasingly had two earners, whereas lower and lower-middle class families were more likely to have a single earner [14]. Also, as a result, the average household consumption increased to a level closer to the spending habits of dual-earner families rather than single-earner families [16], thus making the latter increasingly deprived. Consequently, withdrawing from the labor force after having children became less of an option for recent cohorts of Taiwanese women.

TABLE 6-8

FLFP RATES BY MARITAL STATUS, 1997–2014 (IN %)

	Total	Never married	Married /cohabited	Divorced/widowed
1993	44.89	52.45	44.29	26.72
1994	45.4	52.56	45.13	26.71
1995	45.34	52.12	45.18	26.87
1996	45.76	51.94	45.95	27.17
1997	45.64	51.32	46.09	26.89
1998	45.6	51.5	46.06	26.70
1999	46.03	52.4	46.28	26.50
2000	46.02	52.71	46.14	26.68
2001	46.1	52.98	46.26	26.56
2002	46.59	53.89	46.64	26.88
2003	47.14	54.52	47.1	27.87
2004	47.71	55.28	47.77	28.12
2005	48.12	56.49	47.75	28.97
2006	48.68	57.17	48.35	29.24
2007	49.44	57.89	49.10	30.22
2008	49.67	58.38	49.11	30.88
2009	49.62	58.74	48.92	30.93
2010	49.89	59.43	49.03	30.76
2011	49.97	60.14	48.97	30.17
2012	50.19	60.57	49.05	30.35
2013	50.46	60.40	49.43	30.89
2014	50.64	60.68	49.78	30.21

FIGURE 6-17

FLFP RATES BY MARITAL STATUS IN THE ROC, 1993 AND 2014

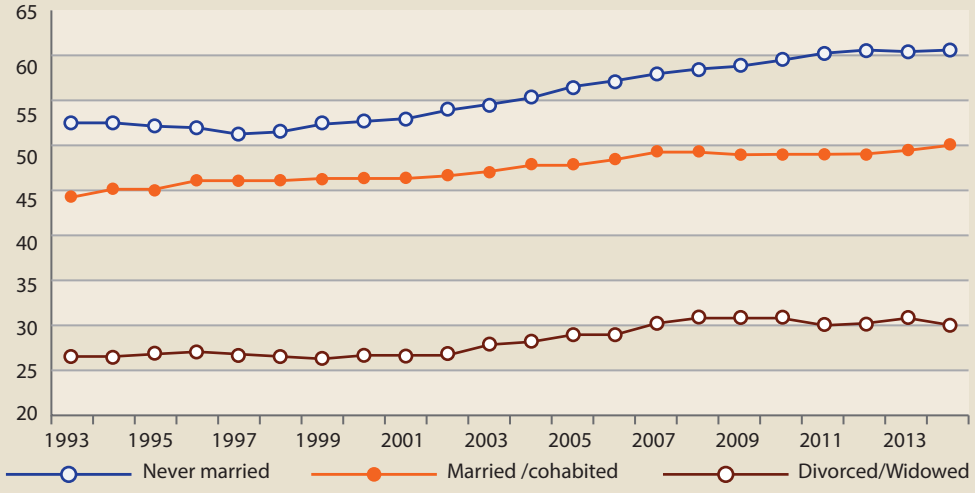
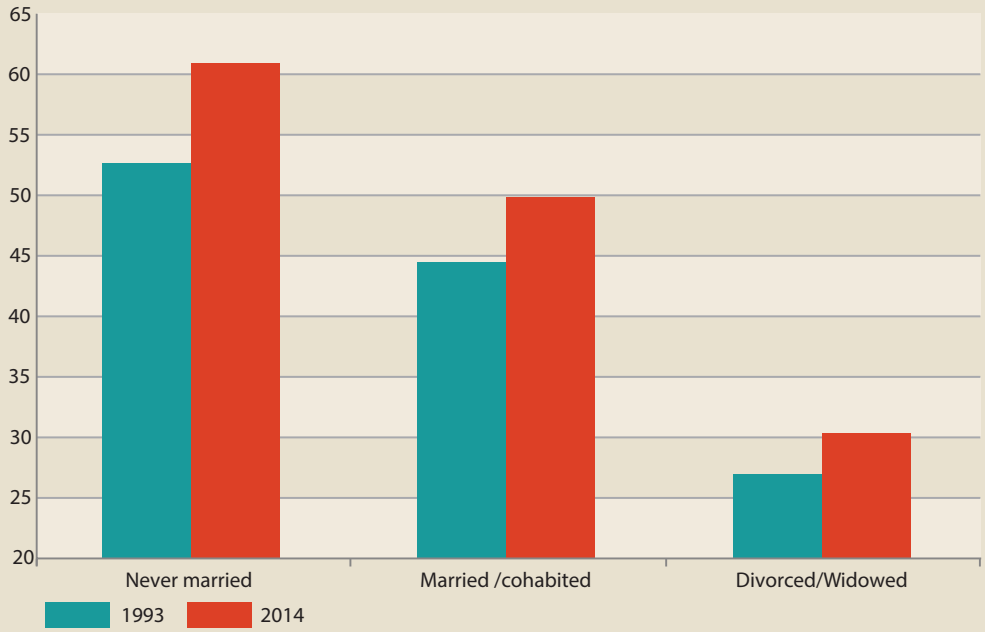


FIGURE 6-18

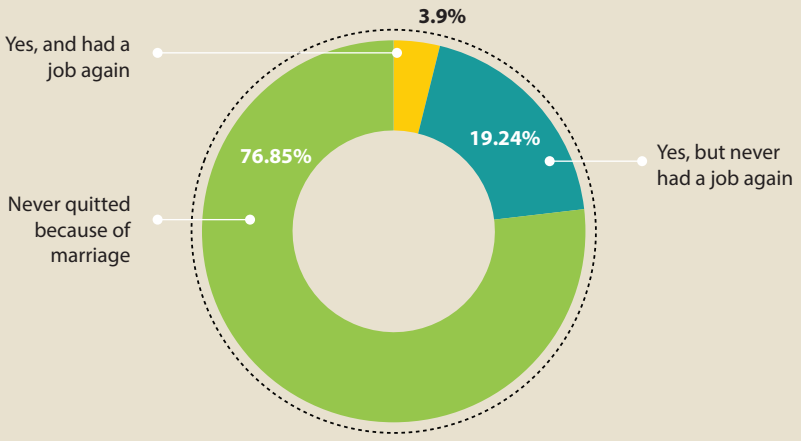
FLFP RATES BY MARITAL STATUS IN THE ROC, 1993 AND 2014



As per the 2013 Women's Marriage, Fertility and Employment Survey conducted by the ROC government (the eligible interviewees for the survey were aged 15 years, and participated in economic activities), as shown in Figure 6-19 [17], 78.65% of respondents never quitted because of marriage. Of the respondents who did, 3.9% went back to labor force while 19.24% never had a job again. The results indicate that nearly one-fifth of the employed women in the ROC choose to leave the labor force because of marriage. To increase FLFP, policies designed to help married women to stay in the labor force would therefore be a key issue for the ROC government.

FIGURE 6-19

PERCENTAGE OF TAIWANESE WOMEN WHO QUITTED BECAUSE OF MARRIAGE VERSUS THOSE WHO DID NOT



3.5 Female Employment[6]

As Table 6-9 [10] shows, the employed population in the ROC in 2014 was 11.1 million, of which females accounted for 4.9 million or 44.3%, which marked an increase of 6% from 38.3% in 1994. Because of the increase in women's educational attainment and employment, the ROC could lead gender equality in the labor force while making better use of females' economic potential. Further, 78.9% of the total employed population in 2014 comprised paid employees, 46.8% of whom were females, again an increase of 5.9% compared to 1994. Female own-account workers (335,000) and female employers (88,000) accounted for 25.6% and 19.2% in 2014, with increases of 6.9% and 6%, respectively, over 1994. Females accounted for more than 70% of those engaged in unpaid family works each year since 1994, though there has been a decreasing trend in the past years.

TABLE 6-9

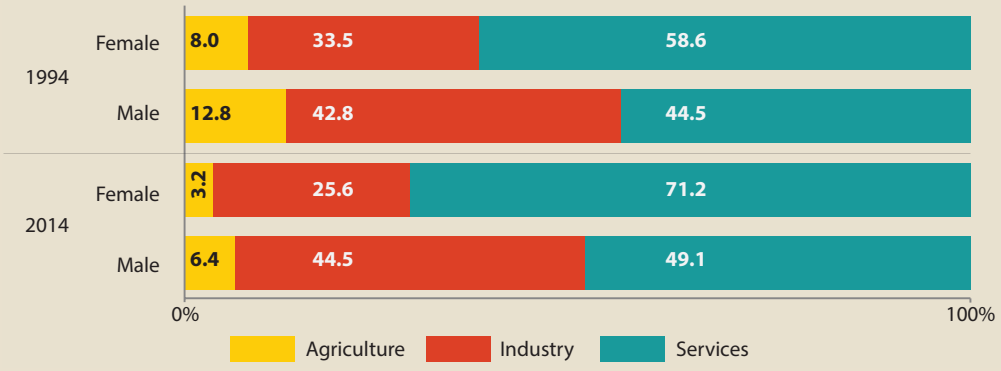
FEMALE EMPLOYMENT RATE

		Total	Paid employees	Own account workers	Unpaid family workers	Employers
Number (1,000 persons)	1994	8,939	6,160	1.542	766	471
	2014	11,079	8,737	1,310	573	458
Female employment rate (%)	1994	38.3	40.9	18.7	72.7	13.2
	2014	44.3	46.8	25.6	70.7	19.2

As Figure 6-20 [10] shows, in terms of employment structure by genders, 71.2% of the female employees worked in the service sector, as compared to 49.1% of the male employees working in the service sector, in 2014. On the other hand, 44.5% of male employees worked in the industry sector, as compared to 25.6% of the female employees working in the sector. The comparisons have remained steady in the past. With changing industrial structure, the rapid development of the service sector has significantly driven females to join the labor market. In 2014, of the total working females, 71.2% participated in the service sector, which marked an increase of 12.6% points compared to 1994 when 58.6% of the working females were in the service sector. The corresponding share of males in the service sector increased 4.6%.

FIGURE 6-20

EMPLOYMENT STRUCTURES FOR MALES AND FEMALES, 1994 AND 2014

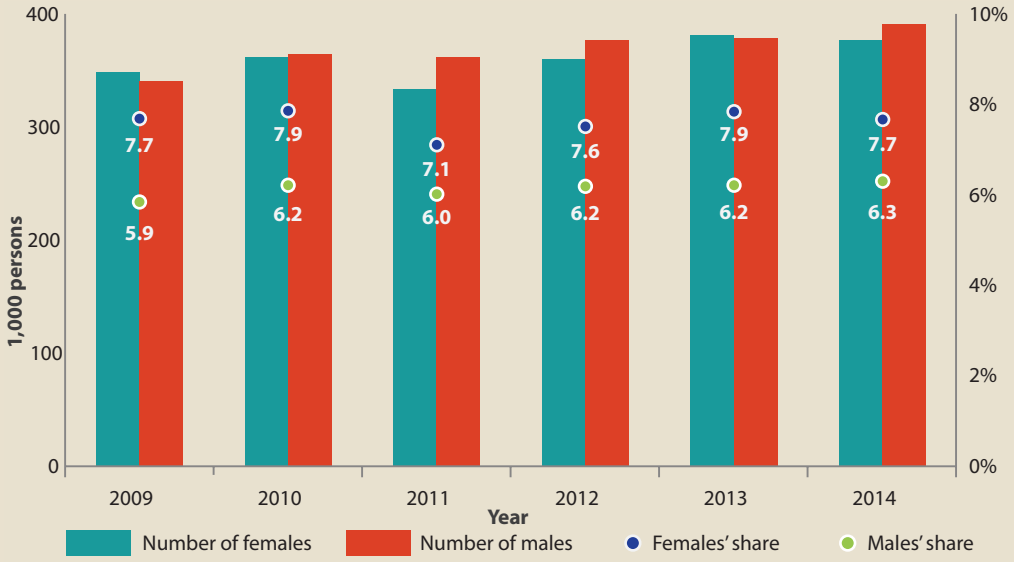


6 Directorate General of Budget, Accounting and Statistics, Executive Yuan, the ROC, *Gender at a Glance in ROC*, 2015 version.

As Figure 6-21 [18] shows, there were 766,000 people engaged as part-time, temporary, or dispatched workers in 2014, accounting for 6.9% of the total employed population, with an increase of 0.2% or 79,000 people, compared to the corresponding month of 2009. In terms of gender, there were 389,000 males participating as part-time, temporary, or dispatched workers, accounting for 6.3% of the total employed population of males; whereas the figure for females was 377,000, which amounted to 7.7% of the total employed population of females.

FIGURE 6-21

GENDER STRUCTURES BY PART-TIME, TEMPORARY, AND DISPATCHED WORKERS



3.6 Aging Society and FLFP

The ROC has one of the fastest aging populations in the world. Due to the decreasing birth rate and increasing average age of the population, the ROC faces a serious labor force shortage problem.

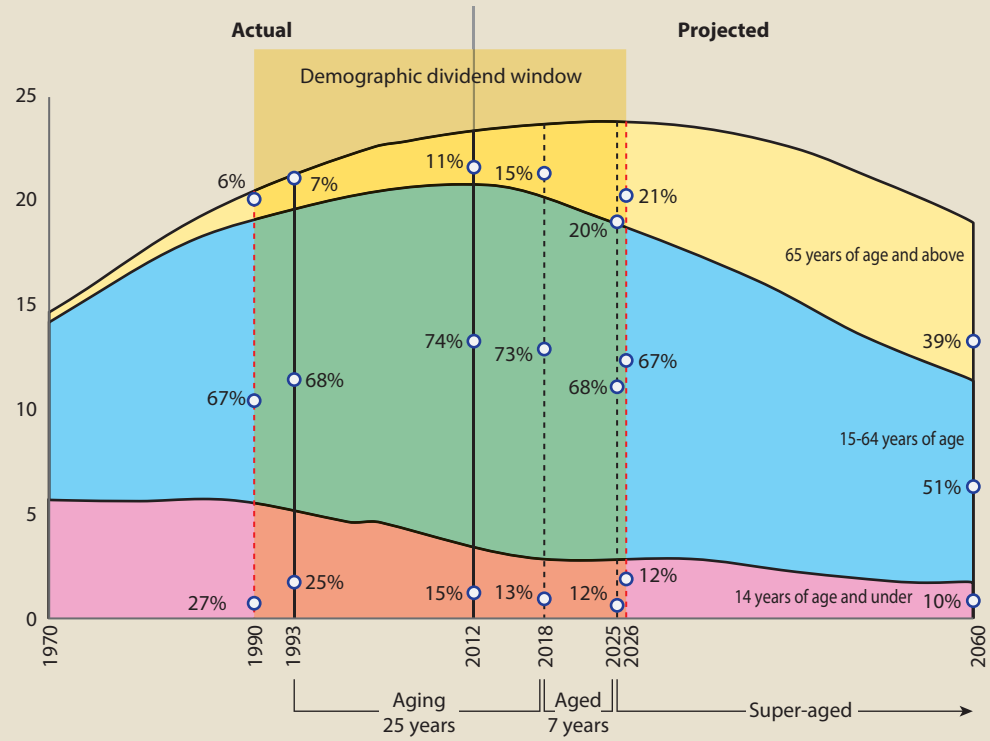
This confluence of trends will in fact impact not only the ROC's social security system, but also the sustainability of its economic development.

The shrinking size of the labor force will impact labor supply, exerting a negative influence on productivity. The aging of the ROC's workforce is influencing all sectors of its economy and posing risks for the future. Manpower shortage is already evident in some sectors, including construction, retail, catering, and elderly-care services.

The ROC's National Development Council estimated that the working-age population would decrease at a rate of 180,000 per year starting 2016, which would add up to 1.8 million people in 10 years. Thus, the demographic dividend is disappearing fast and is expected to turn negative in the coming years, thereby posing a drag on the country's economic growth potential. (A nation's demographic dividend refers to the potential for accelerated economic growth when the working-age segment of the population is most prominent.) According to projections by the National Development Council (Figure 6-22) [19], this demographic dividend window, which opened in 1990, would last until 2026, when the ROC's working-age population is expected to shrink to

FIGURE 6-22

DEMOGRAPHIC DIVIDEND IN THE ROC



66.9%. That percentage would continue to drop thereafter, and the dependency ratio would rise above 50% as a result. In other words, the demographic dividend window, which opens when the dependency ratio falls under 50% and the working-age population proportion rises above 66.7%, is expected to last from 1990 to 2026. If a stricter definition is applied, e.g., if the working-age proportion criteria is raised to 70%, the window would be open from 2000 to 2022.

Over the past two decades, the ROC's economy has grown by an average of around 4.5% in real terms per annum. With a rapidly shrinking labor force after 2016, it would be difficult to maintain the same rate of economic growth as in the past, unless productivity growth could be significantly enhanced.

The government hopes to help remedy the problems by boosting the total labor force participation from the current 58% to 60% in 2020 and by encouraging more women to work to raise the FLFP rate from 50% to 53%. Although the women's labor force participation rate has been rising steadily in recent years and exceeded 50% for the first time in 2012, attracting more women into the labor force would be crucial as the ROC edges to a demographic turning point where its workforce would shrink.

4. Key Factors Influencing the ROC's FLFP Rate

In the ROC, male labor force participation rate decreased steadily between 1978 and 2014, from 77.96% to 66.88%, respectively, whereas the corresponding FLFP rate increased steadily from 39.13% to 50.71%. What accounts for the rise in female labor force participation? Referring to the historical facts, education, organizational change, and technology might be the main factors driving the rise in FLFP.

4.1 Educational Attainment

As shown in Table 6-10 [10], the education of the ROC's female labor force in terms of a college, university or other type of higher education degree has increased from 11.0% to 41.2% during the period 1989–2014, while the incidence of junior high school or lower educated females decreased from 60.6% to 28.0%. Overall, the percentage of people in the ROC who have obtained a higher education degree has increased by more than 30% in the past 25 years. Educational attainment is a major driver of better employment outcomes for women in both developed and developing countries. However, as education enrolment rates have risen, labor force participation rates have fallen among school-age youth. Looking at the age groups comprising those of 25 years of age or more as well as the effect of rising enrolments in education, a rise in the global FLFP rate is revealed.

TABLE 6-10

EDUCATIONAL ATTAINMENT OF FEMALE LABOR FORCE IN THE ROC (IN %)

Education attainment	Year 1989	Year 2014
Junior high school or lower education	60.6	28.0
Senior high school education	28.4	30.8
University/college or higher education	11.0	41.2

Indeed, as is the case with labor force participation, education plays a critical role in determining the nature of employment taken up by women in the ROC. Education raises the reservation wage, i.e., the lowest wage at which a person would accept a particular job, and changes the preferences of job seekers [20]. Cazes and Verick [21] conducted a study of women, which estimated that compared with having a junior secondary education, having a college education increased the probability of working in a regular job by 25.6% and having a senior secondary education increased it by 10.3%. Also, women with at most a primary school education were less likely to be regularly employed. Actually, at higher levels of education, the potential earnings act as a pull factor, thus helping women to overcome economic and social constraints [20].

Although the average educational level of women in the ROC is one of the highest in Asia, the FLFP rate for ages 15 and above in 2014, at 50.64%, was only slightly higher than Japan and the ROK, and lagged several neighboring societies like Hong Kong, Singapore, Thailand, PR China, and Vietnam, as well as many western countries like the UK, France, Germany, and the USA [4].

The FLFP rate in the ROC is lower than these societies due to the phenomenon of "late entry and early exit," i.e, women in the ROC start working at an age older than their counterparts in other nations, which is due to the extended education and their families' financial support for schooling. Women in the ROC also tend to drop out of the workforce or retire earlier due to various reasons such as marriage, childbirth, and generous pension plans for public servants [4].

4.2 Health

There exists a positive relationship between health and labor force participation in literatures on the topic. In analyzing the impacts of health on labor force participation using HRS data, Bound et al. [22] and Thomas & Frankenberg [23] mentioned that for women, better access to healthcare was associated with greater participation in the labor market and higher productivity. Cai & Kalb [24] indicated that better health increased the probability of labor force participation for all age groups,

and health had a positive and significant effect on labor force participation for both males and females. However, the effect was larger for the older age groups and for women. Fan [25] pointed out that the health status significantly affected the individual's labor force participation rate.

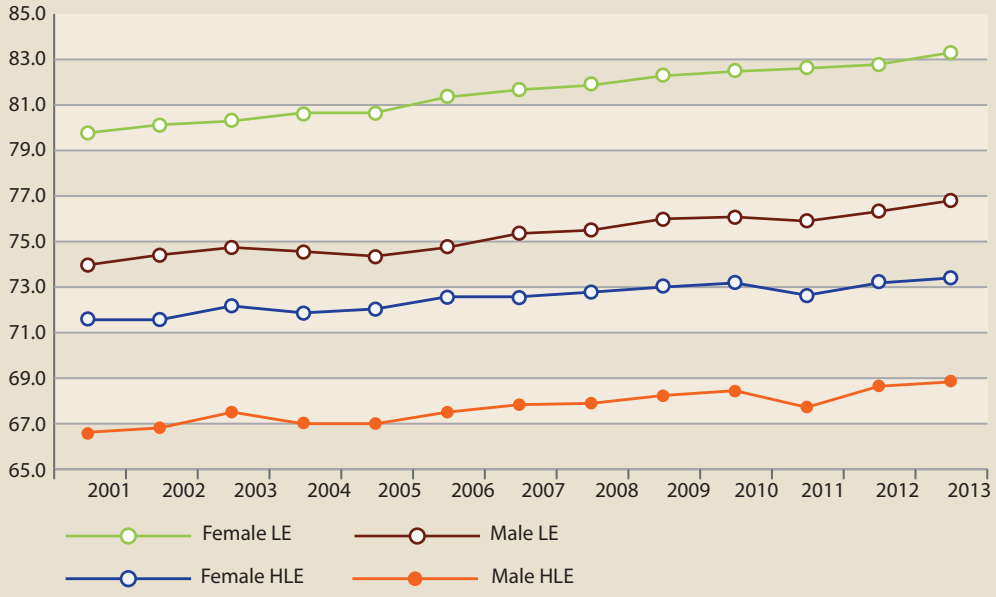
Health is a key factor in a person's ability to develop skills and knowledge. Poor health is a hurdle in developing or using skills, and therefore improving health could raise the labor force participation and economic output [26].

To understand a population's health, we can observe its healthy life expectancy (HLE), which is an estimate of how many years the people might live in a healthy state, whereas life expectancy (LE) is an estimate of how many years they might be expected to live. Health usually refers to functional abilities or self-rated health. HLE is a key summary measure of a population's health. According to a global report published in 2012, sponsored by the Bill & Melinda Gates Foundation, Japan led the world by having the longest healthy life expectancy for both men and women. It was followed by Singapore, Switzerland, and Spain in the men's category; and by the ROK, Spain, and Singapore in the women's category. The ROC women came in the fifth place.

As shown in Figure 6-23 [1], HLE of the ROC women increased to 73.6 years by 2013. The longer lifespan is attributed to improvements in sanitation and medical care, better food supplies, and the reduction in child mortality generally prompted by illness and malnutrition.

FIGURE 6-23

LIFE EXPECTANCY AND HEALTHY LIFE EXPECTANCY FOR MEN AND WOMEN IN THE ROC

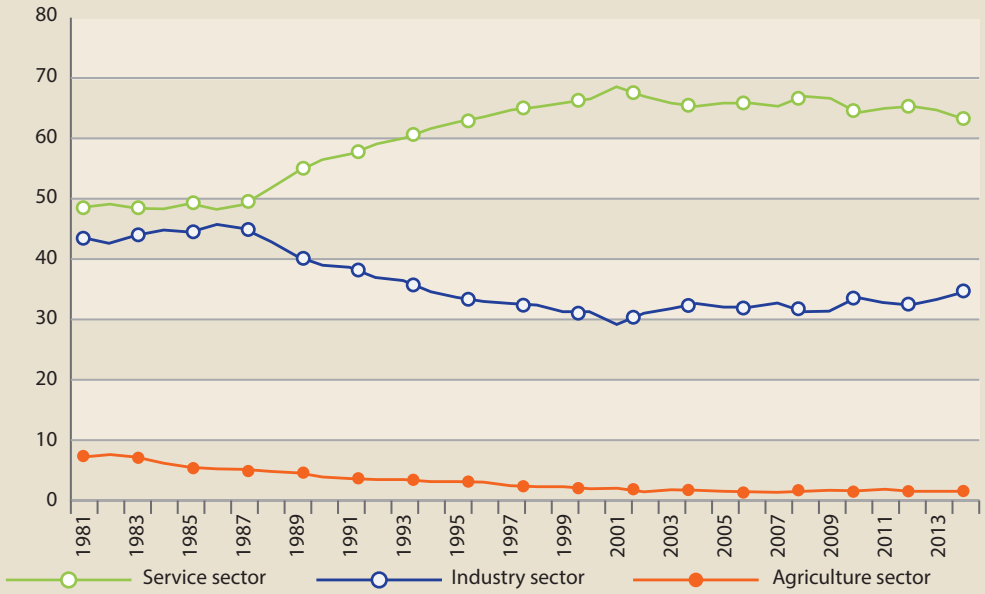


4.3 Change in the Economy's Structure

The economic structure of the ROC has changed gradually from being mainly manufacturing sector-based to becoming service sector-based. As shown in Figure 6-24 [9], while approximately 43% of the country's GDP came from industrial production in 1981, that share had decreased to around 34% while the service component became 64% and agriculture around 2% in 2014. The ROC government

FIGURE 6-24

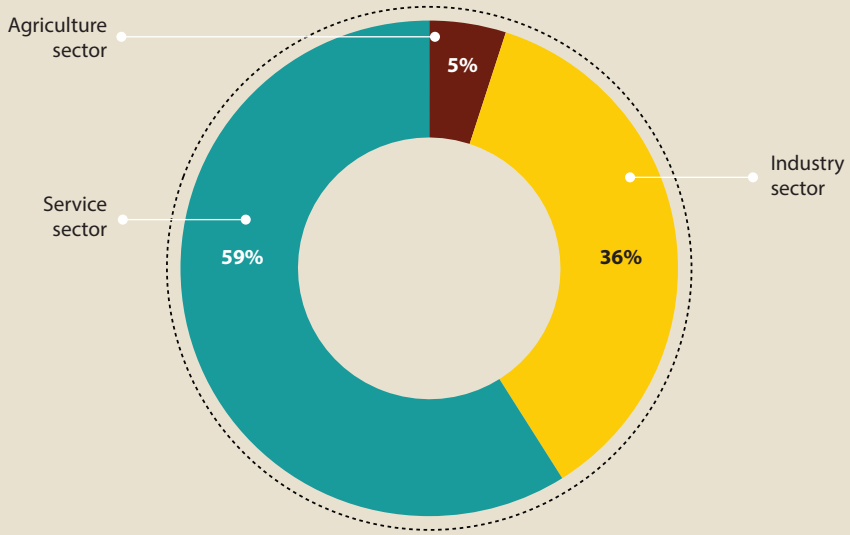
ECONOMIC STRUCTURE OF THE ROC BY GDP SHARES OF SECTORS



has implemented the Service Industry Development Plan that aims to increase the competitiveness of the country's service sector and achieve greater market access overseas. The service sector creates the largest competitive employment opportunities and employs the bulk of the ROC's labor force. In 2015, as shown in Figure 6-25 [9], the country had a workforce of about 11.64 million persons, 59% of whom were working in the service sector, while about 36% were working in the industry sector. Only about 5% of the people were involved in agriculture and other fields.

FIGURE 6-25

PERCENTAGES OF EMPLOYED PERSONS BY SECTORS, 2015



The decline in the relative importance of the manufacturing sector, as the ROC developed, and the rise of the service sector may favor women, who have comparative advantages in these sectors. The shift of employment to the service sector has considerably increased women's job opportunities. On the other hand, the growth in the service sector's part-time work opportunities has also attracted more women into the formal labor force by helping them to balance paid work with family life [28].

Figure 6-26 [10] shows the trend of workers by gender in the service sector. Workers moved into these positions directly out of school, with the majority of the new positions being filled by female workers. In addition, the expansion of several tertiary activities such as health and education, sales, hotels and catering, and domestic works have relied particularly on the use of part-time workers, which to some extent has contributed to women increasing their labor force participation [29]. Figure 6-27 [10] shows the trend of male and female workers' ratios in the service sector. While the female workers ratio moved up from 47.7% to 54% over the past two decades, that of male workers declined from 52.3% to 46%.

FIGURE 6-26

NUMBER OF WORKERS IN SERVICES SECTOR IN THE ROC, 1993–2014

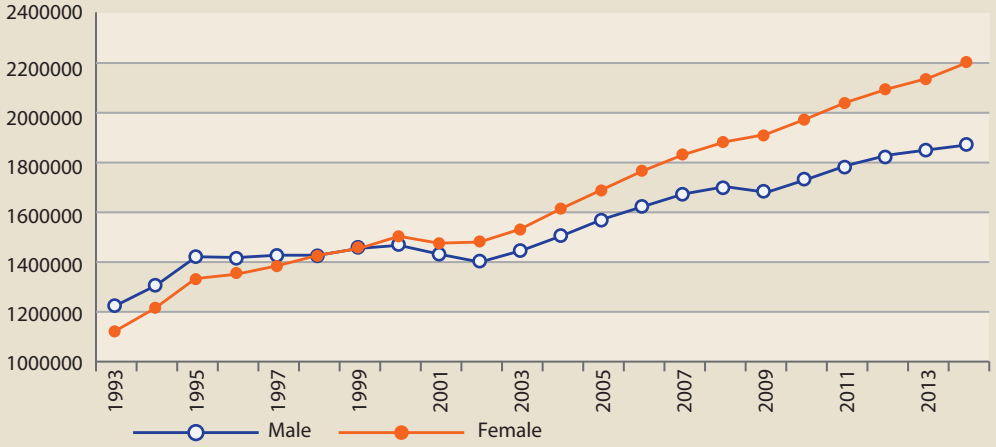
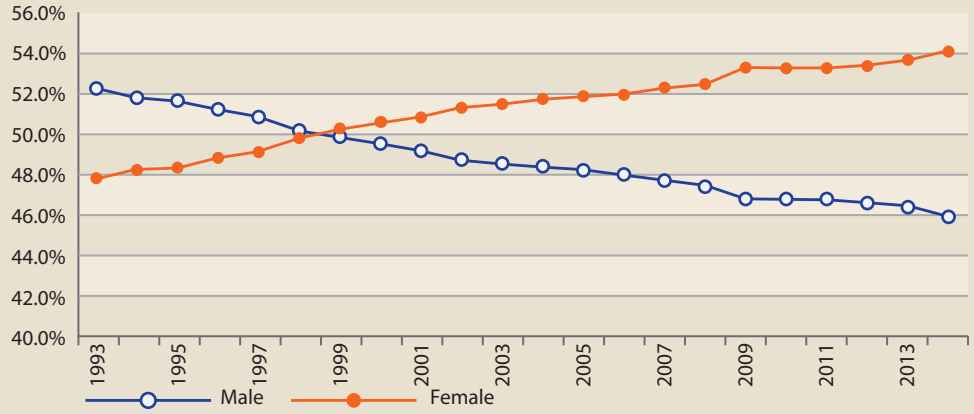


FIGURE 6-27

RATIOS OF MALE AND FEMALE WORKERS IN SERVICE SECTOR IN THE ROC, 1993–2014



4.4 Women's Attitudes toward Their Working Careers

Over their lifetimes, women face trade-offs and make decisions to reallocate their time and resources. Their decisions affect their accumulation of human capital and their degree of participation in the labor market. In turn, these decisions are related to marriage and fertility. In the past, more women at the age of 20 used to focus on marriage, childbearing, and child rearing. More recently, increasing percentages of young women have been putting their lifetime careers on top priority. Juhn and Potter [30] compared participation rates of women born in different periods and indicated that the J-curve (first a dip, then a rise in FLFP) found in the older cohorts did not hold among the younger cohorts. The FLFP rates of the younger cohorts have been fairly flat over their working lifetimes, and the decreasing sizes of families may be correlated with the consistent and higher FLFP rates of women.

Due to the influence of the oriental traditional stereotypes of gender roles, women are still expected to take the responsibility for the home, thus becoming the so-called secondary workers in the labor market. However, in the ROC, changing social attitudes about the roles of women and the appropriateness of women as workers have increased job opportunities and incentives for women to enter the labor market. A growing feminist movement actively promoted women's rights, and more Taiwanese women began to find values in their labors. The wages they earned gave them economic independence, a sense of accomplishment, and hence empowerment. Inspired by the feminist discourses from the West, and with the lightening of national politics, Taiwanese women began to discuss issues related to the promotion of their social and political rights, including opportunities for education and employment, equal payment, and domestic abuse [31].

4.5 Low Birth Rates and Reduced Hours toward Family Works

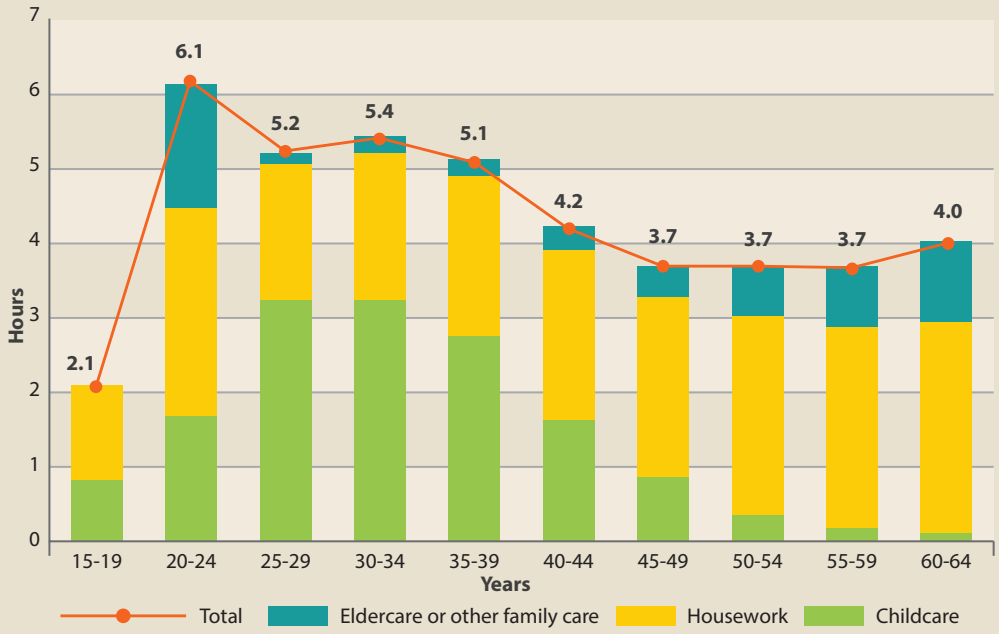
Improved birth-control methods and other socioeconomic considerations have reduced the number of children born into families. In the ROC, the average number of births per woman (15 years old or more) decreased from 3.71 in 1971 to 1.17 in 2014 (Figure 6-28) [17]. This, combined with the greater availability of neighborhood daycare centers, has decreased the time that women must spend on child rearing. In addition, women can rely on others to assist in child rearing. In the ROC, the family's relatives, such as grandparents, have continued to play an important role in child rearing [32]. The percentage of married women who take care of children decreased from 87.71% in 1971 to 68.81% in 2014.

On the other hand, as part of the Asian tradition, women contribute substantially to the economic welfare through large amounts of unpaid work, such as child-rearing and household tasks, which often remain unseen and unaccounted for in the GDP [33]. However, the increasing prevalence of labor-saving household technologies and equipment such as the washing machine, dryer, and refrigerator have reduced the amount of time required to complete routine household tasks. As a result, the time women spend in household works has declined, making it more likely that they join the labor force [32].

According to a Woman's Marriage, Fertility and Employment Survey, married Taiwanese women aged 15–64 spent 4.2 hours per day on family works, close to 4.3 hours reported in the previous survey of 2010 but 0.8 hours less than in 2003. Married women aged 20–39 spent one-fifth to one-fourth of their time on family works, while married women aged 40 and above spent one-sixth of their time on family works. In terms of types of family works, childcare was the main work for women aged 20–39, while housework was the major type for those aged 40 and above. In general, with increasing ages of women, their time spent on childcare decreased and that on housework increased.

FIGURE 6-28

HOURS SPENT ON FAMILY WORKS BY MARRIED TAIWANESE WOMEN AGED 15–64 YEARS, 2013



So far, there is no survey data about how much time men spent in household works in the ROC. Duflo's research [34] indicated women spent twice as much time on household work as men and four times as much time on childcare, thereby freeing up time for male household members to participate in the formal labor force. In the OECD countries, women spent about two-and-a-half hours more than men on unpaid work (including care work) each day, regardless of the employment status of their spouses [35]. As a result, the gender difference in total working time, i.e., the sum of paid and unpaid work, including travel time, was close to zero in many countries [28].

4.6 Spouse's Labor Force Participation and Earnings

Given the traditional gender roles, women are perceived as secondary earners within the family, and their labor supply is likely to be more negatively affected by their spouses' earnings. In the ROC, several researches, including those by Lo [36], Chang [37], Yu & Chu [38], Huang [39], and Ho [40], support the conclusion that there is a negative effect of spousal income on FLFP.

Lo [36], Chang [37], and Yu & Chu [38] found the negative effects of spousal income and young children on female labor force supply using different official data: Manpower Utilization Survey, The Survey of Family Income and Expenditure, and Women's Marriage, Fertility and Employment Survey. Huang [39] pointed out that women in the ROC with low family incomes were the major sources of the growth in FLFP rates. Ho [40] indicated that the husband's participation in the labor market had a positive effect on FLFP.

However, the traditional division of labor is breaking down and men and women more equally share home and market responsibilities. Married women's labor supply has become less responsive to their husbands' incomes, because of greater labor force participation rates and increased career orientation among married women [41].

5. Government Policies for Boosting the FLFP Rate in the ROC

5.1 Tax System

The tax system imposes excessive distortions on the labor supply decisions of married women relative to those of men and single women. If taxes are imposed on family income rather than individual income, the tax wedge applied to secondary earners, often married women, will be higher than for the single but otherwise identical women [33]. Empirical studies indicate that the female labor supply is more responsive to taxes than the male labor supply [42]. Hence, reducing the tax burden for the predominantly female secondary earners by replacing family taxation with individual taxation could potentially generate large efficiency gains and improve aggregate labor market outcomes. Countries with the potential to reduce the secondary-earner tax wedge significantly include France, Portugal, and the USA [33].

The ROC government removed the tax penalty for dual-earner families in 2015. This gave married couples the option of calculating their tax liabilities separately to save money when they filed their income tax returns. Before the amendment, married couples were required to either file their taxes together, or calculate their tax liability on their salaries and earned income separately while combining their non-wage incomes. Either way, it constituted a marriage tax penalty because the combined income was taxed at a higher rate in a progressive tax rate system.

5.2 Anti-discrimination Laws

Discrimination artificially restricts the demand for women's labor. Implementing policies that remove labor market distortions and create a level-playing field for all would help boost the demand for women's labor [33]. Changes in legislation and social norms in the ROC have supported the increasing demand for female labor and made it possible for women to seek employment outside their homes. The Act of Gender Equity Employment (AGEE) was first implemented in 2002, long after mothers with young children became widespread among workers employed in white-collar occupations. Specifically, the AGEE, despite including guidelines for employers to provide female employees schedule flexibility, childcare and nursing facilities, and childcare leaves, explicitly makes most rules apply to companies or organizations with 30 or more employees.

However, while anti-discrimination provisions have been adopted legally, some measures have proven difficult to enforce. For example, nearly one-half of the workers in the ROC were employed by firms with fewer than 30 employees, so the rules don't even apply to these firms. Even for employers of larger firms, there is no penalty for those that do not adopt the family-responsive measures prescribed by the law. For regulations in the AGEE that do have enforceable penalties, such as overt gender discrimination in wages, the penalties are modest, and individuals suffering from such discrimination may not receive beneficial compensation by filing lawsuits against their employers [16].

5.3 Childcare Subsidies and Child Benefits

To help women with less income potential to stay in the labor market, and to help reduce household income inequality, it would be more effective for the government to offer high-quality yet affordable childcare centers and preschools. Better access to comprehensive, affordable, and high-quality childcare frees up women's time for formal employment. In analyzing data for 10 different countries, Gong, Breunig, and King [43] and Kalb [44] found that the elasticity of female labor supply with respect to the price of childcare ranged from –0.13 to –0.2. Hence, if the price of childcare is reduced by 50%, the labor supply of young mothers would rise to the order of 6.5% to 10% [33].

In the ROC, community childcare systems are operated by local governments. These systems provide comprehensive childcare services, such as extended-hours childcare and drop-in childcare, and are backed by community support services and volunteers. In addition, the local governments have also transformed underused areas within school campuses into childcare centers. These centers provide friendly and caring environments for preschool children, based on standards set out in the continuity of childcare model for up to 12-year olds. At the end of 2015, there were 64 units of community childcare systems founded by city and county governments, all over the country. Thus, the country has community-based, highly accessible service networks. Quality of childcare services throughout the system is promoted, which helps parents to screen service providers and care services for security and properness of children. The governments have been providing subsidies for childcare services to decrease financial pressure on families since April 2008.

Subsidies for childcare are available based on families' circumstances. Parents whose annual pretax incomes fall below a defined threshold are entitled to a monthly subsidy toward childcare expenses. According to the ministry, the incentives offered by the central government include a monthly subsidy ranging from NT$2,500 to NT$4,000 given to families to raise a child; a subsidy of more than NT$2,000 per month for hiring a babysitter, and free tuition for children aged five years. In addition to these incentives, couples can also enjoy extra assistance offered by some local governments. The closer the government gets to offering universal childcare, the more likely that gaps between different classes of women and their continued employments will narrow.

5.4 Maternity Leave and Parental Leave

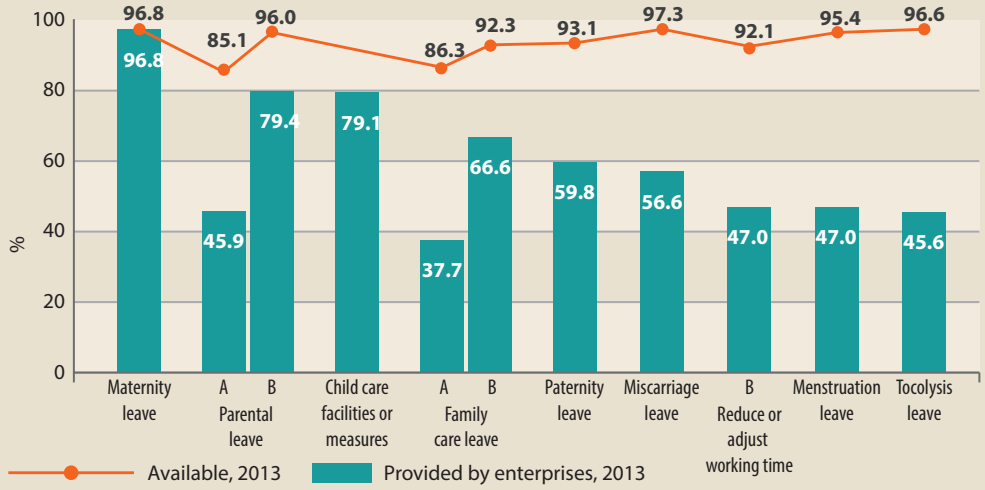
Publicly financed parental leave schemes could help parents reconcile work and family life, and maintain their connections with the labor market through guaranteed returns to their respective jobs. The average duration of paid parental leave in advanced economies is 26 weeks, and all OECD countries except the USA and the ROK currently offer paid parental leaves [33].

In the ROC, the duration of maternity leave ranges from five days to eight weeks according to the Act of Gender Equity Employment, and the Labor Standards Act. Fully-paid maternity leave is to be granted to any female worker who has been employed for more than six months. For any female worker on maternity leave, if her spouse is employed, he shall be granted three days off as paid paternity leave. Parental leave can be used for up to two years if one's children reach the age of three. Although the parental leave is unpaid, the Employment Insurance Act provides an insured employee with an allowance for up to six months per child, with the amount of the remuneration being 60% of the insured person's monthly earnings. If both the parents are covered by employment insurance, they may apply for the parental leave allowance separately but not at the same time.

The Act of Gender Equality in Employment was implemented in 2002 to prevent workplace from gender discrimination and sexual harassment. To share the responsibility of family care, the Act also stipulates measures to provide both parents with various leaves and working-hour adjustments to promote gender equality. As Figure 6-29 [9] shows, in 2013, various leaves were available in over 85% of enterprises registered with the Labor Insurance, which could promote the balance between work and family. In terms of different leaves, the maternal leave was available in 96.8% of the enterprises, while over 55% also provided the paternity leave and the miscarriage leave. Menstruation leave was provided by over 45% of the enterprises. The percentage of enterprises providing the parental leave had reached 45.9%, and the percentage of enterprises with more than 250 employees providing such leaves had reached 79.4%.

FIGURE 6-29[1]

IMPLEMENTATION RATES OF GENDER EQUALITY MEASURES IN WORK



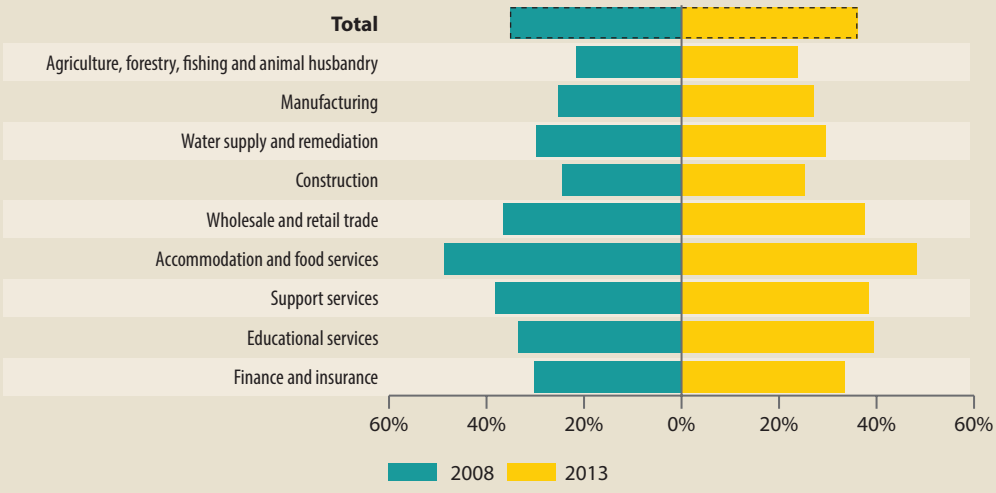
1 Note:
a. 'A' stands for the enterprises registered with the Labor Insurance. 'B' stands for the enterprises that had more than 30 employees. Data on providing childcare facilities or childcare measures was for enterprises with 250 employees and more.
b. 'Provided' means the enterprises have the measures of gender equality implemented, whether an employee has applied or not. 'Available' includes not only the enterprises that have provided the measures but also those that accept employees' applications for the measures, even if they did not provide the measures originally.

5.5 Women's Entrepreneurship

Social acceptance of women in the labor market and in high-level positions contributes to higher female participation in the formal labor force and in entrepreneurship [33]. As shown in Figure 6-30 [9], at the end of 2013, there were 1.28 million profit-seeking enterprises, 36% of which had females as owners, representatives, or managers (463,000), which was a slight increase of 0.9% from 2008. In the 27 EU countries, only 25% of business owners with employees were females.

FIGURE 6-30

WOMEN'S SHARE OF OWNERS IN PROFIT-SEEKING ENTERPRISES



According to Ministry of Economic Affairs, in 2014, the number of small and medium enterprises (SMEs) reached a record level of 1.33 million, and accounted for 97.67% of all enterprises in the ROC. In addition, the number of employed persons in SMEs rose to 8.59 million and represented 78.30% of all employed persons in the country. Notably, more than 30% of Taiwanese SMEs were owned by women, with the government having built assistance programs to support women entrepreneurship in recent years.

The government provides various forms of assistance for entrepreneurial activities. These measures include the provision of consulting services, guidance, and training programs; the establishment of incubator centers; and the provision of funding, l oans for business start-up, etc.

The main measures toward women entrepreneurship include:

1. **Flying Goose Program for empowering women entrepreneurs:** This program includes Mentorship Program; Integrated Counseling Resources for Entrepreneurs; Elite Women Start-up Promotion Project; Funding Connect for Female Start-ups; Social Network Resources for Entrepreneurs; and Entrepreneurs Incubation Courses.

2. **Micro-business Start-up Phoenix Loan for 20–65 year-old women:** This loan system provides women entrepreneurs up to NT$ 1 million low-interest loans that are interest free for first two to three years, with the maximum loan term being seven years. The government provides 95% of credit guarantee, mortgage and guarantee exemptions, for a total financial capital of three billion dollars. The government also appoints consultants to provide guidance to applicants during the early, middle, and late stages of enterprise pioneering.

5.6 Vocational Training

Sector-specific skills and vocational training enable individuals of all genders to access new opportunities and transfer to a new occupation. The Workforce Development Agency has adopted three approaches to implement these training measures, including organizing a training course itself, commissioning other training institutions, and providing allowances and subsidies. In other words, in order to improve women's work skills, the government provides free monthly comprehensive vocational training programs and living allowances at 60% of the minimum wage for six months, so as to enhance their work competitiveness and help them to return to work or change professions. On the other hand, the government pools learning resources of industry, academia, and training institutions to strengthen the employment abilities of the youth and to foster a positive professional spirit in them. Based on different development requirements and characteristics of the youth at schools and after, the government implements various vocational training programs for them, including the Dual System of Vocational Training Project, the Industry-Academy-Training Center Co-op Program, the Youth's Employment Ultimate Plan, and the Mentoring Training Project.

5.7 Birth Incentive Policy

A negative relationship between fertility and FLFP has been reported in the past cross-country studies [45, 46]. However, other studies find that the relationship had shifted from negative to positive since the mid-1980s for OECD countries [47, 48]. This shift over time implies that the substitution effect between having children and working has more recently been offset by the income effect. That is, higher FLFP allows households to afford more children [49].

In the ROC, local governments have provided various birth incentive policies, such as financial support, to boost birth rate. For example, under the Taipei City's New Birth Incentive Program, a NT$20,000

payment is given to any family that has a baby, with monthly subsidies available for eligible parents with a child five-years-old or under. Other incentives include subsidies for public preschools offering after-school care services and for enterprises that establish daycare facilities for the children of their workers.

5.8 Flexibility of Working-time Arrangements

Part-time work continues to be a predominantly female domain and is often, in view of persisting gender roles, the only solution to balancing work with family responsibilities [50]. Availability of flexible work arrangements allows women to better balance their formal employment with other demands on their time [35]. In other words, flexible working-time arrangements, and in particular the possibility to work part-time, help women to combine market work with traditional family responsibilities. Overall, recent OECD research found that countries with a higher share of part-time in female employment tend to have higher FLFP, after controlling for other factors. Part-time employment has become an entry point to the labor market for women as their labor supply is constrained by family responsibilities [33]. Thus, policies that remove distortions against part-time work would lead to an increase in female participation, though the magnitude of this effect is likely to depend on the extent to which women have a preference for such work [51].

Faced with various social needs brought by employment, especially the needs of young people, women and retirees, the rights of part-time and hourly workers should be promoted. One of the most important labor laws in the ROC is the 1984 Labor Standards Law. It supplies the basic legal definitions of worker, employer, wage, and contract, and outlines the rights and obligations of workers and employers. However, there is no clear statement in this law with respect to issues such as the regulations and protections of different types of non-traditional labors based on flexible work hours. Ministry of Labor released Part-time Employee Hiring Guideline in 2014, but there is no penalty for those who do not follow the guideline. In order to boost FLFP, the ROC should learn from industrialized nations so that it could properly respond to the issue of social protection for part-time and hourly workers.

5.9 Service Sector Promotion

To achieve gains in the employment quality, policies need to focus on both labor demand and supply dimensions. The growth of the service sector's share of total employment has obvious consequences for female labor force participants.

To strengthen the developmental momentum of the ROC's service sector, the government targeted eight main service industries (retail, hospitality and catering, logistics, consulting, IT services, design, advertising, and conference and exhibition); seven integrated services industries (digital content, wireless broadband applications, healthcare, intelligent automation, cloud computing, e-commerce, and energy services); and drafted the Blueprint for Services Sector Development to assist in adjusting the industrial structure. The compound real GDP growth rate for the country's service sector is targeted at 5.14% for the period 2012–20. The contribution of the industrial sector to GDP reached a peak of 44.8% in 1986, and then steadily declined. In 2012, the industrial sector's contribution to GDP decreased to 29.8%, whereas that of the service sector increased to 68.2%. With the advent of a knowledge-based economy, the service sector's contribution to GDP is expected to rise continuously [52].

6. Impact of FLFP on Productivity

6.1 Relationship between FLFP and Labor Productivity in the ROC

Economic research has indicated that an increase in labor force participation is negatively correlated with productivity growth, at least in the short term [41, 53–56]. The main reasons for this negative trade-off are

that new entrants may lack practical skills and it takes time until they become fully productive. Immigrants may also lack general skills in relation to the native language or formal education. Older workers may suffer from declining physical abilities and slightly lower cognitive capacities, although this may be compensated by higher levels of experience and social intelligence [41, 51, 53, 57]. Overall, a higher participation of older workers, or an extension of their work lives, is not likely to contribute to productivity growth.

Indeed, productivity growth and expansion of labor force participation may counter the negative spiral. However, one of the main current objectives of the EU is the twin goal of increasing participation in the labor market and growth in labor productivity [51].

Table 6-11 provides the information about labor productivity growth rate, GDP per hour, and GDP per employed person, respectively, over the 1981–2013 period in the ROC. Figure 6-31 [10] presents the trends of productivity growth rate (GDP per hour and GDP per employed person) and FLFP growth rate. The correlations between labor productivity growth rate and FLFP growth rate are calculated, and presented in Table 6-12. The correlations of productivity growth rate per hour and productivity growth rate per employed person, with FLFP growth rate are positive, at 0.075 and 0.175, respectively. The results indicate that between female participation in the labor market and the growth in labor productivity there exists a positive relationship, both in terms of GDP per hour and GDP per employed person.

TABLE 6-11

LABOR PRODUCTIVITY AND FLFP GROWTH RATES IN THE ROC

Year	GDP per hour (NT$ per hour)	GDP per hour growth rate	GDP per employed person (NT$ per month per employed person)	GDP per employed person growth rate	FLFP	FLFP growth rate
1981	136.72	-	28 265	-	38.76	-
1982	136.90	0.13%	28 440	0.62%	39.3	1.39%
1983	145.36	6.18%	29 957	5.33%	42.12	7.18%
1984	153.72	5.75%	31 816	6.21%	43.3	2.80%
1985	159.53	3.78%	32 511	2.18%	43.46	0.37%
1986	167.18	4.80%	34 400	5.81%	45.51	4.72%
1987	179.27	7.23%	37 017	7.61%	46.54	2.26%
1988	191.19	6.65%	39 244	6.02%	45.56	-2.11%
1989	206.48	8.00%	41 801	6.52%	45.35	-0.46%
1990	217.95	5.56%	43 644	4.41%	44.5	-1.87%
1991	228.30	4.75%	45 572	4.42%	44.39	-0.25%
1992	240.57	5.37%	47 882	5.07%	44.83	0.99%
1993	252.05	4.77%	50 083	4.60%	44.89	0.13%
1994	264.42	4.91%	52 680	5.19%	45.4	1.14%
1995	280.33	6.02%	55 207	4.80%	45.34	-0.13%
1996	294.47	5.04%	57 895	4.87%	45.76	0.93%
1997	308.88	4.89%	60 832	5.07%	45.64	-0.26%
1998	323.29	4.67%	62 572	2.86%	45.6	-0.09%
1999	351.19	8.63%	68 208	9.01%	46.03	0.94%
2000	367.77	4.72%	71 442	4.74%	46.02	-0.02%

CONTINUED ON NEXT PAGE

CONTINUED FROM PREVIOUS PAGE

Year	GDP per hour (NT$ per hour)	GDP per hour growth rate	GDP per employed person (NT$ per month per employed person)	GDP per employed person growth rate	FLFP	FLFP growth rate
2001	378.79	3.00%	69 986	-2.04%	46.1	0.17%
2002	397.38	4.91%	73 605	5.17%	46.59	1.06%
2003	411.46	3.54%	76 114	3.41%	47.14	1.18%
2004	426.51	3.66%	79 760	4.79%	47.71	1.21%
2005	444.43	4.20%	82 613	3.58%	48.12	0.86%
2006	468.05	5.31%	86 429	4.62%	48.68	1.16%
2007	493.44	5.42%	90 680	4.92%	49.44	1.56%
2008	495.17	0.35%	90 609	-0.08%	49.67	0.47%
2009	499.15	0.80%	90 112	-0.55%	49.62	-0.10%
2010	539.98	8.18%	99 503	10.42%	49.89	0.54%
2011	562.37	4.15%	102 277	2.79%	49.97	0.16%
2012	562.56	0.03%	101 972	-0.30%	50.19	0.44%
2013	570.77	1.46%	102 760	0.77%	50.46	0.54%

Source: Directorate-General of Budget, Accounting, and Statistics of Executive Yuan, ROC

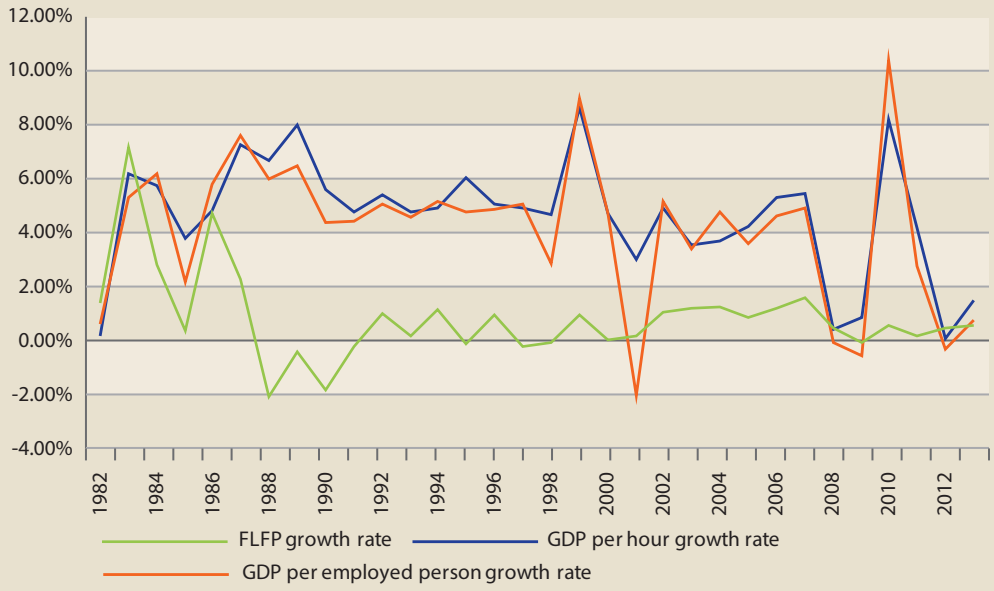
TABLE 6-12

CORRELATION BETWEEN LABOR PRODUCTIVITY GROWTH RATE AND FLFP GROWTH RATE IN THE ROC

	GDP per hour growth rate	GDP per employed person growth rate
FLFP growth rate	0.074767	0.175209

FIGURE 6-31

PRODUCTIVITY GROWTH RATES VS. FLFP GROWTH RATES IN THE ROC



6.2 Educational Attainment, FLFP, and Labor Productivity

To understand the scope of labor productivity and FLFP, Ogus [58] focused on the role of education in boosting labor productivity and, specifically, the trends in female education enrolment and labor force participation rates. The results indicated that increased rates of enrolment in secondary education were strongly related to higher rates of labor productivity. Further, although higher rates of tertiary education enrolment were again positively related to higher productivity outcomes, returns would appear to diminish beyond a certain threshold. That meant there was a weak relationship between an increasing supply of highly educated females and generally moribund female labor participation rates.

As Figure 6-32 [58] shows, there is a clear and positive relationship between rates of secondary education enrolments and output per employee for most Asian countries. However, as Figure 6-33 [58] suggests, the relationship continues to hold for tertiary enrolments but it appears that beyond a certain level, the returns to a universtiy degree or equivalent may start to diminish. Ogus pointed out that one of the reasons to consider was that although there has been a massive expansion in tertiary education opportunities in the developed world, this has not always been accompanied by an expansion in the number of high-quality educators or educated. Many surveys of employers seem to suggest that there is a growing mismatch between the skills and expectations of those graduating from many tertiary institutions, and the employability requirements of their employers.

As Figure 6-34 [58] shows, in 1980, Japanese women were significantly better educated than their neighbors, such as the ROK and the ROC, and also participated in greater proportions in the workforce. Figure 6-35 [58] suggests that Japanese women had also stepped back relative to females in the newly industrialized countries of Asia in 2010. Unfortunately, overall, this group of countries seems not to make the best use of their large cohort of educated females. For example, the ROC's women have ranked second on high tertiary educational attainment (84.43%) among Asian countries but, its FLFP rate ranked ninth (50.2%). In other words, although the average educational level of women in the ROC is among the highest in Asia, women's labor force participation rate is only slightly higher than Japan and the ROK and lags behind several neighboring economies, such as Hong Kong, Singapore, Thailand, PR China, and Vietnam, as well as many developed western countries such as the UK, France, Germany, and the USA [55, 56].

Indeed, the ROC has successfully boosted the education levels of both men and women over the past four decades, and has hence seen its labor productivity levels rise in tandem. However, as Ogus mentioned, many within these increasingly large cohorts of educated women have struggled to find suitable employment opportunities.

According to the Manpower Survey, conducted by Directorate-General of Budget, Accounting and Statistics, Executive Yuan every year, the trends of reasons for not being in the labor force were as shown in Figure 6-36 [10]. The topmost reason was housekeeping, though its percentage declined from 72.52% in 1978 to 49.51% in 2014. The percentage for the reason 'attending school or rebrushing to take entrance exams' increased from 15.47% in 1978 to 20.86% in 2014 due to the increase in educational attainment. The incidence of the reason 'old age or disabled' also increased from 9.52% in 1978 to 23.42% in 2014. Indeed, these trends are consistent with the phenomenon of late entry and early exit, as mentioned earlier.

Detailed data on 'the reason for not being in labor force by education attainment' was as shown in

FIGURE 6-32

PRODUCTIVITY VERSUS SECONDARY EDUCATION ENROLMENT RATES

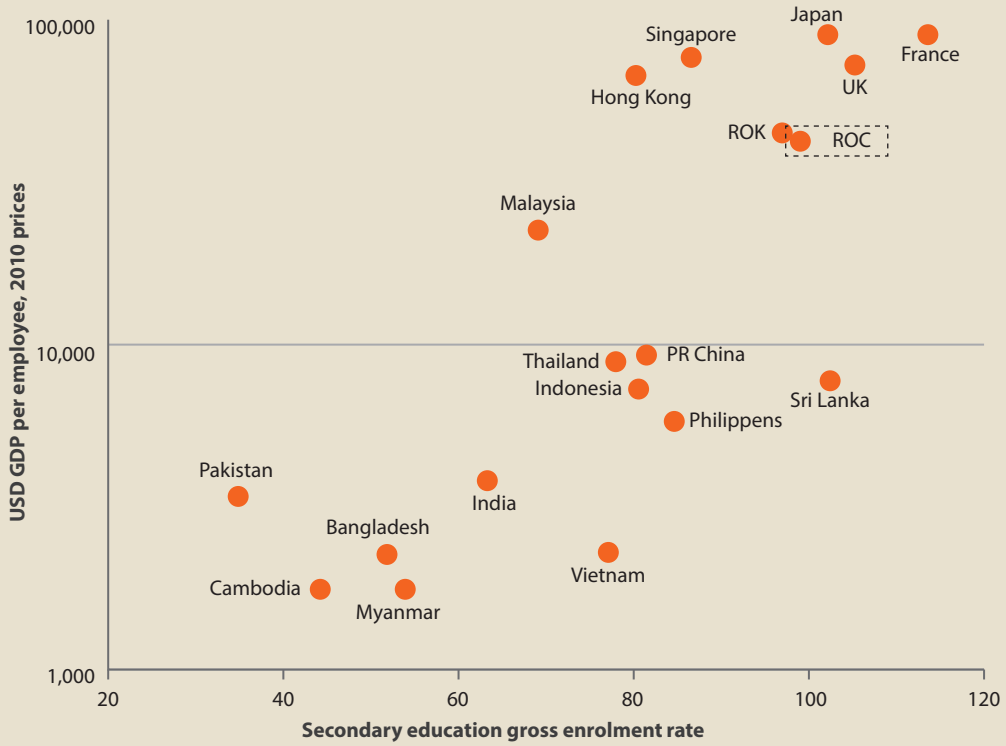


FIGURE 6-33

PRODUCTIVITY VERSUS TERTIARY EDUCATION ENROLMENT RATES

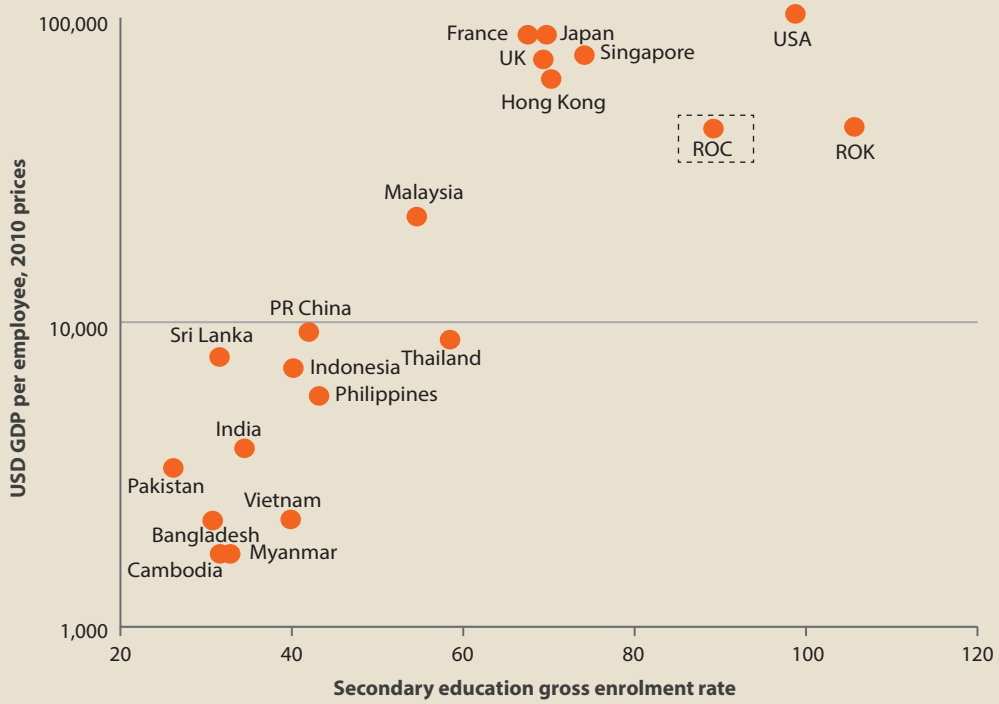


FIGURE 6-34

FEMALES' EDUCATIONAL ENROLMENTS AND LABOR FORCE PARTICIPATION RATES, 1980

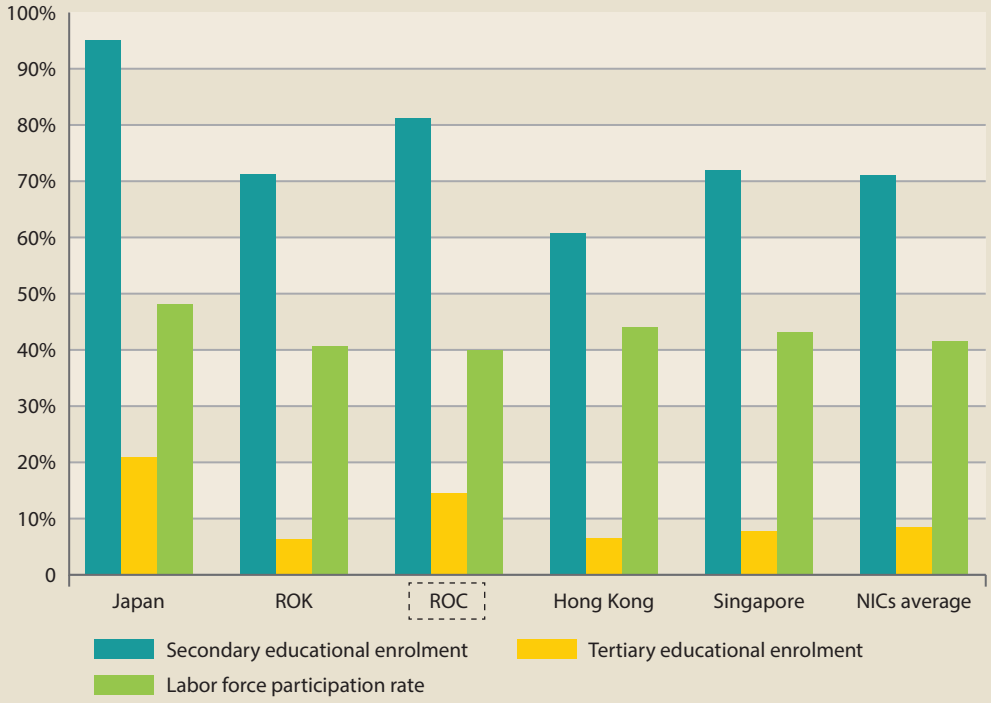


FIGURE 6-35

FEMALES' EDUCATIONAL ENROLMENTS AND LABOR FORCE PARTICIPATION RATES, 2010

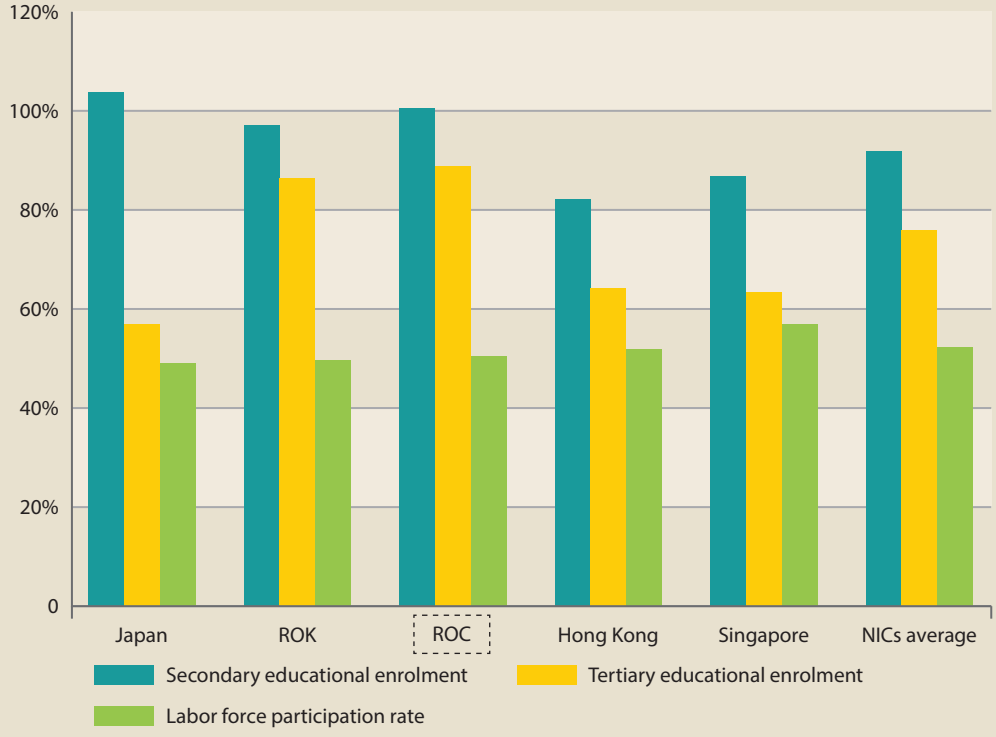


FIGURE 6-36

REASON FOR NOT BEING IN LABOR FORCE, 1978–2014

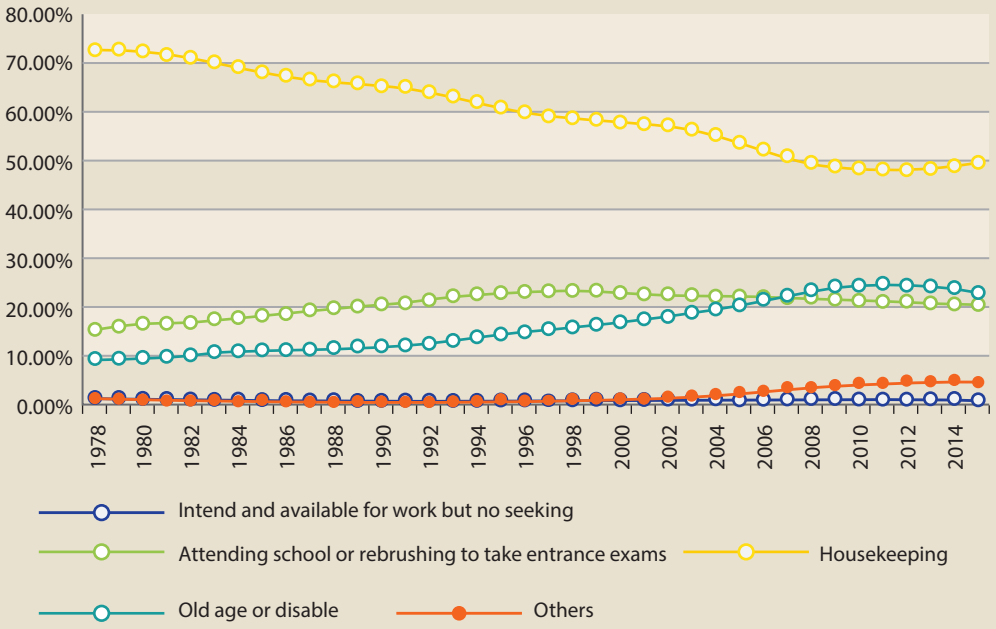


Table 6-13 [10]. For junior college group, senior high school group, and junior high school (Figure 6-37, Figure 6-38, Figure 6-39), 'housekeeping' was the main reason for those who were not in the labor force, whereas 'attending school or rebrushing to take entrance exams' was the main reason for the university group (Figure 6-40) as well as the graduate group (Figure 6-41). Looking back at the research results of Ogus [58], almost one-half of the Taiwanese women with high education choose to be out of the labor market, and the main reason was to pursue higher education.

The ROC now has the largest number of institutes of higher learning per person in the world, and more than 150 universities have so far turned out 900,000 holders of master's and doctoral degrees, many of whom struggle to find jobs. The rapid expansion of higher education in the country in the recent decade caused lower human capital use of the graduates. In addition, higher education hasn't kept up with the growth of global economies, which makes graduates fail in meeting the requirements of job markets because of the gap between knowledge and its application. This brings up a growing concern called 'highly-educated and unemployed.' The government lays stress on both 'the link between education and the labor market' and graduates' performance in the assessment of higher education quality, and it becomes an arguing investment to judge if doing a master's or doctoral degree is worthy [59].

As mentioned above, as higher education becomes common, the wastage of human resources in the forms of unemployment and underemployment gradually become the main problems that need to be addressed [60]. In order to solve these problems, both education and industry have to adjust the pace of development, and the government needs to bridge the gap by revising the policy involved. In this way, the human resources could be effectively used, and the ROC could become more competitive.

TABLE 6-13

REASON FOR NOT BEING IN LABOR FORCE BY EDUCATIONAL ATTAINMENT, 2014

Reason for not being in labor force \ Educational attainment	Total	Primary school and below	Junior high school	Senior high school	Junior college	University	Graduate school
Intend and to be available to work but not seeking	61	1	3	20	9	24	4
Attending school or rebrushing to take entrance exams	1,050	0	37	410	40	490	73
Housekeeping	2,450	580	347	833	291	336	63
Old age or disabled	1,158	803	98	129	52	68	8
Others	247	58	30	70	26	51	12
Total	4,966	1,442	515	1,462	418	969	160

FIGURE 6-37

REASON FOR NOT BEING IN LABOR FORCE FOR THE JUNIOR-HIGH-SCHOOL EDUCATED, 2014

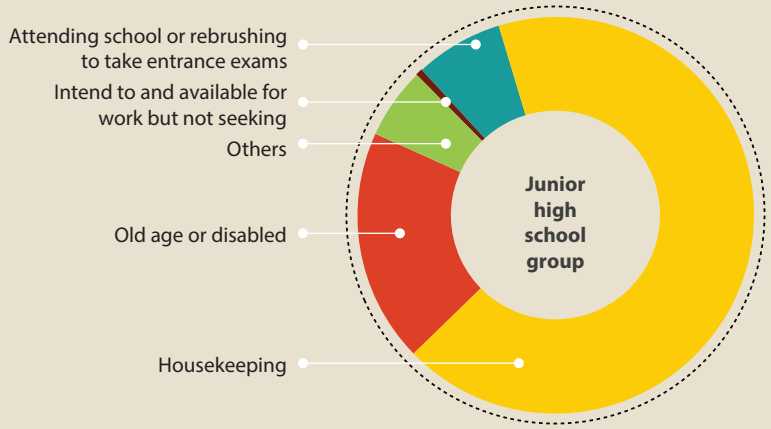


FIGURE 6-38

REASON FOR NOT BEING IN LABOR FORCE FOR THE SENIOR-HIGH-SCHOOL EDUCATED, 2014

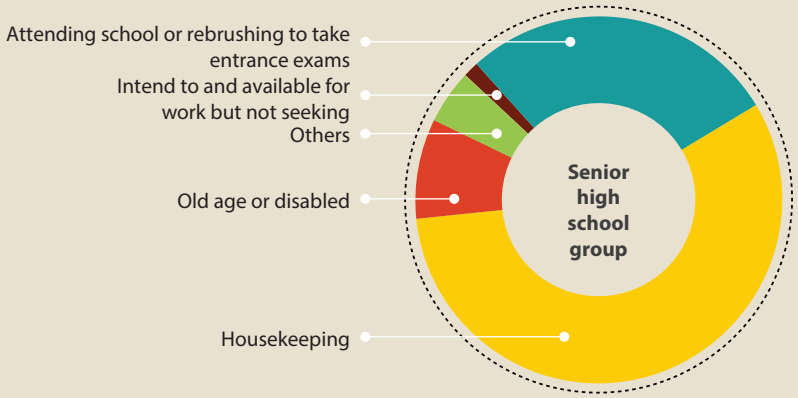


FIGURE 6-39

REASON FOR NOT BEING IN LABOR FORCE FOR THE JUNIOR-COLLEGE EDUCATED, 2014

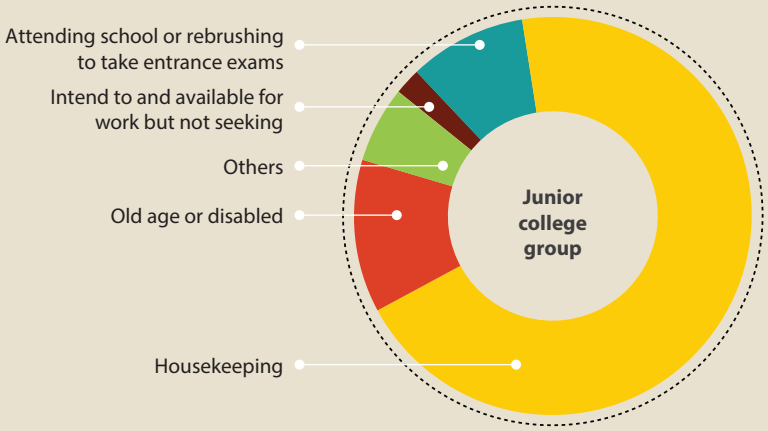


FIGURE 6-40

REASON FOR NOT BEING IN LABOR FORCE FOR THE UNIVERSITY EDUCATED, 2014

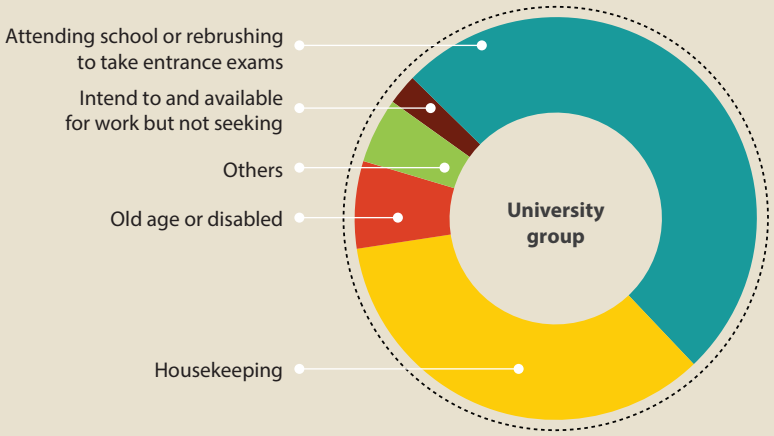
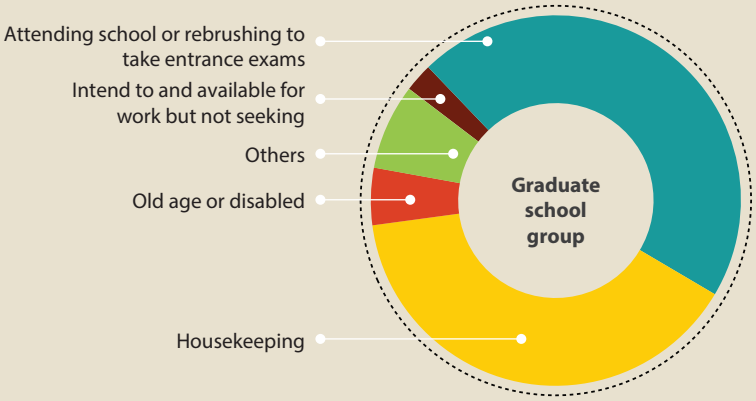


FIGURE 6-41

REASON FOR NOT BEING IN LABOR FORCE FOR THE GRADUATE-SCHOOL EDUCATED, 2014



7. Empirical Analysis

7.1 Introduction

The predominant view is that an aging population will support lower economic growth because the working-age group shrinks, leading to low or negative rates of labor force growth. Population aging causes a shift of consumption since government expenditure tends to increase to meet the increased demand for pensions and other old-age-related benefits. As such, countries with an aging-population problem focus efforts on closing the divide in women's participation in the formal economy in order to grow the economy, create jobs, and enhance inclusive prosperity for all.

This paper investigates the impact of FLFP on macroeconomic performance using a computable general equilibrium (CGE) model. A CGE model is a mathematical description of an economy using a system of simultaneous equations, and it is assumed that all the markets, sectors, and industries are modelled together with corresponding inter-linkages [61]. This study employed Social Accounting Matrix-based General Equilibrium Model for Taiwanese Economy and Environment (SAM-based GEMTEE), which was developed by Academia Sinica, the ROC and the Bureau of Agriculture and Resource Economics and Sciences, Australia. This dynamic CGE model involves the idea of endogenous population growth, and also includes the application of social accounting matrix. This model is very useful in understanding the impact of FLFP rate on population change, labor market, and income distribution under the general equilibrium framework.

7.2 Structure of the Model and Data

Population is one of the constituent elements of a country. However, the size of the population and changes in the age structure are the keys to determine a nation's development. In order to understand the future demographic trends, every two years, National Development Council (NDC) fixes the future population projections according to the latest statistical data on population, birth, death, migration, and other relevant parameters. Here, we mainly use the Cohort-Component Method for population estimation. The sizes of male and female single-age populations in 2011 are applied as the base period, increasing each age year-by-year, and adding births, deaths, social increases, and other assumptions to calculate the future male and female single-age population numbers.

The population module in this study is mainly connected with the economic core of GEMTEE. The population module contains the real income per person, the birth rates by specific ages, and the mortality rates by ages and genders. Therefore, the change of per capita income endogenously affects fertility, mortality, and net migration. Age and gender constitute the population changes, and thus determine the changes in the labor force. The size of the labor force decides the labor supply and helps determine economic outcomes. The economic core and the population module of GEMTEE are interdependent. The main difference with the estimation method of NDC lies in consideration of the changes in birth and death rates by per capita income changes in the future, and thus, estimates of the future population changes. In this study, considering economic factors, the population estimate assumptions of GEMTEE are found to be quite similar to the NDC's low estimates. A comparison between NDC's low estimate and GEMTEE is discussed ahead.

7.2.1 Using GEMTEE in Population Forecasting and Analysis

The GEMTEE model is a CGE model developed by Sustainable Development Center, Academia Sinica, and the Australian Bureau of Agriculture and Resource Economics and Sciences (ABARES), imitating the Australian Global Trade and Environment Model (GTEM) [62] to establish the Taiwanese computable general equilibrium model. GEMTEE includes a complete population module and dynamic invest function of the ROC region. The population module describes changes in population

scale and changes by age and gender groups over time periods. The dynamic invest function pushes the current net capital and additional investments to the next period, and it becomes the available capital in the next period. Additional investments are decided by current information such as the marginal productivity and the price of factors to calculate the expected return for the next period.

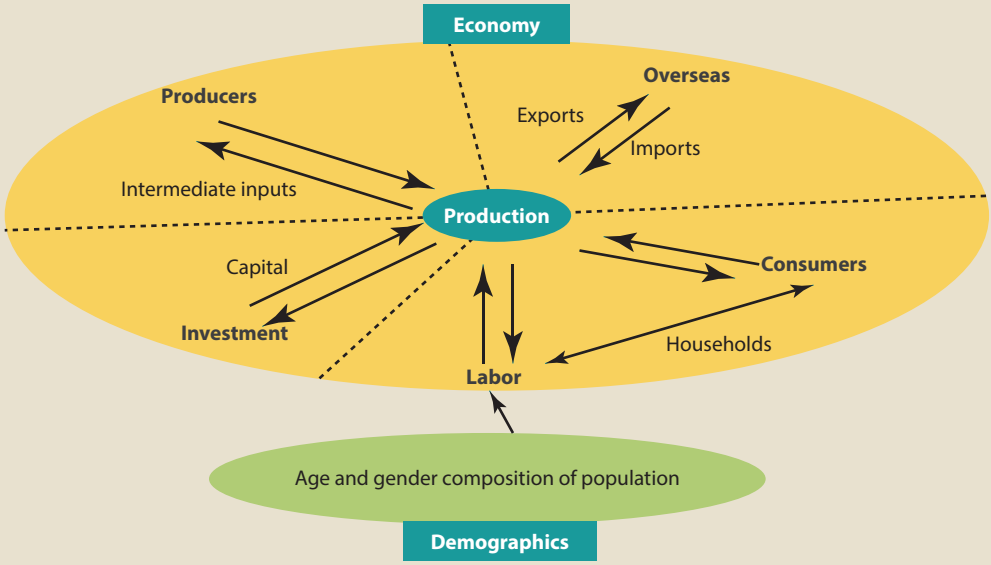
The key feature in GEMTEE is the linkage between perennial population and labor supply. The population-driven labor supply and economy-driven demand for labor together determine the wage rate at equilibrium. It is important to incorporate such endogenous linkages between population and labor supply for an economy that may undergo significant demographic changes. The ROC is such an economy that is currently facing the dual challenges of low birth and aging. Given the significance of population momentum effect, specifications of exogenous labor supply in conventional CGE models would not be able to clearly delineate future changes in the population and its composition, as well as the resultant labor supply for certain periods into the horizon.

Figure 6-42 illustrates the linkage of the demographic module and the economic core system in GEMTEE. The economic core of GEMTEE encompasses all the producing and consuming sectors. Consuming sectors refer to consumers of final goods such as private households, governments, foreign consumers (export), and fixed capital formation (investment). For production purposes, the producing sectors use goods produced by all industries (self and others), domestic and foreign, as intermediate inputs. These producing sectors adjust capital stock through annual addition of net investment (depreciation deducted), and hire labor from households. Households earn wage compensations and dividends from the producing sectors for the hours and funds they provide to those sectors as primary factors, and allocate this income for commodity consumption and savings. Savings offer funds for investment of the producing sectors.

Based on their profit maximization objectives, producing sectors decide the bundles of intermediate inputs (domestically produced and/or imported), operating capacity (capital stock), and labor employment;

FIGURE 6-42

LINKAGE OF DEMOGRAPHIC MODULE AND THE ECONOMIC CORE SYSTEM IN GEMTEE



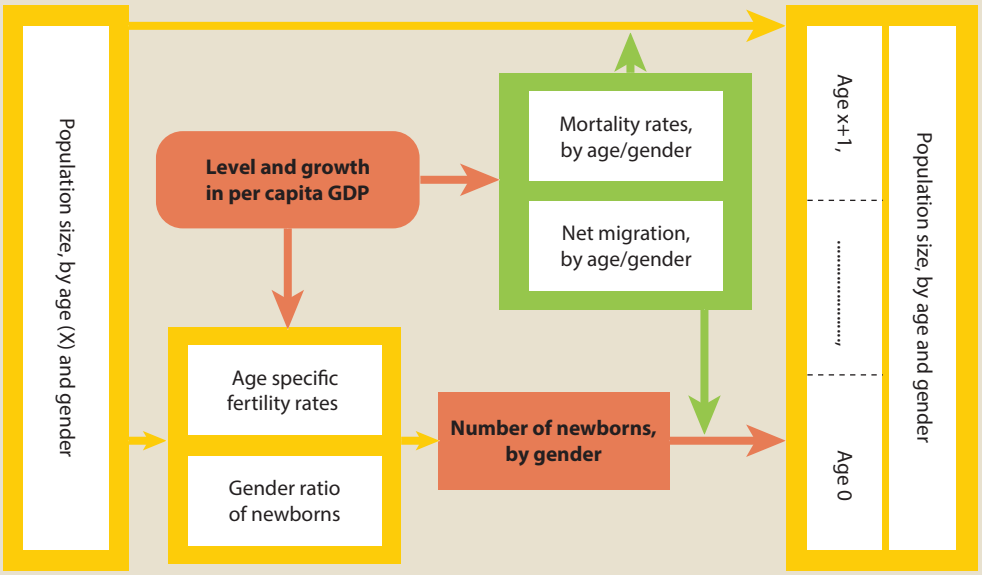
and the proportions of their products being sold in the domestic markets and overseas (as exports). Producers hire workers from the labor market, in which all producers bid for affordable amounts of workers at the prevailing wage rates determined by the market forces. None of the employers is a price setter. We assume in the GEMTEE model that labor is perfectly mobile between sectors, i.e., workers are omnipotent for all walks of life. Market wage rate would be determined by total demand for and supply of labor, such that no excess demand or excess supply would prevail. Total supply of labor is subject to the population size and the labor force participation rates, distinguished by age cohorts.

Figure 6-43 illustrates the mechanism of demographic transition between years in GEMTEE. For each year, a starting population, by age cohort and gender, is assumed to experience the fertility and mortality rates for pertinent age cohorts. Females aged between 15 and 49 are assumed to undergo the specified age-specific fertility rates and give birth to newborns accordingly following the assumed sex ratios (normally following the past trend). The newborns, after a discount of infant mortality rate, add to the population stock at the end of the year. For all ages of population, a mortality rate is applied to each age cohort during the year, and the surviving population adds to the year-end population and evolves to their next age, which is to be the starting population stock, by age cohort, for the next year. Migration occurred during the year would change the population stock at the year end. We take into account net migration by age and gender in GEMTEE so that the year-end population stock reflects this social increase.

To trigger the demographic transition mechanism as built in GEMTEE, levels and growth in per capita GDP are key to driving changes in the age-specific fertility rates (ASFR) and mortality rates. For prospective changes in mortality rates, we assume that economic growth would help extend life expectancies for all age cohorts. For the prospective ASFR changes, we assume in the GEMTEE population module that ASFR could go downwards as per capita income grows. By the time when the economy attains a certain level of per capita income, such downward response would no longer

FIGURE 6-43

DEMOGRAPHIC TRANSITION MECHANISM IN GEMTEE



take effect. Rather, the ASFR in this society may emulate some other societies that have similar social contexts but precede the ROC in terms of economic development.

For the fertility response to per capita income, we incorporated partially the findings of Luci and Thévenon [63], in combination with NDC's perspectives on fertility trends, as well as Japan's and the ROK's experiences. For the level of GDP as a tipping point toward fertility rebound, we chose the ROK and Japan as the exemplars for the ROC to emulate. The tipping point per capita GDP is set at the level of the ROK's 2005 level, when the ROK started to see total fertility rebound. Nevertheless, the ASFR will become detached from the downward-driving per capita GDP factor, as the ROC's per capita GDP surpassed the ROK's 2005 levels in 2010. Therefore, emulation for fertility rebound of other countries' experiences takes effect in the simulation of this paper with GEMTEE.

The linkage of demographic composition and labor supply in GEMTEE is through circular flows of causalities. We arbitrarily start with the variable of per capita GDP in the circle. Growth in per capita GDP would drive the ASFR positively, but the life expectancy negatively. Addition of surviving newborns and deduction of the deceased of all age cohorts during the year contribute to the natural change in population. Coupled with net migration occurred during the year, the population size is determined. By applying age-specific labor force participation rates to the population cohorts (particularly for ages 15–64), we obtain the labor supply for the year. This would be the maximum amount of labor that producing sectors could employ. In GEMTEE, we can either assume full employment or allow for unemployment among the labor supply. In this paper, we assume full employment, and constant net migration every year.

Once the labor supply falls short of labor demand, wage rises to clear the excess demand. Such wage rises raise the average cost of production and are reflected in the market price of commodities. A raised commodity price would discourage market demand for it and induce substitution through other substitutable commodities that are relatively cheaper. As demand drops, production would adjust downwards so as to maintain the goal of profit maximization at the given price level determined by the market. Less production indicates less demand for labor, although capital stock is not handily malleable within one year's time.

7-2-2 Two Features of GEMTEE model

1. **Dynamic mechanism:** According to Dixon and Parmente [64], the dynamic CGE model is of four kinds: recursive module with exogenous investing; recursive module with endogenous investing; non-recursive inter-temporal module; and non-recursive perfect investing model, though the first and second modules are the most widespread. The first module assumes that investing is exogenous, while the second module assumes investing is endogenous, which means the investment at t+1 and accumulated capital are decided by the expected return at t+2, and the expected return are decided by the real capital return and cost at t+1.

   In the GEETEM model, the dynamic mechanism of baseline forecasting is processed by the second module, i.e., the recursive module with endogenous investing. Since the setting of dynamic mechanism of producing behavior involves the assumption of investment, changes in capital, and investment returns, GEMTEE processes the dynamic mechanism through investing on the behavior of product industries to do the baseline forecasting. GEMTEE simulated the beginning value in the first year with the base year data from the input-output table and calculated the effect of changes in

exogenous variable to endogenous variable. It then used the results at the first year to simulate the beginning value of the second year, and likewise for the following years. This indicates that the GEETEM model uses annual recursive model to show the path of the endogenous variable responding to the changes in the exogenous variable.

2. **Endogenous population growth:** GEMTEE contains a comprehensive demographic model, which explains population growth, age, and gender composition changes over time. This model contains a decorative description of population dynamics, which reflects the basic conclusion of the demographic transition theory, that as a country moves along the path of economic improvement and increasing personal incomes, both fertility and mortality decline. The decline in mortality precedes the decline in fertility.

a Population cohorts

The core of the population model is the age/sex cohort structure. We distinguish two sexes, males and females. The size C of an age/sex cohort in sex 's' and age 'a' at time 't' follows from:

$$C_{s,a,t} = C_{s,a-1,t-1} \times \left(1 - M_{s,a-1,t-1}\right) \forall\, s, t, a = 1,2,3, \ldots..100 \quad (1)$$

M is the mortality rate, as specified below. In each period, people either die or promote to a higher age cohort. People do not change sex. The size of the oldest cohort follows from:

$$C_{s,100,t} = C_{s,99,t-1} \times \left(1 - M_{s,99,t-1}\right) + C_{s,100,t-1} \times \left(1 - M_{s,100,t-1}\right) \forall\, s, t \quad (2)$$

People above 100 years of age either die or remain in their age cohort. The total population P at time 't' follows from:

$$P_{r,t} = \sum_{s=f,m} \sum_{a=0}^{100} C_{r,s,a,t} \quad (3)$$

b Fertility

Fertility rates for the base year 2011 are as observed. Fertility rates for later periods are perturbed with the change in per capita income. Fertility follows from:

$$F_{f,a,t} = F_{f,a,t-1} \times [\, 1 + \sum_g W_{g,t-1} \times \delta_{g,a} \times \frac{y_t - y_{t-1}}{y_{t-1}} + \alpha_g \times I_{g=3} \times (\frac{F_{conv,a}}{F_{a,t-1}} - 1) \quad (4)$$

Here, 'y' is per capita income, 'g' denotes income group (US$340 per person per year < y < US$3,845 per person per year; US$3,845 per person per year < y < US$20,930 per person per year; y > US$20,930 per person per year), and is the income elasticity at the median income. I_C is the indicator function, which has a value naught if C is false and unity otherwise. α_g is a rate of convergence parameter that equals 0.05; multiplied with the indicator function, it implies convergence for high income regions and no convergence for other regions. $F_{conv,a}$ is the age-specific equilibrium fertility, and is specified to add up to 1.6 (the convergent total fertility rate) while the age-profile equals the average-age profile of the countries in the highest income group. W is a weight specified as:

$$W_{g,t} = \frac{1}{W_t^*} \times e^{-\beta\left(\ln(y_t \times \acute{y}_{g,t})\right)^2} \quad (5)$$

Here, ý denotes the median per capita income per group, β = 2.314 is a smoothing parameter and is defined such that ∑gWg,t =1∀t.

Equation (4) was estimated separately for each income group using panel data analysis. Equation (5) represents a kernel smoothing process to make continuous the transition of one income group to the next. The interpretation of Equation (6) is that the income elasticity of fertility is a weighted average of the income elasticity of three reference groups. The income elasticity for high-income regions is zero. Their fertilities evolve only through convergence to an exogenously specified profile. Total fertility at convergence is below replacement fertility (2.1 children per woman) in the base case, i.e., population asymptotically goes to zero. According to Equation (4), fertility would fall even further as incomes rise.

c **Life Expectancy**

Given the initial conditions, life expectancies are postulated to evolve with rises in income per person, using elasticity based on a weighting procedure similar to that applied to birth rates.

The growth rate of life expectancy g^{LE} follows from:

$$LE_{s,t} = LE_{s,t-1} \times \left[1 + \sum_g W_{g,t-1} \varepsilon_{g,a} \times \frac{y_t - y_{t-1}}{y_{t-1}} + \tau I_{g=3}\right] \quad (6)$$

Here, W is the same kernel smoothing weight as defined in Equation (5), y is per capita income, g is the income group, E is the income elasticity at median income, τ is the rate of technological progress, and I_C is the indicator function, which is nought if C is false and unity otherwise. Note that life expectancy is projected to continue to increase with economic growth, and also that medical technology is assumed to primarily benefit the rich.

d **Mortality Rates**

Mortality is updated by assuming that all age cohorts have the same proportional change in mortality rates, and hence is calculated by numerically solving the below equation.

$$LE_{s,t+1} = \sum_{a \in A} \prod_{b<a} (1 - M_{s,b,t+1}) = \sum_{a \in A} \prod_{b<a} \left(1 - \left(1 + g^M_{s,t}\right) \times M_{s,b,t}\right)$$

$$= \left(1 + g^{LE}_{s,t}\right) \times LE_{s,t} \quad (7)$$

Here, LE is life expectancy, M is mortality, and g^{LE} is the sex and time-specific growth rate of life expectancy, and g^M is the growth rate of mortality. Also, g^{LE} is implied by Equation (6), while g^M is obtained by solving Equation (7) numerically. The first part of Equation (7) gives the definition of life expectancy, which is the ratio of total number of people in a population over the number of people aged zero, under the assumptions that mortality rates and the absolute number of newborns is constant.

e **Net Migration**

GEMTEE calculates the inflow of net migrants of each gender and age over time to a region (the ROC), based on a given national net migration rate of each region for the base year. To keep the flow in balance, it is a requirement that the sum of net migrants, by gender and age, across all regions be zero.

The age and gender composition of net migration to each region is determined by the initial period's net migration rate for the region, the population of each gender and age in the region at a given time, and a positive global adjustment factor determining the constraint. While the sum of net migration is zero for each gender 'g' of age 'a' at time 't,' it measures the flow of net migrants of each gender and age to a region at a given time. As this flow may not be globally balanced, it needs an adjustment. However, this has come at a price. A fixed net migration rate implies that if a region has been a net recipient of immigrants in the base year, then it remains so for all future years irrespective of its economic performance and vice versa.

7.3 Database and Population Module

This study primarily applies the 2011 Industry Input-Output Table made by the Directorate-General of Budget, Accounting and Statistics (DBAS), Executive Yuan, and refers to the Industry, Commerce, And Service Census, National Income Account by DBAS; population statistics by the Department of Household Registration, MOI (DHR); and population projection of the ROC from 2012 to 2060 by the NDC. The data is constructed in two parts: the 2011 Industry Input-Output table, which includes capital stock; and the 2011 population of the ROC by ages.

1. Structure of the 2011 Input-Output Table: The Input-Output Table (See Figure 6-44) made by the DBAS, Executive Yuan demonstrates the industries' structure and the coexisting relationship of departments. It also shows the flows of currency and human capital in the domestic economic system. The rows show the distribution of goods while the columns represent the structure of the industry departments or terminal demands.

FIGURE 6-44

STRUCTURE OF THE INPUT-OUTPUT TABLE

		Absorption matrix					
		1	2	3	4	5	6
		Producers	Investors	Household	Export	Other	Change in inventories
	Size	I	I	1	1	1	1
Basic flows	C x S	V1BAS	V2BAS	V3BAS	V4BAS	V5BAS	V6BAS
Taxes	C x S	V1TAX	V2TAX	V3TAX	V4TAX	V5TAX	V6TAX
Capital	1	V1CAP	I = Number of industries				
Labor	O	V1LAB	C = Number of commodities				
Land	1	V1LND	O = Number of occupation types				
Other costs	1	V1OCT	S = 1. Domestic 2. Imported.				

	Joint production matrix
Size	I
C	MAKE

	Import duty
Size	1
C	V0TAR

The GEMTEE model database includes three sectors: the absorption matrix or used matrix that maintains all demand departments, the make matrix that maintains all supply departments, and the import duty vector matrix.

Moreover, in this model, the classification of departments follows the 2011 Industry Input-Output Table made by the DBAS, Executive Yuan, and combines 166 departments into 51 departments. We used the 2011 total capital stock of NT $31.27 trillion dollars from the 2011 National Statistics by the DBAS and the real used capital and related departments from '2011 industry, commerce and service census' to estimate the detailed capital stock for the 166 or the combined 51 industry departments.

2. 2011 Population of the ROC by Ages: This study collects and arranges the annual population statistics published by the MOI. The data includes the population per age and per gender (Figure 6-45) [65], women's fertility rate for the age group 15–49 (Figure 6-46) [65], life expectancy (75.98 for men and 82.65 for women in 2011) and mortality (Figure 6-47) [65], and net migration by gender immigration and emigration (Table 6-14) [65].

FIGURE 6-45

GENDER STRUCTURE OF POPULATION BY EACH AGE IN THE ROC, 2011

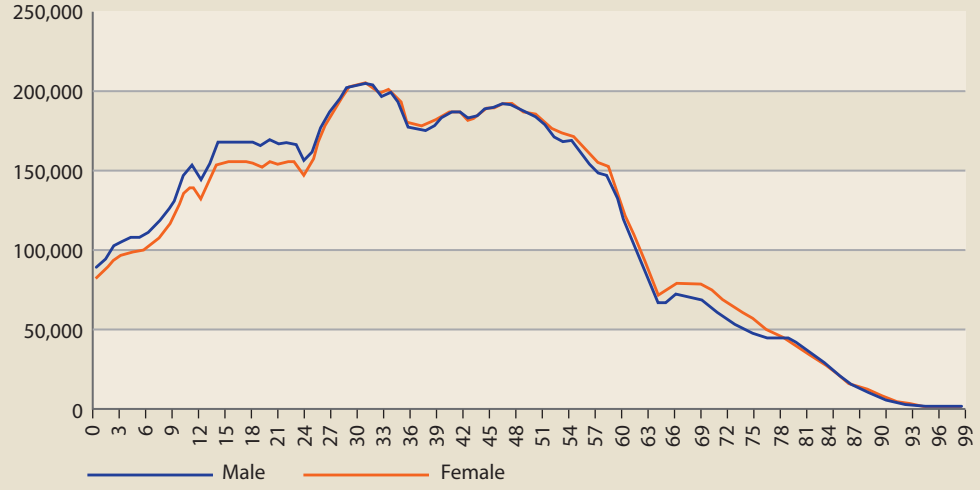


FIGURE 6-46

FERTILITY RATES OF 15–49 YEAR OLD FEMALES BY EACH AGE IN THE ROC, 2011

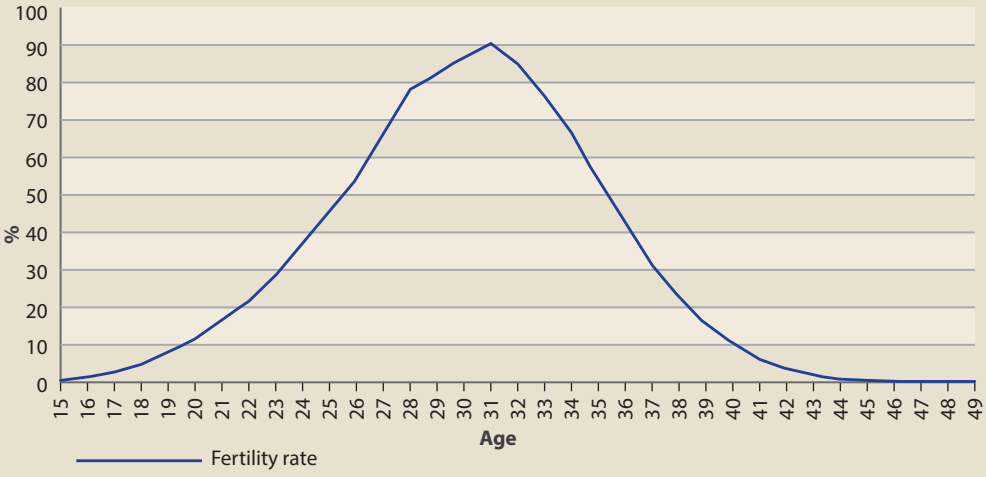


FIGURE 6-47

MORTALITY RATES FOR MALES AND FEMALES BY EACH AGE IN THE ROC, 2011

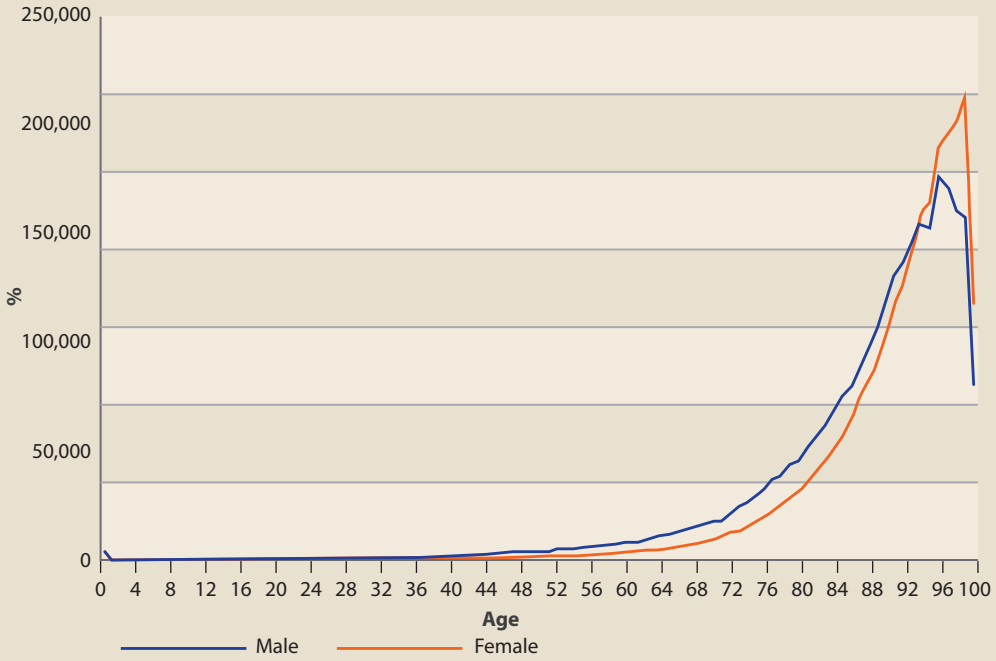


TABLE 6-14

MIGRATION IN THE ROC BY NUMBER OF PERSONS, 2011

Migration	Emigration	Immigration
Total	51,523	71,198
Male	23,795	26,361
Female	27,728	44,837

The process of collecting and assembling data for a complete SAM requires a considerable amount of time, so statistical offices normally produce these tables with a time lag of several years. The IO tables, used in this CGE model, are produced according to results of the Industry, Commerce and Service Census Surveys done every five years in the ROC. The most updated base-year tables are the 2011 Input-Output Tables. Due to the time lag of the data, the setting of those exogenous variables was usually hard to access, unless some estimations or assumptions had been made. Dixon and Rimmer [66] suggest that, after a standard SAM-based calibration, a CGE model can be used to update the initial data set, by forcing it (through an appropriate swapping between endogenous and exogenous variables) to reproduce observed values for variables like the main national accounting aggregates, international trade flows, or employment levels. In this way, we update new I/O tables by replacing a part of 2011 I/O tables with the 2014 data.

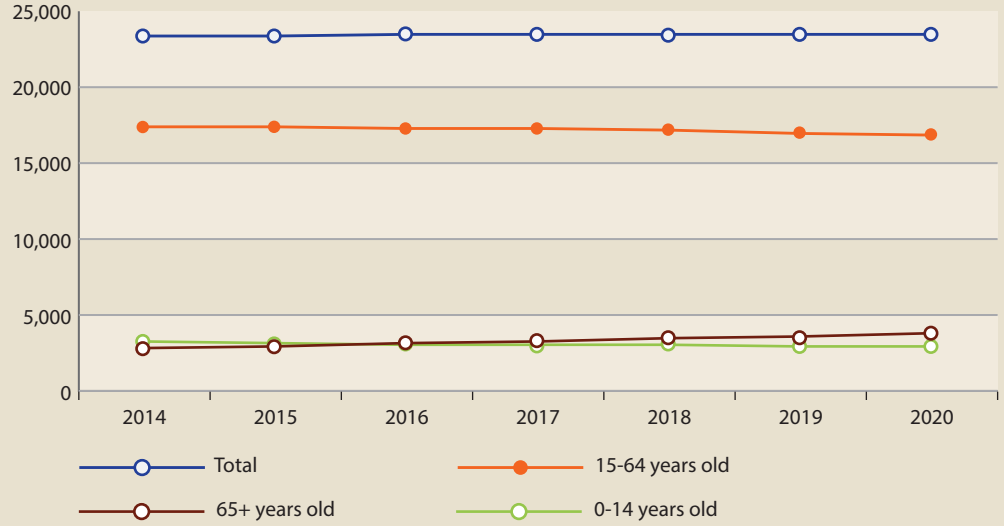
7.4 Population Projections

7.4.1 Population Trends

Using GEMTEE model, the ROC's population is projected to grow from 23.42 million in 2014 to 23.56 million in 2020, thus increasing by 0.6%. However, the growth rate of the population declines year on year.

FIGURE 6-48

POPULATION PROJECTIONS BY AGE GROUPS



The population of children aged 14 and younger will decrease to 2.91 million in 2020, down from 3.26 million in 2014, thus declining by 10.77%. The share of this age group in the overall population would decrease to 12.35% in 2020, from 13.92% in 2014. The working-age population of those aged 15 to 64 was to reach 17.37 million at its peak in 2015, up from 17.35 million in 2014, and then decrease to 16.85 million by 2020, which would be a decrease of 2.89% compared to 2014. The share of this group in the overall population would decrease to 71.51% in 2020, from 74.07% in 2014. On the other hand, the population of the elderly people aged 65 and above would grow to 3.80 million in 2020, up from 2.81 million in 2014. This group would grow more rapidly than the overall population, so its share would increase to 16.15% in 2020, from 12.01% in 2014.

7.4.2 Employment Projections by Industry Using Base Line Forecasting Analysis

Assuming that the FLFP rate would remain at 50.64% (2014 level), the base line forecasting of employment population by industry is shown in Table 6-15. Over the period 2014 to 2020, total employment in the ROC is expected to grow slightly by 0.08%, with the number of employed persons expected to increase by 8,409, while the working-age population is expected to decrease by 520,000 persons.

The construction sector is expected to have the maximum decrease, with the number of employed persons decreasing from 497,706 to 467,415, representing a decrease of 6.09% between 2014 and 2020. The other sectors that would have decreasing employment are manufacture of electronic parts and components (a decrease of 9,825 persons, or 2.32%); manufacture of machinery and equipment (a decrease of 8,210 persons, or 3.70%); and manufacture of plastics products (a decrease of 7,619 persons, or 4.52%).

On the other hand, due to the development of the service sector, ‘wholesale and retail trade’ and ‘other service activities’ sectors are projected to add 53,328 and 22,421 employed persons during the 2014–20 period, representing increases of 2.98% and 2.80%, respectively.

TABLE 6-15

INDUSTRY EMPLOYMENT PROJECTIONS

Section	2014	2015	2016	2017	2018	2019	2020	Net difference between 2020 and 2014
Growing of crops	386,740	387,258	388,479	389,335	389,862	390,317	390,580	3,322
Animal husbandry	113,551	113,250	113,236	113,586	113,887	114,165	114,336	1,086
Forestry	4,477	4,933	4,905	4,790	4,671	4,563	4,463	-470
Fishing and aquaculture	60,762	62,681	62,955	62,998	62,972	62,945	62,898	216
Mining and quarrying	7,477	7,396	7,291	7,140	6,953	6,775	6,604	-792
Manufacture of food products	136,029	135,564	138,243	140,277	141,826	143,250	144,181	8,617
Manufacture of beverages	18,117	18,718	18,926	19,128	19,313	19,480	19,602	884
Manufacture of tobacco products	3,921	3,935	3,959	3,968	3,965	3,960	3,951	17
Manufacture of textiles,wearing apparel and clothing accessories	165,212	154,332	154,333	153,809	151,838	150,252	148,607	-5,725
Manufacture of leather, fur and related products	18,337	17,159	17,191	17,116	16,909	16,742	16,572	-587
Manufacture of wood and of products of wood and bamboo	19,674	20,465	20,430	20,296	20,112	19,926	19,733	-732
Manufacture of pulp, paper and paperboard	70,193	77,558	78,968	79,775	80,151	80,419	80,474	2,916
Printing and reproduction of recorded media	67,544	69,148	69,158	69,432	70,011	70,132	70,049	901
Manufacture of petroleum and coal products	32,079	35,749	36,802	37,437	37,900	38,314	38,659	2,910
Manufacture of chemical material	96,260	93,066	93,425	92,997	91,984	91,094	90,194	-2,872
Manufacture of chemical products	58,232	56,532	56,946	57,025	56,693	56,380	55,997	-535
Manufacture of pharmaceu-ticals and medicinal chemical products	26,818	31,284	31,898	31,861	31,642	31,467	31,238	-46
Manufacture of rubber products	48,905	60,315	60,727	60,094	59,086	58,201	57,297	-3,019
Manufacture of plastics products	141,093	168,484	167,692	166,196	164,178	162,570	160,865	-7,619
Manufacture of other non-metallic mineral products	97,464	95,472	96,292	96,165	95,277	94,342	93,334	-2,138

CONTINUED ON NEXT PAGE

CONTINUED FROM PREVIOUS PAGE

Section	2014	2015	2016	2017	2018	2019	2020	Net difference between 2020 and 2014
Manufacture of basic iron and steel	55,642	61,669	59,836	58,622	57,397	56,252	55,089	-6,580
Manufacture of other basic metals	24,186	23,000	23,324	23,447	23,326	23,231	23,104	104
Manufacture of fabricated metal products	340,750	319,581	323,426	323,346	319,994	317,118	314,113	-5,468
Manufacture of electronic parts and components	435,133	423,318	429,005	428,332	423,511	418,598	413,493	-9,825
Manufacture of computers, electronic and optical products	112,511	106,939	106,491	105,603	104,121	102,758	101,401	-5,538
Manufacture of electrical equipment	127,900	122,360	123,186	123,332	122,744	122,051	121,227	-1,133
Manufacture of machinery and equipment	235,284	221,788	218,486	217,239	216,154	214,979	213,578	-8,210
Manufacture of motor vehicles and parts	75,048	89,706	91,031	90,585	89,640	88,824	87,936	-1,770
Manufacture of other transport equipment and parts	70,799	66,551	67,058	67,126	66,673	66,109	65,544	-1,007
Manufacture of furniture	27,011	24,998	25,394	25,567	25,518	25,421	25,286	288
Other manufacturing	142,136	139,667	140,365	140,353	139,613	138,734	137,706	-1,961
Electricity supply	24,816	25,603	25,336	24,799	24,206	23,639	23,077	-2,526
Gas supply	3,373	3,398	3,440	3,491	3,543	3,598	3,661	263
Water supply	5,856	5,937	6,013	6,047	6,060	6,064	6,056	119
Remediation activities and other waste management services	66,367	68,316	68,022	67,287	66,508	65,917	65,392	-2,924
Construction	490,276	497,706	492,835	486,335	480,354	473,898	467,415	-30,291
Wholesale and retail trade	1,788,468	1,759,051	1,767,733	1,780,659	1,789,011	1,800,787	1,812,379	53,328
Transportation and storage	273,932	297,618	295,608	291,443	287,131	283,665	280,534	-17,085
Accommodation and food service activities	463,832	452,354	456,802	460,145	460,905	461,677	460,750	8,396
Information and communication	70,853	72,760	72,212	71,995	72,368	71,902	71,564	-1,196
Telecommunications	21,046	20,728	20,476	20,612	20,749	20,853	20,922	193
Information service activities	81,373	81,728	77,796	76,510	77,723	76,386	74,931	-6,796

CONTINUED ON NEXT PAGE

CONTINUED FROM PREVIOUS PAGE

Section	2014	2015	2016	2017	2018	2019	2020	Net difference between 2020 and 2014
Financial and insurance activities	384,623	392,654	397,966	400,798	402,316	402,674	402,242	9,588
Real estate activities	107,734	107,905	108,277	108,923	110,131	110,585	110,820	2,916
Professional, scientific and technical activities	309,435	304,975	299,297	299,664	305,502	304,435	302,379	-2,596
Support service activities	291,590	299,253	301,530	302,340	301,959	301,647	301,131	1,879
Public administration and defence; compulsory social security	706,992	709,169	710,464	711,284	712,023	712,726	713,287	4,118
Education	1,359,297	1,359,815	1,360,762	1,361,375	1,361,962	1,362,564	1,363,029	3,213
Human health and social work activities	314,872	316,989	318,879	320,863	323,087	325,288	327,098	10,109
Arts, entertainment and recreation	149,776	155,178	156,145	156,186	155,940	155,574	155,226	47
Other service activities	801,488	808,019	816,987	821,976	825,796	828,692	830,440	22,421
Total	**10,937,297**	**10,954,048**	**0,988,054**	**11,001,727**	**10,997,212**	**10,983,957**	**10,962,462**	**8,409**

7.5 Scenario Assumptions

As mentioned earlier, the ROC government hopes to remedy the aging problem by boosting FLFP rate from the current 50% to 53% by 2020 by implementing various active labor market policies. With female labor force rates being persistently high in Denmark and Iceland, the ROC has a long way to go. As shown in Table 6-16, Singapore has the highest FLFP rate among the developed Asian economies, whereas Japan has a relatively lower FLFP rate. The ROK and Hong Kong have higher FLFP rates than the ROC. To access the impact of changes in FLFP on the economic development of the ROC, a computable general equilibrium model, the GEMTEE model, was used to simulate five alternative scenarios, described below, for the development of FLFP rates in the country:

1. Scenario I (base line forecasting): FLFP remains at 50.64% (2014 level)
2. Scenario II (low variant): 51.3%, the ROK's FLFP rate in 2014
3. Scenario III (medium variant A): 53%, the goal the ROC government hopes to achieve in 2020
4. Scenario IV (medium variant B): 54.6%, Hong Kong's FLFP rate in 2014
5. Scenario V (high variant): 58.6%, Singapore's FLFP rate in 2014

TABLE 6-16

LABOR FORCE PARTICIPATION RATES OF ASIAN ECONOMIES AND USA, 2004–14 (IN %)

Year	ROC			ROK			Singapore (2)		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
2004	57.7	67.8	47.7	62.1	75.0	49.9	63.3	75.7	51.3
2005	57.8	67.6	48.1	62.0	74.6	50.1	…	…	…
2006	57.9	67.4	48.7	61.9	74.1	50.3	65.0	76.2	54.3
2007	58.3	67.2	49.4	61.8	74.0	50.2	65.1	76.5	54.3
2008	58.3	67.1	49.7	61.5	73.5	50.0	65.6	76.1	55.6
2009	57.9	66.4	49.6	60.8	73.1	49.2	65.4	76.3	55.2
2010	58.1	66.5	49.9	61.0	73.0	49.4	66.2	76.5	56.5
2011	58.2	66.7	50.0	61.1	73.1	49.7	66.1	75.6	57.0
2012	58.4	66.8	50.2	61.3	73.3	49.9	66.6	76.0	57.7
2013	58.4	66.7	50.5	61.5	73.2	50.2	66.7	75.8	58.1
2014	58.5	66.8	50.6	62.4	74.0	51.3	67.0	75.9	58.6
Year	**Hong Kong**			**Japan**			**USA (3)**		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
2004	61.3	71.6	51.9	60.4	73.4	48.3	66.0	73.3	59.2
2005	60.9	71.1	51.8	60.4	73.3	48.4	66.0	73.3	59.3
2006	61.2	70.9	52.6	60.4	73.2	48.5	66.2	73.5	59.4
2007	61.2	70.4	53.1	60.4	73.1	48.5	66.0	73.2	59.3
2008	60.9	69.7	53.1	60.2	72.8	48.4	66.0	73.0	59.5
2009	60.8	69.4	53.2	59.9	72.0	48.5	65.4	72.0	59.2
2010	59.6	68.5	51.9	59.6	71.6	48.5	64.7	71.2	58.6
2011	60.1	68.4	53.0	59.3	71.1	48.2	64.1	70.5	58.1
2012	60.5	68.7	53.6	59.1	70.8	48.2	63.7	70.2	57.7
2013	61.2	69.1	54.5	59.3	70.5	48.9	63.2	69.7	57.2
2014	61.1	68.8	54.6	59.4	70.4	49.2	62.9	69.2	57.0

Sources:
ROC: Directorate-General of Budget, Accounting and Statistics, Executive Yuan (DGBAS), Manpower Survey
Japan: Labor Force Survey (http://www.stat.go.jp/english/data/roudou/index.htm)
ROK: Statistics Database (http://kosis.kr/eng/)
USA: Bureau of Labor Statistics, Current Population Survey (http://data.bls.gov/PDQ/outside.jsp?survey=ln)
Hong Kong: General Household Survey (http://www.censtatd.gov.hk/hong_kong_statistics/statistical_tables/)
Singapore: Labor Force in Singapore, 2014
Note: (1) Labor force participation rate= (labor force / civilian population of 15 years old or over) ×100.
(2) Refers to the resident labor force participation rate.
(3) Labor force participation rate of the USA is calculated with the civilian population of 16-years-old or above.

TABLE 6-17

ALTERNATIVE SCENARIOS FOR CGE SIMULATIONS

	Low variant FLFP rate 51.3%	Medium variant (A) FLFP rate 53%	Medium variant (B) FLFP rate 54.6%	High variant FLFP rate 58.6%
Female labor force increased (persons)	66,280	237,000	397,678	799,373
Annual growth rate of labor force 2015–20 (%)	0.12%	0.43%	0.73%	1.46%

7.6 Scenario Results and Analyses

7.6.1 Macro Effect of Boosting FLFP Rates

Table 6-18 summarizes the impact of FLFP rates on macroeconomic variables, including real GDP, consumer price index, real household consumption, aggregate employment, average real wage, and GINI coefficient.

Real GDP: At the overall level, the impact of these additional labor resources is an increase in the size of the ROC's economy. In real GDP terms, for the scenarios II, III, IV, and V, the average annual growth rates for the period 2014 to 2020 would be 2.292%, 2.477%, 2.655%, and 3.118%, respectively, as compared to a growth rate of 2.214% for the baseline scenario (scenario I).

Consumer price index (CPI): The increase of labor input (female labor supply) reduces the price level. In the scenarios II through V, the annual growth rate of CPI would be 0.095%, -0.009%, -0.084%, and -0.315%, respectively, and all would be lower than the baseline scenario I.

Real household consumption: On the domestic side of the economy, the additional income from the extra resources would enable the annual growth rate of household real consumption expenditure for scenarios II through V to be 0.009%, 0.036%, 0.108%, and 0.246%, respectively. Again, all would be above the baseline scenario I.

Aggregate employment: The higher FLFP rate would also lift the annual growth rate of aggregate employment in 2020 from its baseline figure of -0.196% (scenario I) to 0.124% (scenario II), 0.367% (scenario III), 0.644 (scenario IV), and 1.337% (scenario V), amounting to additions of 0.32%, 0.563%, 0.84%, and 1.533%, respectively.

Average real wage: The increase in female labor force supply would negatively impact the real wage rate. The annual growth rate of real wage rate would be 0.161% (scenario II), 0.521% (scenario III), 0.868% (scenario IV), and 1.742% (scenario V), all below the growth rate for the baseline (scenario I), respectively.

Income distribution (Gini Coefficient): A boost in FLFP rate also contributes to the improvement in national income distribution. With respect to personal income inequality, income distribution for the scenarios II through V would be 0.107, 0.094, 0.086, and 0.081, respectively. All would be significant improvements over the Gini coefficient of 0.126 for the baseline scenario I.

TABLE 6-18

IMPACT OF FLFP ON MACROECONOMIC VARIABLES USING CGE SIMULATION (IN %)

Scenario	Basic macroeconomic variables	2014	2015	2016	2017	2018	2019	2020
	Real GDP							
I	Baseline forecasting (FLFP rate 50.64%)	3.170	1.060	2.869	2.694	2.515	2.330	2.214
II	Low variant (FLFP rate 51.3%)	3.170	1.060	2.944	2.772	2.595	2.412	2.292
III	Medium variant (A) (FLFP rate 53%)	3.170	1.060	3.127	2.961	2.786	2.608	2.477
IV	Medium variant (B) (FLFP rate 54.6%)	3.170	1.060	3.302	3.143	2.971	2.795	2.655
V	High variant (FLFP rate 58.6%)	3.170	1.060	3.732	3.585	3.424	3.282	3.118

CONTINUED ON NEXT PAGE

CONTINUED FROM PREVIOUS PAGE

Scenario	Basic macroeconomic variables	2014	2015	2016	2017	2018	2019	2020
Consumer price index								
I	Baseline forecasting (FLFP rate 50.64%)	2.694	0.106	0.062	0.471	0.168	0.157	0.149
II	Low variant (FLFP rate 51.3%)	2.694	0.073	0.140	0.399	0.104	0.101	0.095
III	Medium variant (A) (FLFP rate 53%)	2.694	-0.009	-0.272	0.240	-0.011	-0.009	-0.009
IV	Medium variant (B) (FLFP rate 54.6%)	2.694	-0.086	-0.384	0.094	-0.138	-0.088	-0.084
V	High variant (FLFP rate 58.6%)	2.694	-0.286	-0.722	-0.211	-0.278	-0.331	-0.315
Real household consumption								
I	Baseline forecasting (FLFP rate 50.64%)	2.950	1.065	2.657	2.583	2.543	2.395	2.275
II	Low variant (FLFP rate 51.3%)	2.950	1.023	2.657	2.585	2.549	2.404	2.284
III	Medium variant (A) (FLFP rate 53%)	2.950	0.916	2.698	2.629	2.602	2.462	2.339
IV	Medium variant (B) (FLFP rate 54.6%)	2.950	0.816	2.724	2.668	2.645	2.508	2.383
V	High variant (FLFP rate 58.6%)	2.950	0.566	2.792	2.746	2.727	2.654	2.521
Aggregate employment								
I	Baseline forecasting (FLFP rate 50.64%)	-0.014	0.153	0.310	0.124	-0.041	-0.121	-0.196
II	Low variant (FLFP rate 51.3%)	0.585	0.594	0.438	0.333	0.183	0.076	0.072
III	Medium variant (A) (FLFP rate 53%)	0.585	0.905	0.749	0.643	0.493	0.386	0.367
IV	Medium variant (B) (FLFP rate 54.6%)	0.585	1.198	1.041	0.936	0.785	0.678	0.644
V	High variant (FLFP rate 58.6%)	0.585	1.931	1.773	1.666	1.515	1.407	1.337
Average real wage								
I	Baseline forecasting (FLFP rate 50.64%)	4.879	1.149	3.061	3.132	3.198	3.358	3.526
II	Low variant (FLFP rate 51.3%)	4.879	0.952	2.902	2.978	3.052	3.205	3.365
III	Medium variant (A) (FLFP rate 53%)	4.879	0.447	2.553	2.633	2.726	2.862	3.005
IV	Medium variant (B) (FLFP rate 54.6%)	4.879	-0.025	2.212	2.308	2.411	2.532	2.658
V	High variant (FLFP rate 58.6%)	4.879	-1.191	1.361	1.483	1.618	1.699	1.784

CONTINUED ON NEXT PAGE

CONTINUED FROM PREVIOUS PAGE

Scenario	Basic macroeconomic variables	2014	2015	2016	2017	2018	2019	2020
	Gini coefficient							
I	Baseline forecasting (FLFP rate 50.64%)	0.080	-0.079	0.136	0.201	0.161	0.133	0.126
II	Low variant (FLFP rate 51.3%)	0.080	-0.073	0.117	0.180	0.115	0.113	0.107
III	Medium variant (A) (FLFP rate 53%)	0.080	-0.070	0.106	0.176	0.108	0.099	0.094
IV	Medium variant (B) (FLFP rate 54.6%)	0.080	-0.068	0.100	0.174	0.100	0.091	0.086
V	High variant (FLFP rate 58.6%)	0.080	-0.067	0.096	0.170	0.095	0.085	0.081

7.6.2 The Impact of Boosting FLFP Rate on Products Value

Activity across all industries increases appreciably, indicating that all industries do benefit from the additional productive resources available in these increased FLFP scenarios.

As shown in Table 6-19, scenario III (FLFP rate of 53%, which is the goal set by the government), would add another 2.36% (compared to the baseline rate of 50.64%) to the labor force in 2020 or the equivalent of nearly 237,000 women to the workforce. The impact of these additional labor resources would produce an increase in products value for the ROC's economy, which would amount to NT$290,160 million or 1.07% more than in the baseline scenario.

The 'wholesale and retail trade' sector would be particularly advantaged from the increased FLFP rate scenario. It would add NT$71,062 million more than in the baseline scenario, amounting to an increase of 2.05%, due to its being a relatively more labor-intensive and service-oriented industry where women have comparative advantages in employment. The other sectors that would be advantaged from increase in female labor force would be 'manufacture of machinery and equipment' (an increase of NT$28,029 million or 2.12%), 'manufacture of electronic parts and components' (an increase of NT$20,301 million or 0.55%), 'accommodation and food service activities' (an increase of NT$16,240 million or 2.11%), and 'professional, scientific and technical activities' (an increase of NT$11,521million or 1.72%). In other words when the price of manufactured goods would fall as increased labor supply would bring about wage declines and pull costs down, demand for these goods would increase considerably, especially for exports.

7.6.3 The Impact of Boosting FLFP Rate on Occupations

The demand for the additional FLFP in the workforce is divided among the occupations shown in Table 6-21. The ones that would have relatively higher demand include 'craft and related trades workers' (an increase of 67,169 persons or 2.81%), 'senior officials and managers' (an increase of 44,160 persons or 2.89%), 'elementary laborers' (an increase of 37,726 persons or 2.58%), 'service and sales workers' (an increase of 34,067 persons or 2.61%), and 'technicians and associates' (an increase of 31,580 persons or 2.61%).

The relationship between outcomes for occupations and industries is clear. The increased demand for technicians, trades workers, officials, and managers benefits from the expansion in the manufacturing sector, particularly in the higher-value technology equipment manufacturing. On the other hand, demand for sales and clerical workers is due to the expansion of the wholesale and retail trade sector.

7.7 Conclusions and Policy Implications

The objectives of this study were two-fold: one, to investigate the situation of a rapidly shrinking labor force due to an aging society by conducting population projection; and two, to better understand the impact of boosting FLFP on the overall Taiwanese economy as well as on different parts of the economy.

According to the results of population projection, the working-age population (15 to 64 years of age) would reach 17.37 million at its peak in 2015, up from 17.35 million in 2014, and then decline to 16.85 million by 2020. Working-age population's share will also decrease to 71.51% by 2020, from 74.07% in 2014.

This study also developed a computable general equilibrium (CGE) model to simulate alternative scenarios on the macroeconomic impacts of boosting FLFP in the ROC. The scenarios predict outcomes for 2020 and are compared with a baseline level that is interpreted as a business-as-usual scenario with no FLFP rate changes, i.e., FLFP remains at the 2014 level.

In general, the results of the modelled scenarios showed that increased FLFP rate would improve the real GDP; decrease the price level; benefit consumer spending; improve aggregate employment; decrease average real wage; and improve income distribution.

For example, in order to solve the challenges of a rapidly aging population, the ROC government hopes to boost the FLFP rate from an existing 50% to 53% by 2020 through various active labor market policies. According to the results from scenario simulation, if the ROC achieves that goal, it would take the average annual growth rate during the period 2014 to 2020 to 2.477% from 2.214% in the baseline scenario; the annual growth rate of household real consumption expenditure to 0.036% (above the baseline scenario); the annual growth rate of aggregate employment to 0.367% from the baseline figure of -0.196%; the annual growth rate of real wage rate to 0.521% (below the baseline figure); and income distribution or Gini coefficient to 0.094 against a baseline Gini coefficient of 0.126. Other scenario simulations have similar results, which show that increased FLFP would result in a larger and better economy.

On the other hand, the impact of the additional female labor force would also produce an increase in products value for the ROC's economy, amounting to NT$290,160 million or 1.07% more than the baseline scenario. The wholesale and retail trade sector would be more advantaged from the increased FLFP rate scenario, gaining NT$71,062 million or 2.05% more when compared with the baseline scenario. Among occupations, demands for craft and related trades workers, senior officials and managers, elementary laborers, service and sales workers, and technicians and associates would be relatively higher. The relationship between outcomes for occupations and industries is clear. Service-oriented and higher value-added sectors would benefit from increased FLFP.

The results of this study indicated that integrating women into the economy could yield a broad range of economic gains. To boost FLFP, the ROC government has implemented various policies to bring about the advancement, development, and empowerment of women. The measures include creating an environment through economic and social policies for full development of women to enable them to take advantage of their full potential; strengthening legal systems to focus on elimination of all kinds of discrimination against women, equal access to quality education, employment, career, vocational development, equal remuneration, occupational safety, and so on. Indeed, as the country faces serious demographic challenges from a shrinking labor force and an aging society, further integration of women into the economy is the right thing to do.

TABLE 6-19

SIMULATION RESULTS OF THE IMPACT OF BOOSTING FLFP RATES ON PRODUCT VALUES, 2020 (IN NT$ MILLION)

Scenario	Scenario I	Scenario II	Scenario III	Scenario IV	Scenario V	The difference between scenarios II/I	The difference between scenarios III/I	The difference between scenarios IV/I	The difference between scenarios V/I
Section	Baseline FLFP 50.64%	Low variant FLFP rate 51.3%	Medium variant (A) FLFP rate 53%	Medium variant (B) FLFP rate 54.6%	High variant FLFP rate 58.6%				
Growing of crops	181,144	181,591	182,567	183,496	185,804	447	1,423	2,352	4,660
Animal husbandry	40,487	40,593	40,818	41,037	41,609	107	331	550	1,123
Forestry	1,702	1,708	1,720	1,732	1,761	6	18	30	60
fishing and aquaculture	138,151	138,524	139,023	139,613	141,048	373	872	1,462	2,897
Mining and quarrying	8,542	8,585	8,631	8,689	8,828	43	89	147	286
Manufacture of food products	518,713	520,453	524,019	527,517	536,686	1,741	5,307	8,804	17,973
Manufacture of beverages	149,813	150,149	150,688	151,272	152,717	336	875	1,459	2,904
Manufacture of tobacco products	64,004	64,120	64,327	64,534	65,039	116	323	531	1,035
Manufacture of textiles,wearing apparel and clothing accessories	242,174	244,743	249,479	254,222	265,740	2,569	7,306	12,049	23,566
Manufacture of leather, fur and related products	70,895	71,498	72,732	73,936	76,865	603	1,837	3,041	5,970
Manufacture of wood and of products of wood and bamboo	6,642	6,676	6,736	6,799	6,955	33	93	156	313
Manufacture of pulp, paper and paperboard	78,905	79,320	80,005	80,741	82,582	416	1,100	1,837	3,678
printing and reproduction of recorded media	5,181	5,206	5,254	5,306	5,445	25	73	125	264
Manufacture of petroleum and coal products	770,953	777,050	778,205	783,098	795,028	6,096	7,251	12,145	24,075
Manufacture of chemical material	1,147,782	1,156,075	1,154,936	1,159,403	1,169,719	8,293	7,154	11,621	21,937
Manufacture of chemical products	174,172	175,409	177,320	179,371	184,352	1,236	3,148	5,198	10,180
Manufacture of pharmaceuticals and medicinal chemical products	116,861	117,088	117,503	117,929	119,585	227	641	1,068	2,724
Manufacture of rubber products	94,335	94,809	95,502	96,300	98,238	474	1,167	1,965	3,902
Manufacture of plastics products	295,519	296,961	299,172	301,614	307,608	1,442	3,653	6,094	12,088

CONTINUED ON NEXT PAGE

CONTINUED FROM PREVIOUS PAGE

Scenario	Scenario I	Scenario II	Scenario III	Scenario IV	Scenario V	The difference between scenarios II/I	The difference between scenarios III/I	The difference between scenarios IV/I	The difference between scenarios V/I
Section	Baseline FLFP 50.64%	Low variant FLFP rate 51.3%	Medium variant (A) FLFP rate 53%	Medium variant (B) FLFP rate 54.6%	High variant FLFP rate 58.6%				
Manufacture of other non-metallic mineral products	72,075	72,395	72,763	73,204	74,247	320	688	1,129	2,172
Manufacture of basic iron and steel	471,979	474,778	477,623	481,900	492,410	2,799	5,644	9,921	20,431
Manufacture of other basic metals	248,151	249,931	252,584	255,445	262,183	1,781	4,433	7,295	14,033
Manufacture of fabricated metal products	424,292	427,831	433,642	440,017	455,575	3,540	9,351	15,725	31,283
Manufacture of electronic parts and components	3,681,031	3,690,478	3,701,331	3,713,856	3,742,416	9,447	20,301	32,826	61,386
Manufacture of computers, electronic and optical products	1,279,519	1,282,555	1,287,095	1,291,832	1,302,785	3,037	7,576	12,313	23,267
Manufacture of electrical equipment	320,714	322,902	326,982	331,166	341,342	2,188	6,267	10,452	20,628
Manufacture of machinery and equipment	1,321,761	1,333,774	1,349,790	1,371,709	1,425,719	12,013	28,029	49,948	103,958
Manufacture of motor vehicles and parts	529,415	531,222	534,165	537,336	544,969	1,808	4,750	7,922	15,555
Manufacture of other transport equipment and parts	246,085	247,848	251,157	254,494	262,565	1,763	5,072	8,409	16,481
Manufacture of furniture	71,334	72,055	73,371	74,766	78,230	722	2,037	3,433	6,896
Other manufacturing	210,273	211,616	213,903	216,323	222,245	1,344	3,630	6,050	11,972
Electricity supply	116,341	117,453	117,206	117,786	119,211	1,111	864	1,445	2,870
Gas supply	32,460	32,695	32,607	32,711	33,015	234	146	251	554
Water supply	11,670	11,712	11,770	11,838	12,006	42	101	168	337
Remediation activities and other waste management services	7,916	7,947	7,990	8,042	8,169	31	74	126	253
Construction	1,022,478	1,023,152	1,024,066	1,025,240	1,028,283	674	1,587	2,762	5,804

CONTINUED ON NEXT PAGE

CONTINUED FROM PREVIOUS PAGE

Scenario	Scenario I	Scenario II	Scenario III	Scenario IV	Scenario V	The difference between scenarios II/I	The difference between scenarios III/I	The difference between scenarios IV/I	The difference between scenarios V/I
Section	Baseline FLFP 50.64%	Low variant FLFP rate 51.3%	Medium variant (A) FLFP rate 53%	Medium variant (B) FLFP rate 54.6%	High variant FLFP rate 58.6%				
Wholesale and retail trade	3,458,589	3,482,513	3,529,651	3,576,596	3,691,876	23,924	71,062	118,007	233,287
Transportation and storage	1,073,811	1,078,303	1,085,293	1,093,076	1,112,172	4,493	11,482	19,265	38,362
Accommodation and food service Activities	770,055	775,173	786,295	797,105	830,039	5,119	16,240	27,050	59,984
Information and communication	149,007	149,643	150,885	152,288	156,078	636	1,878	3,281	7,071
Telecommunications	330,690	331,597	333,682	335,727	340,852	908	2,992	5,038	10,162
Information service activities	215,330	215,893	216,590	217,954	221,986	563	1,260	2,624	6,657
Financial and insurance activities	696,947	698,538	701,680	705,097	712,814	1,591	4,733	8,149	15,867
Real estate activities	1,467,368	1,468,435	1,469,903	1,471,373	1,472,844	1,067	2,535	4,005	5,477
Professional, scientific and technical activities	668,858	672,877	680,380	689,595	717,225	4,019	11,521	20,737	48,367
Support service activities	115,436	116,237	117,781	119,351	123,262	800	2,344	3,915	7,826
Public administration and defence; compulsory social security	1,480,098	1,480,571	1,483,061	1,485,170	1,490,314	473	2,963	5,072	10,216
Education	963,037	964,974	970,755	976,062	989,411	1,938	7,719	13,025	26,374
Human health and social work activities	686,181	686,614	688,548	690,193	694,377	434	2,367	4,012	8,196
Arts, entertainment and recreation	200,224	200,999	202,690	204,358	208,513	775	2,467	4,134	8,289
Other service activities	555,183	556,788	560,567	564,222	573,334	1,605	5,385	9,040	18,152
Total	27,004,280	27,120,058	27,294,439	27,492,443	27,986,077	115,779	290,160	488,163	981,797

Resource: Author's Research

TABLE 6-20

IMPACT OF BOOSTING FLFP RATES ON OCCUPATIONS, 2020

Occupation	Scenario I	Scenario II	Scenario III	Scenario IV	Scenario V	The difference between Scenario II/I	The difference between Scenario III/I	The difference between Scenario IV/I	The difference between Scenario V/I
	Baseline FLFP 50.64%	Low variant FLFP rate 51.3%	Medium variant (A) FLFP rate 53%	Medium Variant (B) FLFP rate 54.6%	High Variant FLFP rate 58.6%				
Senior Officials & Managers	1,526,737	1,546,907	1,570,897	1,596,459	1,660,131	20,170	44,160	69,722	133,394
Professionals	1,249,723	1,263,329	1,276,125	1,290,835	1,327,498	13,606	26,402	41,112	77,775
Technicians & Associate Professionals	1,190,169	1,205,084	1,221,749	1,239,878	1,284,886	14,915	31,580	49,709	94,717
Clerical Support Workers	1,742,204	1,762,136	1,783,923	1,807,218	1,864,555	19,932	41,719	65,014	122,351
Service & Sales Workers	1,306,866	1,322,766	1,340,933	1,360,111	1,407,635	15,900	34,067	53,245	100,768
Craft and Related Trades Workers	2,387,657	2,417,636	2,454,826	2,493,309	2,587,334	29,979	67,169	105,652	199,677
Elementary Laborers	1,557,087	1,574,621	1,594,813	1,615,725	1,667,319	17,534	37,726	58,638	110,232
Total	10,960,443	11,092,479	11,243,266	11,403,535	11,799,358	132,036	282,822	443,092	838,914

References

[1] Ministry of the Interior, Government of ROC Statistical Yearbook of Interior; 1981–2014.

[2] Cherlin A.J. The marriage-go-round: The state of marriage and family in America today. New York: Alfred A. Knopf; 2009.

[3] Jacobsen L.A., Mather M. Social and economic trends since 2000. Population Bulletin; 2010, 65(1). www.prb.org/pdf10/65.1unitedstates.pdf. Accessed on 17 Dec 2015.

[4] Cheng Y., Loichinger E. Women's labor Potential in an aging Taiwan: population and labor force projections by education up to 2050. Population Associate of America Annual Meeting, San Diego, USA, 30 Apr–2 May 2015.

[5] Chen Y.H. Trends in Low Fertility and Policy Responses in Taiwan. The Japanese Journal of Population; 2012, vol. 10, No.1.

[6] National Development Council, Government of R.O.C. Population Projections for Republic of China (Taiwan): 2014–60; 2013.

[7] Derbyshire S. The fall and fall of Asian fertility. http://www.spiked-online.com/newsite/article/14220#.VpvQSCXUgdX. Accessed on 20 Dec 2015.

[8] United Nations. World population prospects. New York; 2015.

[9] Directorate-General of Budget, Accounting, and Statistics, Executive Yuan, Republic of China (Taiwan). Gender at a Glance in ROC; 2015.

[10] Directorate-General of Budget, Accounting, and Statistics, Executive Yuan, Republic of China (Taiwan). Yearbook of Manpower Survey Statistics, http://eng.stat.gov.tw/mp.asp?mp=5. Accessed on 29 December 2015.

[11] OECD. OECD database. http://www.oecd.org/gender/data/genderwagegap.htm. Accessed on 18 December 2015.

[12] Chang C., England P. Gender inequality in earnings in industrialized East Asia. Social Science Research; 2011, 1: 1–14.

[13] Berik G. Growth with gender inequality: Another look at East Asian development. In Social Justice and Gender Equality: Rethinking Development Strategies and Macroeconomic Policies, edited by Günseli Berik, Yana van der Meulen Rodgers and Ann Zammit. New York: Routledge; 2009.

[14] Yu W.H. Women and employment in Taiwan. The Brookings Institution. http://www.brookings.edu/. Accessed on 3 December 2015.

[15] Ministry of Labor. Women Labor Policy White Paper 2008–13; 2007.

[16] Yu W.H. Gendered trajectories: women, work, and social change in Japan and Taiwan. Stanford: CA: Stanford University Press; 2009.

[17] Directorate-General of Budget, Accounting, and Statistics, Executive Yuan, Republic of China (Taiwan). Women's Marriages, Fertility and Employment Survey, DGBAS, Executive Yuan, Republic of China (Taiwan); 2013.

[18] Directorate-General of Budget, Accounting, and Statistics, Executive Yuan, Republic of China (Taiwan). Manpower Utilization Survey, 2009–14.

[19] Executive Yuan, Republic of China (Taiwan). http://www.ey.gov.tw/Dictionary_Content.aspx ?n=43BC5BE6555D00BC&s=5C3EF97344B326. Accessed on 2 January 2016.

[20] Verick S. Female labor force participation in developing countries. IZA World of Labor; 2014, 87.

[21] Cazes S., Verick S. The labor markets of emerging economies: has growth translated into more and better jobs? Geneva, and Basingstoke, UK: ILO and Palgrave Macmillan; 2013.

[22] Bound J, Jaeger J., Baker R. Problems with Instrumental variables estimation when the correlation between the Instruments and the endogenous explanatory variables is weak. Journal of the American Statistical Association; 1996, 90: 447–50.

[23] Thomas D., Frankenberg E. Links between women's health and labor market outcomes in Indonesia, The POLICY Project, USAID/G/PHN/POP/PE; 2000.

[24] Cai L., Kalb G. Health status and labor force participation: evidence from Australia, Health Econ; 2006, 15(3): 241–61.

[25] Fan M. The effect of health on labor force participation, IMACS Multi-conference on Computational Engineering in Systems Applications, Beijing, China, 2006.

[26] Holt H. Health and labor force participation, New Zealand Treasury Working Paper; 2010, 10/03.

[27] Thévenon O. Drivers of female labor force participation in the OECD. OECD Social, Employment and Migration Working Papers. OECD Publishing; 2013.

[28] OECD. OECD Employment Outlook; 2011.

[29] O'Reilly J., Fagan C. Part-time prospects: an international comparison of part-time work in Europe, North America and the Pacific Rim, London: Routledge; 1998.

[30] Juhn C., Potter S. Changes in labor force participation in the United States. Journal of Economic Perspectives; 2006, 20: 27–46.

[31] Kuo J.F. Women and Taiwanese society, Middle-area University General Education Material; 2015.

[32] Yu W.C., Manrique G. Changes in the labor market of women in Taiwan from 1978 to 2007, women in Taiwan-sociocultural perspectives, Indianapolis: University of Indianapolis Press; 2009.

[33] IMF. Women, work, and the economy: macroeconomic gains from gender equity, IMF staff Discussion Note; 2013.

[34] Duflo E. Women empowerment and economic development. Journal of Economic Literature; 2012, 50(4): 051–079.

[35] Aguirre D., Hoteit L., Rupp C., et al. Empowering the third billion: Women and the world of work in 2012. Booz and Company.

[36] Lo J. Review of Taiwan married women labor market participation, Taiwan Economic Review; 1986, 14(1): 117–30.

[37] Chang S. A study on female labor force participation rate- simultaneous equations model analysis, Taiwan Economic Review; 2011, 16(2), 175–95.

[38] Yu J., Chu J. The impact of female labor force participation on fertility, Taiwan Economic Review; 1988, 16(2): 225–49.

[39] Huang F., Wun J., Huang F. The analysis of females' labor force participation in Taiwan: 1980–2005, Taiwan Economic Forecast and Policy; 2009, 39(2): 1–50.

[40] Ho S.T. An analysis of female labor force participation, Master's degree thesis, National University of Kaohsiung, Taiwan; 2013.

[41] McGuckin R., van Ark B. Productivity and participation: an international comparison. Groningen Growth and Development Centre, Research Memorandum GD-78; 2005.

[42] Kinoshita Y., Guo F. What Can Boost Female Labor Force Participation in Asia? IMF Working Paper; 2015.

[43] Gong X., Breunig R., King A. How responsive is female labor supply to child care costs: New Australian estimates," IZA Discussion Papers 5119, Institute for the Study of Labor (IZA); 2010.

[44] Kalb G. Children, labor supply and child care: challenges for empirical analysis. Australian Economic Review; 2009, 42(3): 276–99.

[45] Bloom D.E. and others. Fertility, female labor force participation, and the demographic dividend. Journal of Economic Growth; 2009, 14.2: 79–101.

[46] OECD: New evidence from panel co-integration and Granger causality testing. Journal of Economics and Business; 2010, 62(1): 48–64.

[47] Brewster K., Rindfuss R. Fertility and women's employment in industrialized countries. Annual Review of Sociology; 2000, 26: 271–96.

[48] Yamaguchi K. On the true relationship between female labor force participation and fertility rate: An analysis of OECD countries and its policy implications". MEITI Journal; 2006, (4): 58–61

[49] IMF. Fiscal policy and employment in advanced and emerging economies, Washington: Board Paper; 2012.

[50] ILO. Women in Labor Markets: Measuring Progress and Identifying Challenges. Geneva; 2010.

[51] Jong P., Tsiachristas A. Can labor force participation growth and productivity growth be combined? European Employment Observatory 2009, Spring Review by the SYSDEM Correspondent for the Netherlands.

[52] Ministry of Economic Affairs, Government of R.O.C. Industrial Development in Taiwan 2013, Industrial Development Bureau, Ministry of Economic Affairs

[53] Beaudry P., Collard F. Why has the employment productivity trade-off among industrialized countries been so strong. NBER Working Paper; 2002.

[54] Pichelmann K., Roeger W. Employment and labor productivity in the EU: reconsidering a potential trade-off in the Lisbon strategy. In: Eichengreen B., Landesmann M., Stiefel D., eds. The European Economy in an American Mirror; 2008, 128–42.

[55] Dew-Becker I., Gordon R.J. The role of labor market changes in the slowdown of European productivity growth, CERP Discussion Paper; 2008, 6722.

[56] Choudhry M.T. Determinants of Labor Productivity: An Empirical Investigation of Productivity Divergence. http://www.eea-esem.com/EEA-ESEM/2009/prog/viewpaper.asp?pid=2782. Accessed on 11 Jan 2016.

[57] Skirbekk V. Age and individual productivity: a literature survey, Max Planck Institute for Demographic Research, Germany, Working Paper; 2003, 028.

[58] Ogus S. Women power and economic growth in Asia, MasterCard Worldwide Insights; 2013.

[59] Ministry of Labor, Government of R.O.C. Survey of gender equality in employment and management; 2013.

[60] Chiu H.Y. The unemployment and underemployment of the highly educated in Taiwan, Master's degree thesis, Graduate Institute of Development Studies, National Chengchi University, Taiwan; 2013.

[61] Lisenkova K., Mérette M., Wright R. The impact of population aging on labor market: evidence from overlapping generations computable general equilibrium (OLG-CGE) model of Scotland, Strathclyde, Discussion Papers in Economic; 2013.

[62] Pant H.M. GTEM: The Global Trade and Environment Model. Canberra: ABARES, Australia; 2002.

[63] Luci A., Thévenon O. Does economic development drive the fertility rebound in OECD countries? Working Papers hal-00520948, HAL; 2010.

[64] Dixon P.B., Parmenter B. Handbook of Computational Economics, vol. 1, Amsterdam: North-Holland; 1996.

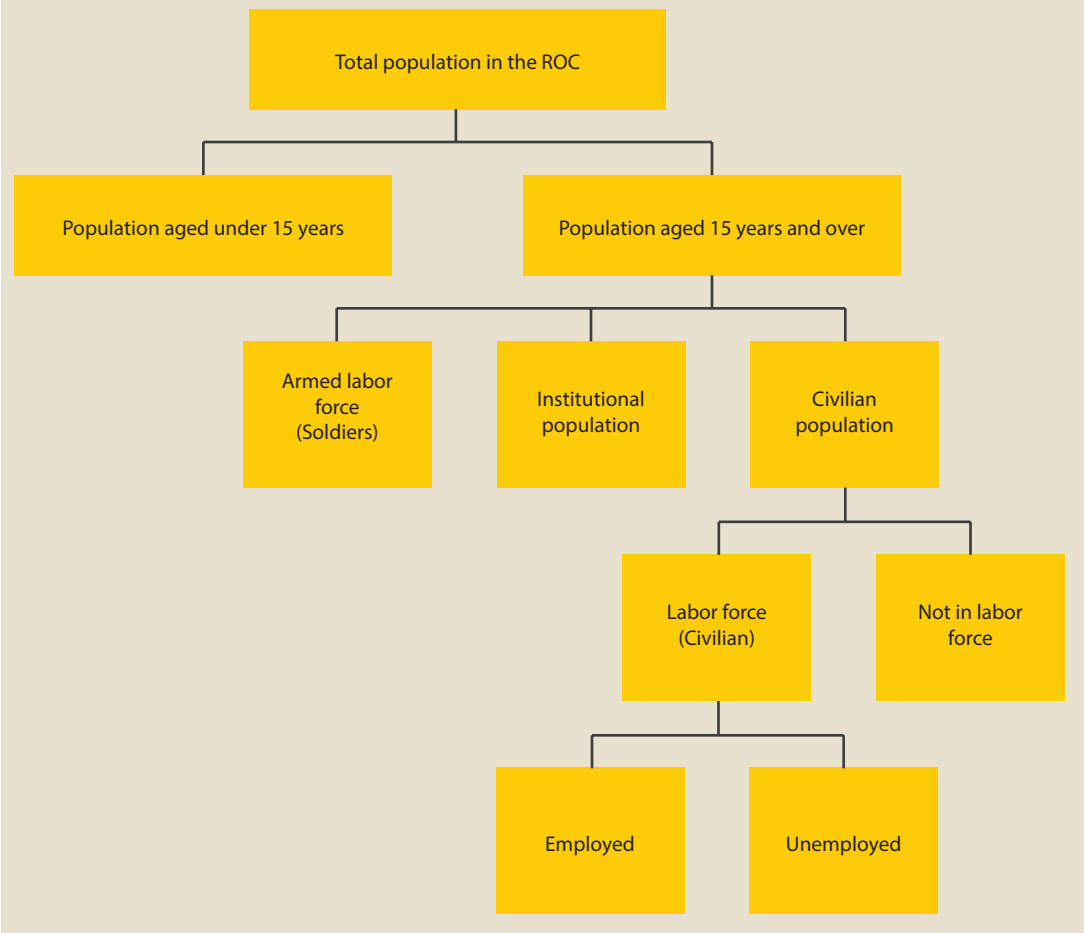
[65] Department of Statistic, Ministry of the Interior, Republic of China (Taiwan), Civil Affairs from Statistical Yearbook of Interior; 2012

[66] Dixon P., Rimmer M. Dynamic General Equilibrium Modeling for Forecasting and Policy, North Holland; 2002.

APPENDIX

Terms and Definitions[7]

1. Categories of Labor Force



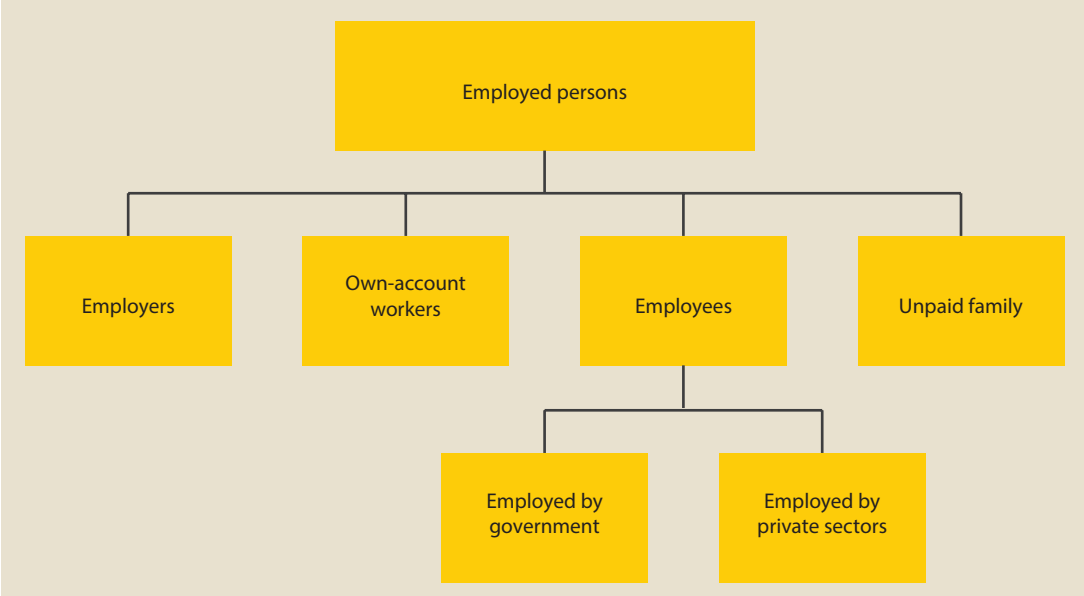
1. **Labor force:** All civilians who were aged 15 years and above, and were able to work in the reference week. This category could be further classified into the employed and unemployed subcategories.

2. **Employed persons:** Civilians aged 15 years and above, who undertook a paid job or worked less than 15 hours to serve as an unpaid family worker in the reference week.

3. **Unemployed persons:** Civilians aged 15 years and above who were either jobless or available for work, or were seeking a job or waiting for results after seeking a job. Further, those who were waiting for a recall after a layoff or had a job offer but had not started to work with pay were also classified under this category.

4. **Not in labor force:** Civilians aged 15 years and above but not classified under the labor force in the reference week included those people who either wished to work but did not seek a job, or attended schools, handled houseworks, had become aged (or disabled), or due to some other reasons were unemployed and did not seek a job.

7 Source: Directorate-General of Budget, Accounting, and Statistics, Executive Yuan, the Republic of China.



2. Class of Workers for Employed Persons

1. **Employer:** One who hired employees to operate a business or firm owned by himself/herself with or without other partners.

2. **Own-account worker:** One who ran a business or firm either by himself/herself or with other partners but was not hiring any employee.

3. **Employee:** One who worked for pay in a private enterprise or a government organization.

4. **Unpaid family worker:** One who worked without pay to support one of his/her family members (householder included) to undertake profit-oriented work or business.

3. Usual Full-Time or Part-Time Status

1. Work hours regularly scheduled in the workplace:

   a Interviewee is a full-time worker, if his/her weekly work hours reach a regularly scheduled level in the workplace; otherwise, he/she is a part-time worker.

   b It is determined by the usual level of work hours in every week, instead of the reference week level, which may be influenced by overtimes, leaves or seasonal offs.

2. Work hours not regularly scheduled in the workplace:

   a **Seasonal workers:** Those, such as farmers, whose work hours are greatly affected by seasonal factors like weather, work with unstable weekly hours. Therefore, one who mainly and regularly works in agriculture is classified as a full-time worker. If an associated unpaid family worker who helps the major agricultural worker with efforts in equal hours, then he/she is also a full-time worker. However; if the unpaid family worker works for much less hours, then he/she is a part-time worker.

b **Employees with irregular employers or for out-contracted pieceworks:** One, such as a construction worker or a family contractor, who works with the same job characteristics but with different employers, his/her work hours can be added together. In principle, if the interviewee's average weekly work hours in a non-seasonal (or regular) period is greater than 35, he/she is a full-time worker; else, a part-time worker.

c **Self-employed persons:** Those, such as noodles peddlers or taxi drivers, whose work hours could be arbitrarily scheduled by themselves without any restriction. In principle, if the interviewee's average weekly work hours in a non-seasonal (or regular) period is greater than 35, he/she is a full-time worker; otherwise such a status is judged by the interviewee him/herself.

CHAPTER 7

FLFP IN THAILAND

Dr. Wiraporn Pothisiri and Dr. Elke Loichinger
College of Population Studies
Chulalongkorn University

Paweena Leetrakun
Faculty of Management Sciences
Chiang Rai Rajaphat University

1. Introduction

Thailand is faced with rapid population aging. Driven primarily by a steep fertility decline, with the total fertility rate having fallen from six in 1960s to below two in 1990s, the percentage of the Thai population aged 60 years and older has increased from a mere 5% in 1970 to 13% by 2013, and is projected to surpass 40% by 2050 [1]. More importantly, within the next two years, the share of older persons will exceed that of children, i.e., the population aged under 15, for the first time in the country's history [2].

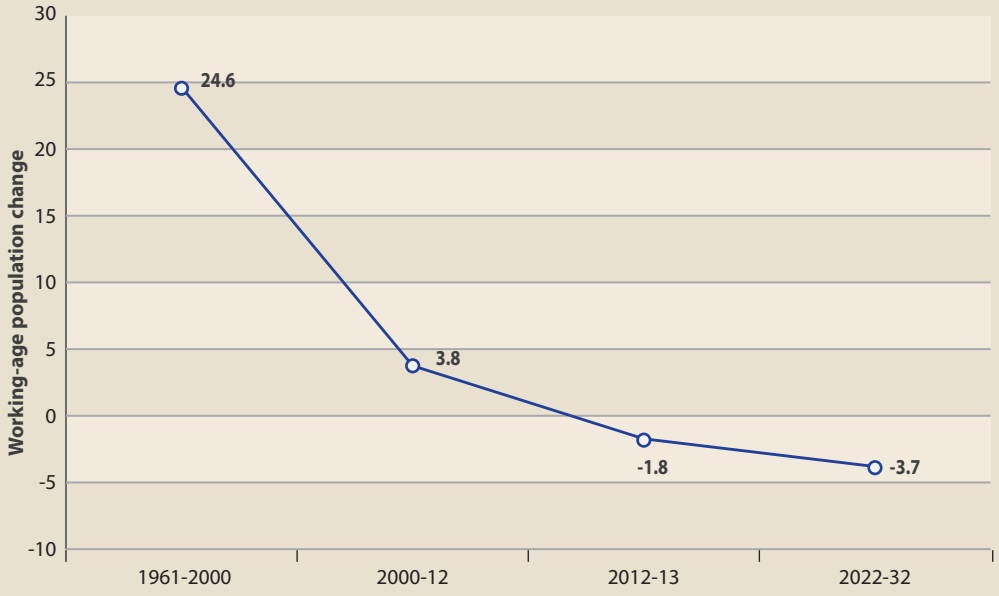
Improving survival rates, particularly in older ages, have reinforced the effect of fertility decline on population aging. Measured by life expectancy at birth, Thai newborns were expected to live on an average, 55.2 years and 62.4 years, in 1960s and 1980s, respectively. Much of the increase in life expectancy during this period is attributed mostly to the improvements in mortality rates of infants and young children, which in turn also slowed down the aging of the population. After 1980s, however, further increases in life expectancies were largely driven by the mortality-rate improvements in older ages [3]. In 2015, Thailand's life expectancy at birth was 75.1 years, and is projected to rise up to 79.5 years in the next three decades [1].

Due to these structural changes in the population composition, growth for the working-age population has started to turn negative (Figure 7-1). This change in the population structure goes hand in hand with a decline in labor supply if patterns of labor force participation do not adjust. Many countries that are experiencing an aging of their populations, especially the developed economies, have implemented policies in order to address the issue of declining working-age populations. One policy approach is to try to integrate more women in the paid labor market, as it happened in European countries, Japan, and the ROK. This resulted in increased economic growth and also reduced the difference between male and female labor force participation (FLFP), which helped in reducing gender inequality [5].

In the next section, specific aspects of labor force participation of women in Thailand are analyzed along selected dimensions, viz., area of residence, role of working-age women, employment status and sector of employment, wages, and working hours. The subsequent section looks at the determinants of FLFP, followed by a section that sheds some light on the possible impact of FLFP on productivity. The final section provides an overview of policies that have been enacted in Thailand to promote as well as facilitate the participation of women in the Thai labor market.

FIGURE 7-1

CHANGES OVER TIME IN THE SIZE OF THE WORKING-AGE POPULATION AGED 15–64 YEARS



Source: [4]

2. Overview of Trends and Patterns of FLFP in Thailand[1]

Our investigation of the Thai labor market since 1989 showed a gradual decrease in the overall labor force participation. Looking at the results by gender, data reveals that over three decades, male labor force participation rate decreased slowly, with most of the decrease occurring between 1989 and 1999. However, it still remains at around 80%. The general pattern has been similar for women: in 1989, the FLFP rate was 76.8%, but it decreased to 62.3% in 2014 after remaining stable at around 65% between 1994 and 2009.

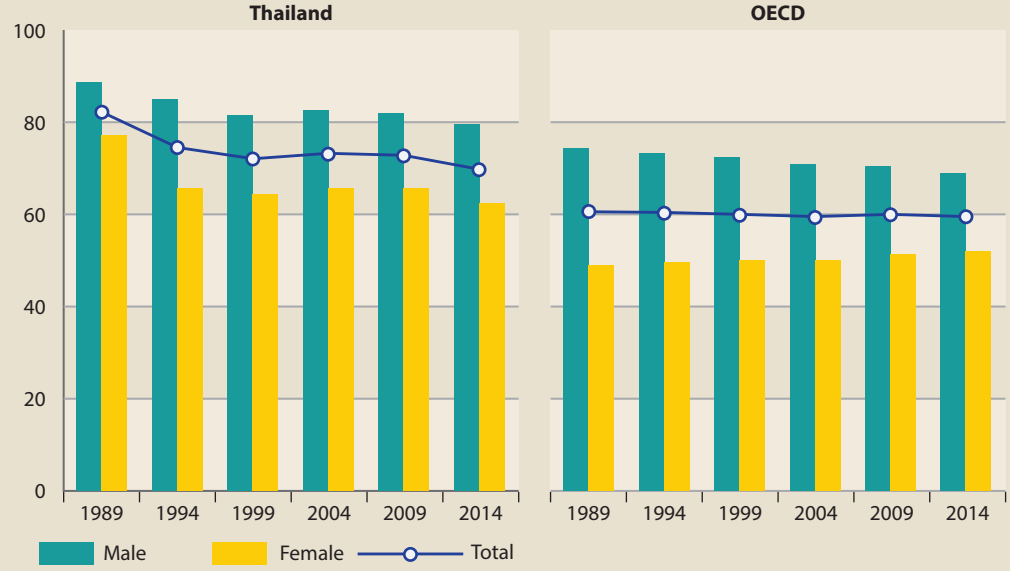
Comparing the labor force participation rate of Thailand with OECD countries, it was found that the average male labor force participation rate of OECD countries was significantly lower at around 70% (Figure 7-2). The average FLFP rate in OECD countries was about 50% and gradually increasing, which is in contrast with the stagnant and lately decreasing FLFP rate observed in Thailand. FLFP is a crucial issue and has to be discussed in the context of the aging Thai society, but as noted above, the level of FLFP is relatively high already. This observation holds true not only when comparing Thailand with OECD countries but also with other APO member countries.

Compared to the levels of FLFP in other APO member countries, Thailand has the fifth-highest rate after Nepal, Cambodia, Vietnam and Lao PDR (Figure 7-3). The lowest levels are observed in Islamic Republic of Iran (IR Iran), Pakistan, and India, where far less than a third of adult women are considered to be part of the female labor force. Needless to say, these observed differences are the outcome of a lot of different factors that are at play and are of varying importance in each country.

1 Unless otherwise stated, all results in the subsections of this chapter are based on the analysis of the data of the Labor Force Survey 1984–2014, which has been conducted by the National Statistics Office and covers the civilian population aged 15 and older. For a definition of the used labor force concepts and information on the sampling design of the survey, please refer to the appendix.

FIGURE 7-2

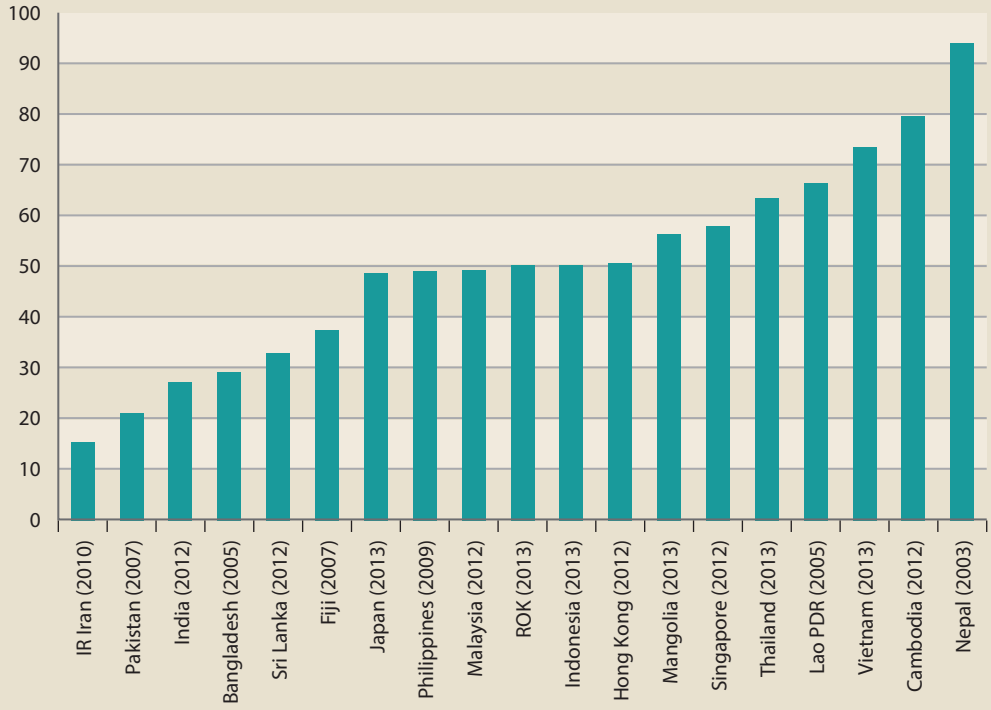
LFP RATES FOR AGES 15 YEARS AND ABOVE IN THAILAND AND OECD COUNTRIES, BY GENDER (NATIONAL ESTIMATES)



Source: [6]

FIGURE 7-3

FLFP RATES FOR AGES 15+ IN APO COUNTRIES BY THEIR RESPECTIVE LATEST YEARS OF DATA AVAILABILITY (NATIONAL ESTIMATES)



Source: [6]

2.1 FLFP by Area of Residence

In general, there are three effects at play that shape the level of FLFP [7]:

1. The age effect captures the lifecycle patterns of the FLFP rate.
2. The time effect displays the changes in the female labor participation rate, which is affected by the macroeconomic conditions of each year.
3. The cohort effect studies the impact of belonging to a particular generation on the female labor participation rate.

We are not performing actual age-time-cohort analyses to disentangle the impact of each individual effect. Instead, we present the data in ways that emphasize upon developments across time and for different age-groups and births cohorts, respectively.

Table 7-1 illustrates the cross-sectional development of female and male labor force participation in Thailand by area of residence, namely Bangkok, urban areas (excluding Bangkok), and rural areas. The data reveal that female labor participation in Bangkok increased from 56.3% in 1984 to 64.4% in 2014, while the female labor participation in urban (excluding Bangkok) and rural areas decreased. Particularly, in the rural areas, participation dropped dramatically from 81.4% in 1984 to 62.2% in 2014. Overall, one can observe a convergence of participation rates across areas of residence. Participation rates of men aged 15 and above also decreased in rural areas between 1984 and 2014, but to a lesser extent than those of women. At the same time, male participation hardly changed in Bangkok and decreased only slightly in urban areas (excluding Bangkok).

TABLE 7-1

FEMALE AND MALE LABOR FORCE PARTICIPATION RATES BY AREA OF RESIDENCE FOR AGES 15 AND ABOVE, 1984–2014

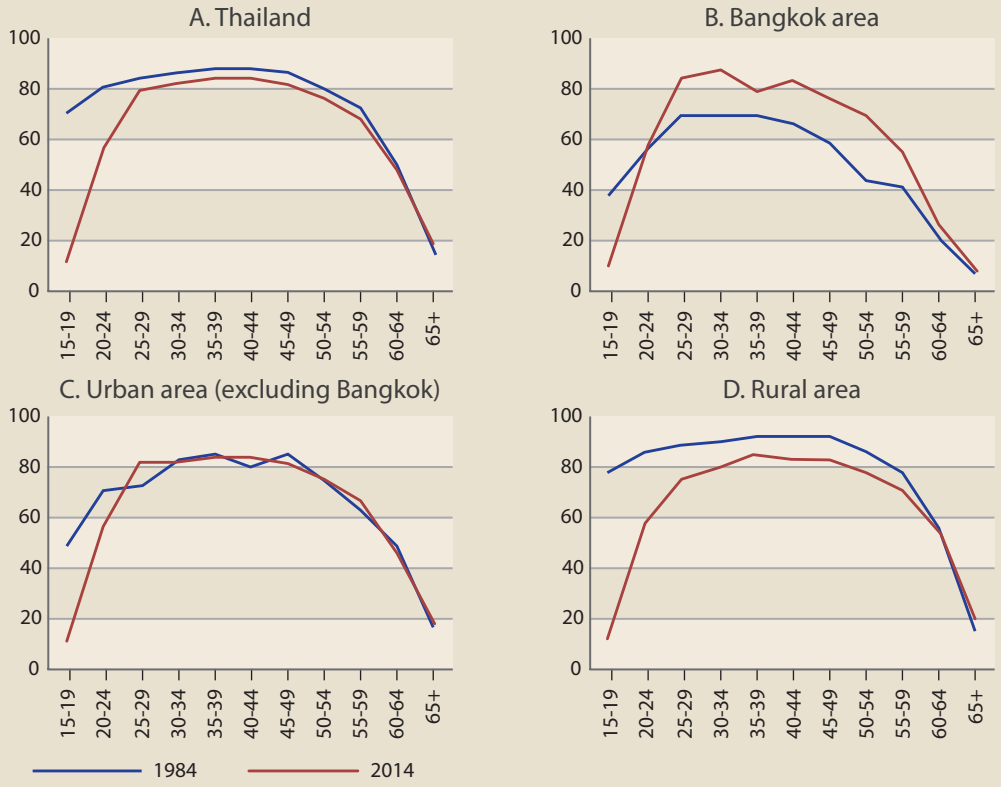
Females							
Area	**1984**	**1989**	**1994**	**1999**	**2004**	**2009**	**2014**
Total	76.2	76.8	70.1	64.2	65.1	65.6	62.5
Bangkok	56.3	59.4	59.9	59.6	61.1	65.2	64.4
Urban (excluding Bangkok)	66.3	67.7	63.7	61.4	63.6	64.3	62.2
Rural	81.4	82.0	73.9	66.0	66.5	66.0	62.2
Males							
Area	**1984**	**1989**	**1994**	**1999**	**2004**	**2009**	**2014**
Total	87.8	88.2	84.6	80.3	81.8	82.0	79.5
Bangkok	78.6	78.6	79.1	75.7	77.7	78.8	78.4
Urban (excluding Bangkok)	80.6	82.5	79.9	77.2	78.9	78.6	77.4
Rural	90.9	91.0	86.7	82.0	83.4	83.3	80.9

Source: the Labor Force Survey 1984–2014 [8]

Figure 7-4 investigates the age profiles of FLFP, focusing on the changes between 1984 and 2014. Figure 7-4A, which represents overall FLFP in Thailand, shows that rates tended to drop in every age group, with the exception of those aged 60 years and above. The drastic decline in participation of women aged 15–24 can be attributed to the extension of mandatory education in Thailand [10]. Figure 7-4B shows that FLFP increased in the Bangkok area. However, the lifecycle pattern of FLFP changed from an inverse U-shaped curve to an M-shaped curve, meaning that women aged 35–39 left the labor market.

FIGURE 7-4

CHANGES IN FLFP RATES BY AGE GROUPS BETWEEN 1984 AND 2014



Women in the age group 40–44 were more engaged in the labor market again. Figure 7-4C displays that the FLFP rate in the urban area (excluding Bangkok) decreased for young women but remained relatively constant for all other age groups. Finally, Figure 7-4D shows that FLFP in rural areas declined for all age groups except for women aged 60 and above. The analysis of the age-specific developments for Bangkok, urban areas (excluding Bangkok), and rural areas demonstrates that the overall observed decrease in age-specific participation between 1984 and 2014 in Figure 7-4A was the result of distinctly different developments in the three areas. The decrease in participation in urban areas was partly compensated for by the increase in Bangkok area.[2]

2.2 The Role of Working-age Women in Thailand

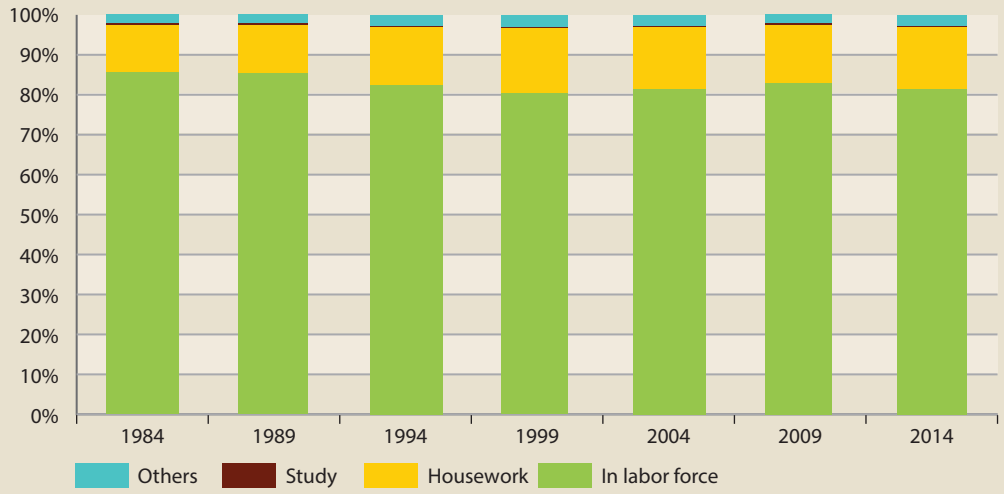
In this section, we focus on women of main working ages, namely ages 25 years to 54 years, and highlight the developments of their economic activity and inactivity. Women of these ages have mostly finished their educational attainment and are not yet retiring.

The great majority of women of working age was and is part of the paid labor force, showing a small decline from 85.6% in 1984 to 81.6% in 2014 (Figure 7-5). The female labor force is predominantly composed of employed women, since official female unemployment is currently almost negligible. The proportion of working-age women who were not part of the labor force has increased slowly since 1984.

2 The comparable graphs for males can be found in the appendix (Figure A1).

FIGURE 7-5

ROLES OF WORKING-AGE WOMEN AGED 25–54 IN THAILAND



Source: [9] using the Labor Force Survey, 1984–2014

The principal reason for not being part of the labor force was, and is, being a housewife. The share of housewives among the working-age women increased only a little, from 11.8% in 1984 to 15.6% in 2014. The other reasons such as being a student, being retired, ill or disabled, represent a rather small share (2–3%) of all working-age women during the entire observation period.

Exploring the share of housewives among working-age women by area for the period 1984 to 2014 revealed that the proportion of women who described their main role as a housewife, declined in urban areas and Bangkok. However, the proportion of housewives in the rural area increased from 6.3% in 1984 to 15.5% in 2014 (Table 7-2). As for the labor force participation rates for women of all adult ages (Table 7-1), there was a clear convergence across areas in the distribution of working-age women being in the labor force, being housewives or fulfilling other roles. Almost the same share in each area fell in each of the three categories in 2014 (Table 7-2).

TABLE 7-2

ROLES OF WORKING-AGE THAI WOMEN AGED 25–54 YEARS BY AREAS

	1984	1989	1994	1999	2004	2009	2014
Urban							
In labor force	77.92	79.45	77.7	78.97	80.94	82.44	81.78
Housewife	19.70	17.99	19.55	18.56	16.81	15.56	15.83
Other	2.38	2.56	2.74	2.47	2.25	2.00	2.39
Total	100	100	100	100	100	100	100
Bangkok							
In labor force	66.52	68.75	71.23	74.81	76.38	81.24	81.27
Housewife	29.76	27.07	26.01	23.21	21.26	17.10	15.30
Other	3.72	4.17	2.75	1.98	2.36	1.66	3.44

CONTINUED ON NEXT PAGE

CONTINUED FROM PREVIOUS PAGE

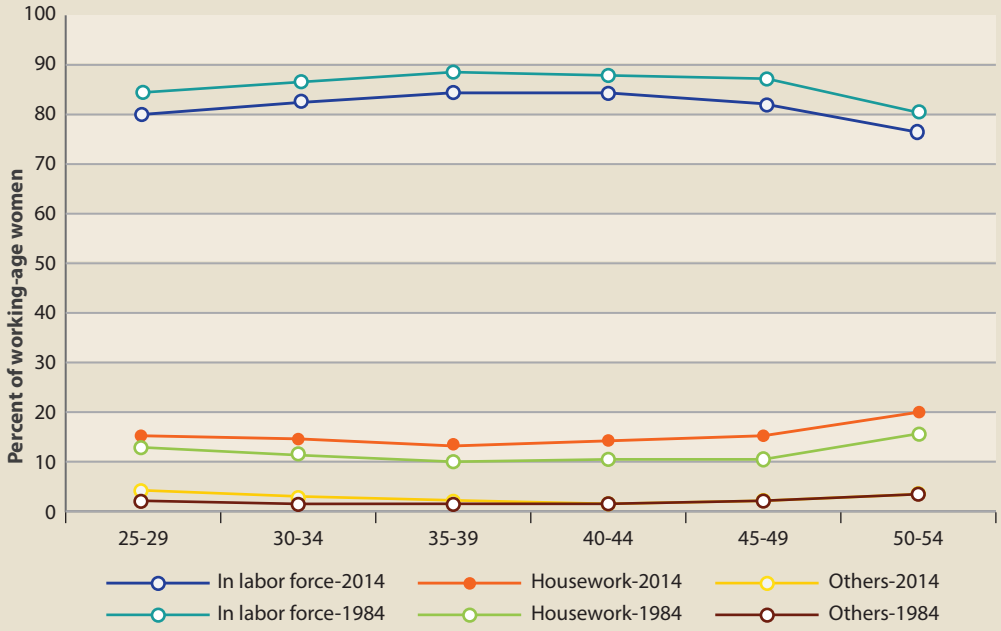
	1984	1989	1994	1999	2004	2009	2014
Total	100	100	100	100	100	100	100
Rural							
In labor force	91.72	90.55	86.13	82.36	83.07	83.32	81.54
Housewife	6.30	7.53	11.00	14.16	14.05	14.32	15.46
Other	1.98	1.92	2.87	3.48	2.88	2.36	3.00
Total	100	100	100	100	100	100	100

Source: Calculated by the authors using the Labor Force Survey 1984–2014

Considering the roles of working-age women by age groups during the period 1984 to 2014, it is clear that the aggregate changes happened across all age groups (Figure 7-6).

FIGURE 7-6

ROLES OF WORKING-AGE WOMEN IN THAILAND BY AGE GROUPS, 1984 AND 2014



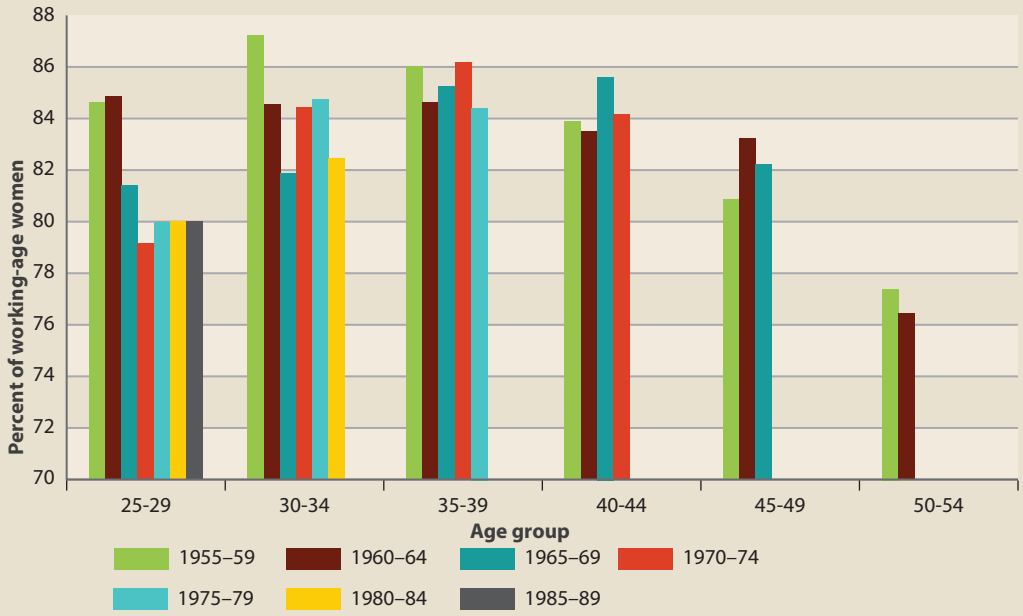
Source: [9] using the Labor Force Survey 1984-2014

Next, we looked at the labor force participation of working-age women by birth cohorts (Figure 7-7). Between ages 25 years and 35 years, older cohorts had higher participation rates than younger ones, but there was no real discernable pattern otherwise. Consequently, the share of women who are predominantly housewives increased among young women of later born cohorts and was fairly stable among middle-aged women (Figure 7-8).

The increase in number of women who described their main role as being a housewife could be explained using Becker's theory of the allocation of time across three categories [11], namely, working in the labor market, doing housework and child-rearing, and leisure. Before entering the labor market, women need to consider their wage and opportunity cost of doing housework. If the

FIGURE 7-7

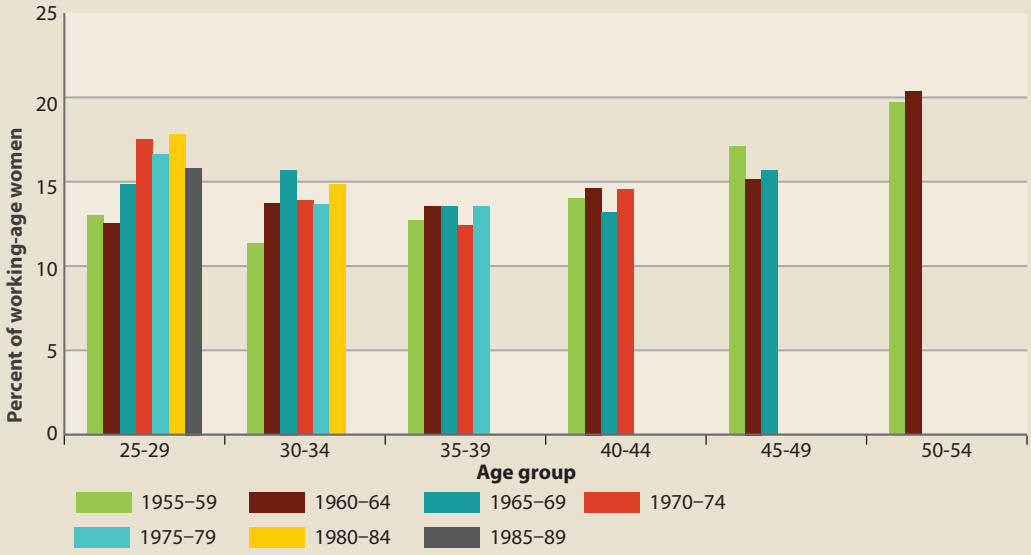
SHARES OF WORKING-AGE WOMEN IN THE LABOR FORCE, BY BIRTH COHORTS



Source: Calculated by the authors using the Labor Force Survey 1984–2014

FIGURE 7-8

SHARES OF WORKING-AGE WOMEN BY BIRTH COHORTS, WHO SAID BEING A HOUSEWIFE WAS THEIR MAIN ROLE



Source: Calculated by the authors using the Labor Force Survey 1984–2014

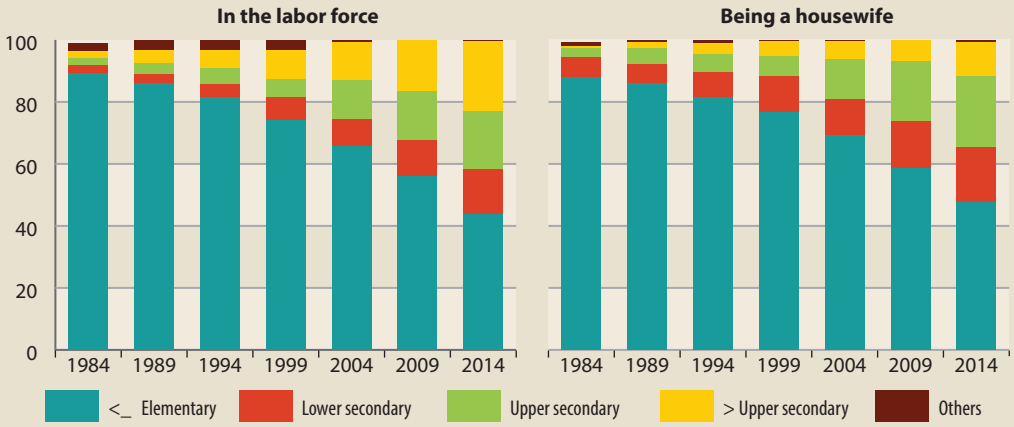
wages offered are lower than the opportunity cost, women may choose not to enter the labor market and devote their time to housework. In addition, according to a recent study by the ADB [12], women do the majority of housework, childcare, and elderly care in the household, irrespective of the level of household income.

Indeed, on an average, women spend twice as much as time on household work and four times more on childcare than men. Moreover, the study of Tuntiviat, Tisayaticom and Prakongsai [13] found that in 2004, Thai women spent 1.6 times more time on childcare or taking care of the sick, elderly, and disabled in their own households than men. Consequently, men could provide more working time in the paid labor market.

Considering the educational attainment structure of working-age women, as shown in Figure 7-9, it becomes obvious that their average education level increased over time. This is true for all women, i.e., those working in the labor market and those doing housework. The share of working women with upper secondary or higher education was about 5% in 1984 and rose to 40% in 2014, whereas the group with elementary or lower education went down from 90% to 40%. The development in the group of housewives was very similar, with only slightly lower educational attainment than that of women in the labor force. Thus, it is clear that there is a pool of well-educated women that are not part of the paid labor market.[3]

FIGURE 7-9

EDUCATIONAL ATTAINMENTS OF WORKING-AGE WOMEN AGED 25–54 YEARS BY THEIR MAIN ROLES, 1984–2014



Source: [9] using the Labor Force Survey 1984–2014

2.3 Female Labor Supply by Status and Sector

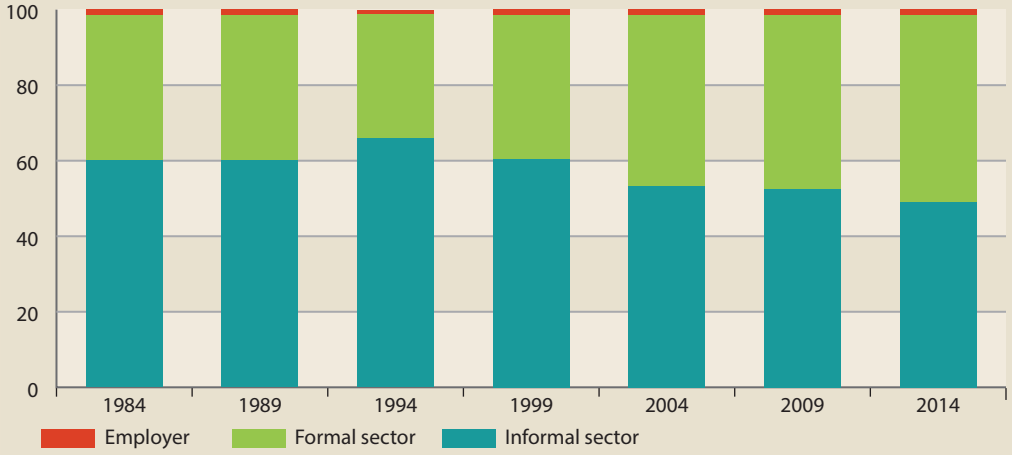
In this part, we discuss the changes in women's employment status over the past three decades. The results indicate that there was a shift of women from the informal sector, consisting of unpaid family workers and own account workers, to the formal sector, which covers employees working in the private sector, government employees, and public enterprise employees. Employment in the formal sector gained importance, increasing from 37% in 1984 to 48% in 2014, while employment in the informal sector diminished from 61% to 50%. However, there was hardly any change in the number of female employers. It remained below 2% during the three decades (Figure 7-10).

When it comes to the employment status of older age cohorts, i.e., women born between 1955 and 1969, not much change took place over time (Table 7-3). This can be seen in the constant proportions of women in formal and informal employment, which means their employment status remained the same throughout their working lives. However, the employment status of women who belonged to more recent cohorts, i.e.,

3 The comparable graphs for males for the category 'in the labor force' can be found in the appendix (Figure A2).

FIGURE 7-10

EMPLOYMENT STATUS OF WORKING-AGE WOMEN AGED 25–54 YEARS, 1984–2014



Source: using the Labor Force Survey 1984–2014. [9]

women born after 1970, was different than that of the previous generations. It can be seen that their shares of working in the formal sector decreased through their working lives while the share of being employed in the informal sector increased. For example, 51% of women born during 1970–74 worked in the formal sector at ages 25–29 years but by the time this cohort reached ages 40–44 years, that share was only 41%. Simultaneously, the proportion of women employed in the informal sector increased from 49% to 57%.

Without having further information, it cannot be established what the above change was due to. It could be that women within a birth cohort switched employment from the formal sector to the informal sector or left the labor force entirely. On the other hand, it could also be that the observed pattern was due to women who were not working at ages 25–29 years joining the labor force at later ages, and doing so predominantly in the informal sector (compare Figure 7-7). More detailed analyses, preferably using longitudinal data, would be necessary to understand these dynamics properly. Finally, female employers constitute in each cohort by far the smallest groups, though the shares of female employers grew with age in each cohort.

TABLE 7-3

DISTRIBUTION OF FEMALE EMPLOYMENT BY AGE GROUPS, BIRTH COHORTS, AND EMPLOYMENT STATUS

Age group	Birth cohort								
	1955–59			1960–64			1965–69		
	F	I	E	F	I	E	F	I	E
25-29	31	68.74	0.26	32.48	67.17	0.35	40.09	59.35	0.56
30-35	29.95	69.28	0.77	37.34	61.57	1.09	41.88	57.13	0.99
35-39	32.42	66.8	0.78	37.92	60.51	1.57	43.29	54.87	1.84
40-44	31.3	66.95	1.75	39.94	57.71	2.35	38.03	60.23	1.74
45-49	34.85	63.68	1.47	35.26	62.77	1.97	35.56	62.45	1.99
50-54	31	67.3	1.7	29.14	68.53	2.33			

CONTINUED ON NEXT PAGE

CONTINUED FROM PREVIOUS PAGE

Age group	Birth cohort											
	1970–74			1975–79			1980–84			1985–89		
	F	I	E	F	I	E	F	I	E	F	I	E
25-29	51.05	48.51	0.44	61.16	38.1	0.74	63.61	35.74	0.65	70.26	29.21	0.53
30-35	49.47	49.11	1.42	54.91	44.17	0.92	62.61	36.38	1.01			
35-39	46	52.56	1.44	52.29	45.58	2.13						
40-44	41.03	56.99	1.98									
45-49												
50-54												

Source: using the Labor Force Survey 1984–2014. [9]

Note: F = formal sector, I = Informal sector and E = Employer

Female employment by sector of economic activity shifted over time from the agriculture sector to the manufacturing and service sectors, which is in line with the overall transformation of the Thai labor market [14]. Women in the urban areas and Bangkok worked all along predominantly in the service sector. Over three decades, the share of female employment in manufacturing increased from 14% to 25% in the urban areas, and from 4% to 19% in the rural areas. Nevertheless, the majority of women (47%) in the rural areas still worked in the agriculture sector in 2014 (Figure 7-11).

2.4 Women's Wages and Working Hours

Investigating the change in real wage and working hours revealed that over the three decades, the average real wage of women increased in every sector. Women in the services sector received the highest real wage, while the manufacturing sector and the agriculture sector came in second and third, respectively. Wage differentials by living area were quite distinct, with women in Bangkok and urban areas earning significantly more than women in the rural areas. In 2014, the services sector's wage rate of 13,000-18,000 bath was three times as high as the agriculture sector's wage rate of 4,900-5,200 bath. The manufacturing sector's wage rate was twice as high as the agriculture sector's wage rate (Table 7-4).

TABLE 7-4

AVERAGE REAL MONTHLY WAGE IN THB FOR WOMEN AGED 25–54 BY SECTOR OF ECONOMIC ACTIVITY AND AREA

Year	Agriculture			Manufacturing			Service		
	Urban	BKK	Rural	Urban	BKK	Rural	Urban	BKK	Rural
1984	4,734	N/A	3,370	7,618	8,269	4,576	8,344	9,212	7,396
1989	4,619	4,988.54	3,200	6,445	9,961	6,026	9,051	9,774	8,515
1994	5,484	N/A	5,921	10,538	13,640	8,702	11,877	14,572	10,727
1999	5,129	N/A	5,662	10,639	13,048	8,753	12,796	14,876	10,909
2004	3,622	5,462.72	3,252	8,267	11,629	5,774	13,472	17,304	9,898
2009	4,248	5,623.40	3,754	8,200	11,975	6,250	12,858	16,368	10,249
2014	5,206	5,061.19	4,875	10,421	14,596	9,133	14,398	17,951	12,912

Note:
1) Adjusted by consumer price index (2011=100)
2) Calculated only for the female employees who received monthly wages
Source: using the Labor Force Survey 1984–2014. [9]

FIGURE 7-11

PERCENTAGE DISTRIBUTION OF FEMALE EMPLOYMENT FOR AGES 25–54 YEARS BY SECTOR OF ECONOMIC ACTIVITY AND AREA, 1984–2014

Source: [9] using the Labor Force Survey 1984–2014

Table 7-5 summarizes the distribution and development of weekly working hours across economic sectors and areas. The average number of working hours per week for women in both the agriculture and services sectors dropped from 50–53 hours in 1984 to 39–48 hours in 2014. On the other hand, working hours of women in the manufacturing sector remained stable over the three decades. In 2014, women employed in the manufacturing sector worked the longest hours of 48–50 per week.

TABLE 7-5

AVERAGE WORKING HOURS OF WOMEN AGED 25–54 BY SECTOR OF ECONOMIC ACTIVITY AND AREA

Year	Agriculture			Manufacturing			Service		
	Urban	BKK	Rural	Urban	BKK	Rural	Urban	BKK	Rural
1984	53.07	52.16	53.07	49.46	47.54	49.46	51.22	49.51	51.22
1989	52.45	51.76	53.41	52.21	49.13	51.84	51.53	49.71	53.39
1994	53.30	61.21	51.84	50.64	48.59	50.33	51.38	49.71	52.23
1999	49.18	46.46	49.18	49.54	48.43	50.38	50.46	50.70	51.40
2004	43.13	39.94	43.13	49.66	50.78	49.10	50.22	52.11	49.67
2009	42.59	49.50	42.29	50.18	49.28	49.89	49.86	49.47	48.89
2014	39.53	44.18	38.08	49.82	48.18	49.31	47.25	47.88	46.95

Source: Using the Labor Force Survey 1984–2014. [9]

3. Determinants of FLFP

Factors that facilitate or hinder the participation of Thai women in the labor force can be categorized into two levels, individual and societal. At the individual level, a recent study by Leetrakun and colleague [9] using the 2013 National Survey of Households revealed that women's age, level of education, and location of residence were positively associated with women's participation in the workforce.

Women who were older, had attained higher levels of education, and lived in urban areas were more likely to work than their counterparts. Women's status in the household (whether or not they were household heads), house ownership (whether or not they owned the house), and household income prospects were also found to have positive influences on women's participation in the labor force. The authors found, on the other hand, that spouses' socioeconomic status had an adverse impact on women's labor force participation. Women whose spouses had higher levels of education than women themselves, had higher number of working days per month, and worked in industrial and construction sectors were less likely to work. Childrearing and caring for older parents were also reported to have negative impacts on women's participation in the workforce. Women with children younger than two years were more likely to drop out of the labor force. A similar effect was observed among women who had to take care of their dependent older parents.

At broader levels, several structural and cultural factors have been reported to significantly induce the participation of women in the labor force. The expansion of basic education from nine years to 12 years in 1997, along with the reform of the higher education system, has significantly increased

the number of women completing high schools and colleges, thereby qualifying for labor market entry. Various changes in Thailand's labor market, including higher demand for female labor, increases in females' average wages, and the availability of flexible work arrangements, have been found to increase the participation of women in the labor force [15].

In the traditional Thai society, the social role of Thai women was portrayed metaphorically as the hind legs of an elephant while men were the front legs. This implied that while men, as leaders, were engaged in paid labor within the public sphere, women, as followers, were relegated to domestic unpaid labor, including tasks such as cooking, raising children and doing other household chores. Women tended to join the labor force only when their families encountered difficult situations. Presently, due to economic development and globalization-induced social changes, which have altered gender relations and traditional norms, Thai women have become less engaged in household duties. They have gained more acceptance to work in the paid labor force and enjoy higher social status [16].

For this report, we also perform an analysis of selected factors that likely affect FLFP in Thailand. The conceptual framework of female labor decisions is based on the allocation of time theory by Becker [11]. We use data from the 2013 socioeconomic survey of households, conducted by the National Statistical Office, and our subsample contains all women aged 15 and above.[4] To test the robustness of our results, we estimate the FLFP using both, a probit model and a logit model.

Our results support earlier findings of factors that influence women's participation in the labor market. Being a head of household, increasing age, and the educational level are positively associated with FLFP. On the other hand, there are some factors such as the child dependency ratio (aged 0-5 years), living with the disabled elderly, the size of household, and the presence of unearned income of households that are negatively associated with female economic activity. Moreover, characteristics of the spouse, like the husband's years of education as well as his working status, also play a significant role in a woman's working decision (Table 7-6).

Investigating the factors that influence FLFP by area of residence revealed that the direction of effects is the same for both urban and rural areas. The results confirm a strong influence of household factors on FLFP. First of all, the impact of the spouse's working status is negative, confirming that the probability of being in the labor market is lower for women who have spouses who work in the formal sector. Table 7-7 shows that women who have spouses who work in the formal sector have a 14.25% lower probability to participate in the labor force, compared to women whose husbands are working in the informal sector. One possible explanation is that, husbands who work in the formal sector have less time flexibility, so they might help less doing housework and child-rearing than spouses who work in the informal sector [17]. Another reason could be that since workers earn significantly more in the formal sector than workers in the informal sector [14], women with spouses employed in the formal sector might not be in the labor force due to an income effect.

Another important result is the negative effect of care responsibilities on FLFP. The results, as reported in Table 6, indicate that the probability of women's participation in the labor market decreases in the presence of children aged 0–5 years and the disabled elderly, as measured by the respective dependency ratios. Thus, women's widespread support in caring for children and disabled elderly is one crucial factor that reduces the probability of women being economically active.

4 Please refer to the appendix for information on the sampling design of the socioeconomic survey (SES) of households.

TABLE 7-6

DETERMINANTS OF FLFP IN THAILAND USING A LOGIT AND PROBIT MODEL

Factors	Logit model		Probit model	
	Coefficients	SD.	Coefficients	SD.
1. Individual factors				
Age	0.3502***	0.0080	0.2004***	0.0044
Age2	-0.0040***	0.0001	-0.0023***	0.0000
Marital Status (Baseline: Single)	0.4090***	0.0777	0.2270***	0.0451
Education (years)	0.0594***	0.0052	0.0338***	0.0029
Being head of household	0.2488***	0.0769	0.1441***	0.0424
2. Household factors				
2.1 Spouse effect				
Husband's age	0.0602***	0.0045	0.0346***	0.0025
Husband's age2	-0.0008***	0.0001	-0.0004***	0.0000
Husband education (years)	-0.0464***	0.0054	-0.0275***	0.0031
Husband working status Baseline: Informal sector				
Formal sector	-0.7735***	0.0459	-0.4326***	0.0253
Employer	-0.8535***	0.0796	-0.4869***	0.0452
2.2 Children effect: child dependency ratio				
Age 0–2	-0.8464***	0.0953	-0.5096***	0.0547
Age 3–5	-0.0948	0.0858	-0.0539***	0.0488
Age 6–14	0.1733***	0.0468	0.1045***	0.0265
2.3 Elderly effect: aged dependency ratio				
Age 60–69	0.1244***	0.0470	0.0555**	0.0271
Age 70–79	0.4754***	0.0768	0.2431***	0.0436
Age 80 and over	0.6765***	0.1403	0.4224***	0.0757
Disabled elderly dependency ratio	-0.3788***	0.0960	-0.2220***	0.0558
2.4 Others:				
Size of household	-0.0880***	0.0127	-0.0549***	0.0072
Log unearned income	-0.3197***	0.0191	-0.1666***	0.0103
3. Control variable				
Area (Baseline: rural)	-0.2857***	0.0340	-0.1624***	0.0191
Constant	-3.5702	0.2165	-2.4595	0.1248
Log likelihood	28597		28597	
Pseudo R2	0.2457		0.2442	

Source: Calculated by the authors using Household Socio-Economic Survey 2013

TABLE 7-7

MARGINAL EFFECTS ESTIMATED BY AREA WITH PROBIT MODEL

Factors	Overall		Urban area		Rural area	
	Marginal effect	SD	Marginal effect	SD	Marginal effect	SD
1. Individual factors						
Age	0.0619***	0.0014	0.0664***	0.0019	0.0536***	0.0022
Age2	-0.0007***	0	-0.0008***	0.00002	-0.0006***	0.0000
Marital status (Baseline: single)	0.0746***	0.0156	0.0526***	0.0191	0.1261***	0.0289
Education (years)	0.0104***	0.0009	0.0119***	0.0011	0.0072***	0.0016
Being head of household	0.0437***	0.0126	0.0480***	0.0167	0.0398**	0.0191
2.Household factors						
2.1 Spouse effect						
Husband's age	0.0107***	0.0008	0.0119***	0.0011	0.0087***	0.0011
Husband's age2	-0.0001***	0.00	-0.0002***	0.0000	-0.0001***	0.0000
Husband education (years)	-0.0085***	0.0009	-0.0096***	0.0012	-0.0063***	0.0016
Husband working status (baseline: informal sector)						
Formal sector	-0.1425***	0.0087	-0.1275***	0.0113	-0.1645***	0.0137
Employer	-0.1709***	0.0173	-0.1915***	0.0226	-0.1352***	0.0264
2.2 Children effect: child dependency ratio						
Age 0–2	-0.1573***	0.0169	-0.1721***	0.0237	-0.1414***	0.0235
Age 3–5	-0.0166	0.0151	-0.0215	0.0211	-0.0130	0.0211
Age 6–14	0.0323***	0.0082	0.0323***	0.0113	0.0294**	0.0116
2.3 Elderly effect: aged dependency ratio						
Age 60–69	0.0171**	0.0084	0.0236**	0.0113	0.0077	0.0124
Age 70–79	0.0750***	0.0135	0.109***	0.0186	0.0274	0.0195
Age 80 and over	0.1304***	0.0233	0.1215***	0.0309	0.1313***	0.0354
Disabled Elderly dependency ratio	-0.0685***	0.0172	-0.0662***	0.0243	-0.0689***	0.0238
2.4 Others						
Size of household	-0.0169***	0.0022	-0.0144***	0.0031	-0.0199***	0.0032
Log unearned income	-0.0514***	0.0032	-0.0601***	0.004	-0.0336***	0.0054
3. Control variable						
Area (Baseline: rural)	-0.0495***	0.0057				
Number of sample*	28,597		17,070		11,527	
Log likelihood	-12,488.35		-7783.4549		-4681.6297	

Source: Calculated by the authors using Household Socio-Economic Survey 2013

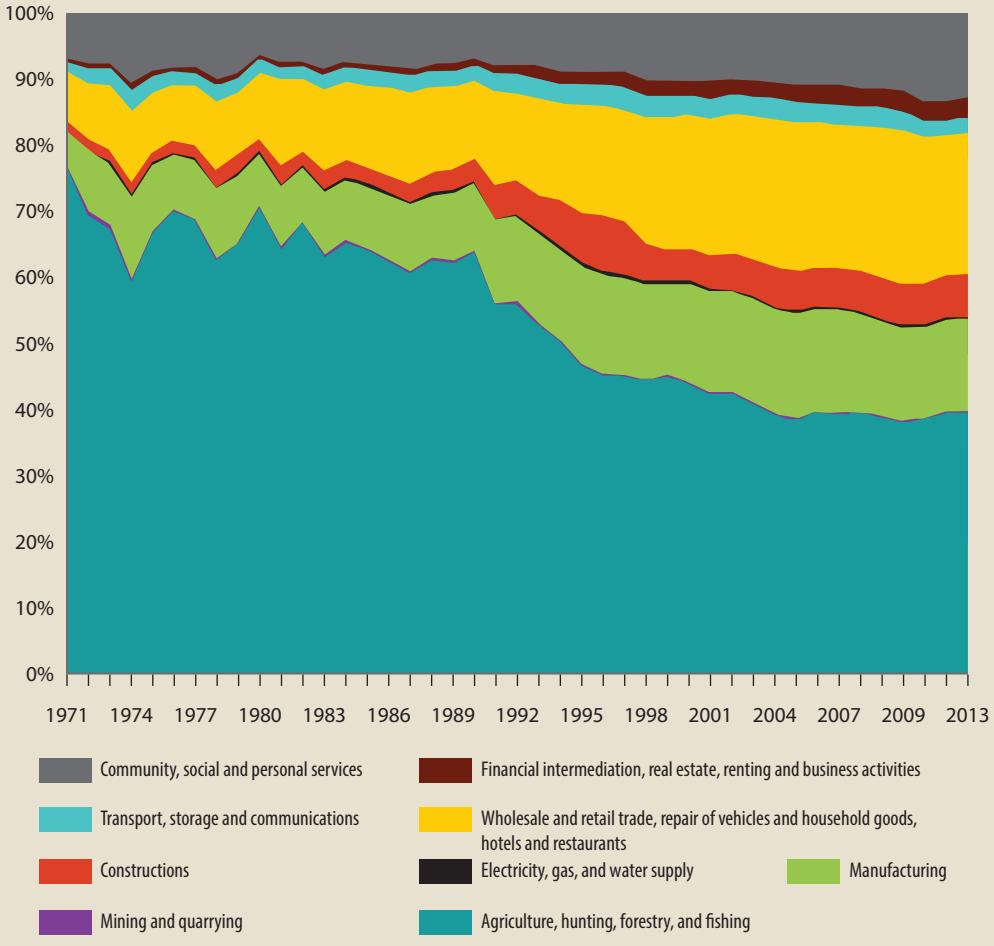
4. Impact of FLFP on Productivity

To our knowledge, no study exists that analyses the impact of FLFP on national labor productivity in Thailand. Given that, as we will show below, women who are currently participating in the labor force are more educated and skilled than in the past and are to a larger extent working in more productive sectors than before, it is very likely that FLFP has had a positive impact on national labor productivity.

A characteristic of developing economies is the productivity gap between traditional and modern sectors, and development is driven by shifts in employment from low- to high-productivity activities [18]. This is also what contributed to the economic growth in Asia, including Thailand. However, given its level of income, Thailand still has a relatively large share of people employed in the agricultural sector, which also has especially low levels of productivity compared to agricultural productivity of other Asian countries. Moreover, past shifts in employment from agriculture to more productive industries and the services sector seem to have stalled [19]. This stagnation is clearly noticeable in Figure 7-12, and it is happening in spite of a recent increase in the absolute number of persons employed in the agricultural sector (Figure 7-13).

FIGURE 7-12

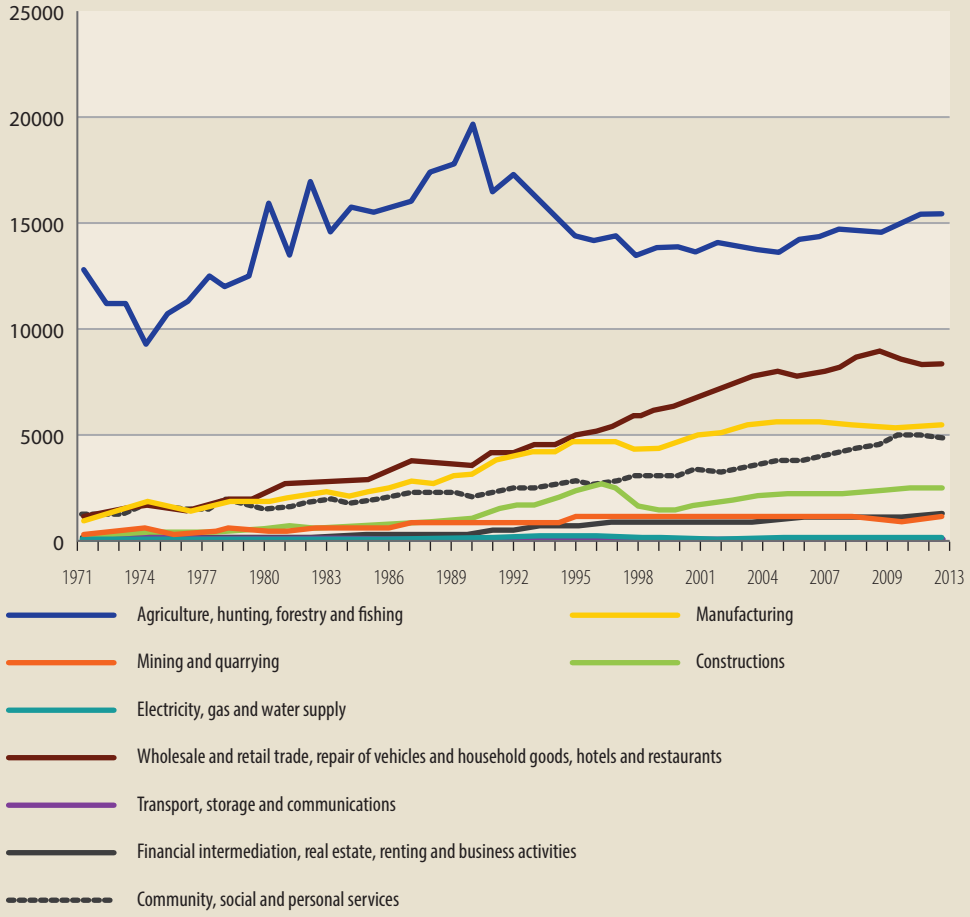
PERCENTAGE DISTRIBUTION OF TOTAL EMPLOYMENT BY INDUSTRIES, 1971–2013



Source: Author's calculations of percentages; [20]

FIGURE 7-13

TOTAL EMPLOYMENT BY INDUSTRIES IN THOUSAND, 1971–2013



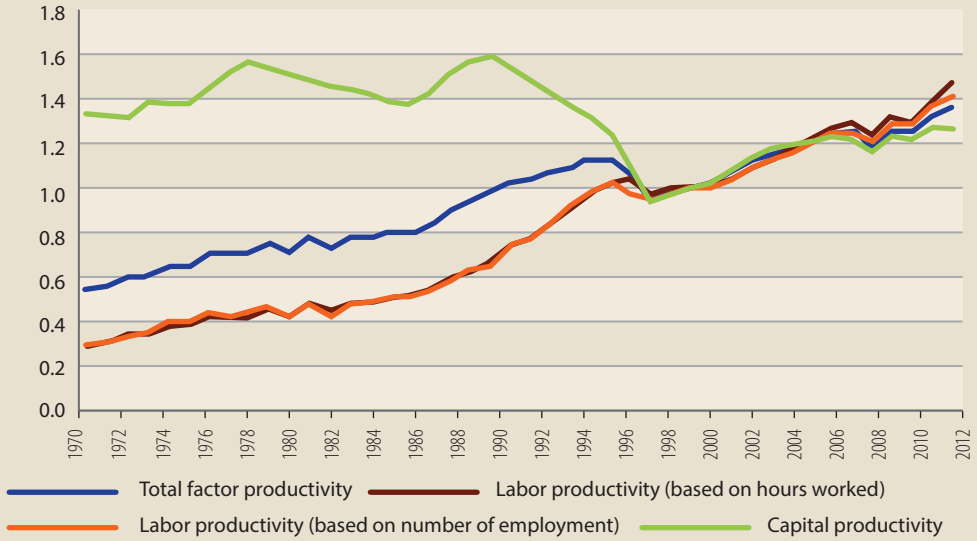
Source: [20]; Author's calculations of percentages.

There are three general factors that have been shown to be responsible for long-run productivity growth [21]. These are: improvements of labor quality; the quantity of physical capital per worker; and the greater efficiency in the use of labor, physical capital, and others. In Thailand, labor productivity, based on employment or hours worked, as well as total factor productivity, have increased continuously since 1970, with the exception of 1997–98, which was the period of the financial crisis. Capital productivity, on the other hand, had dropped sharply already before the crisis and has been increasing since, but without attaining pre-crisis levels again (Figure 7-14). The developments of these three factors within the agricultural, industrial, and services sectors have not been uniform [22].

It is difficult to disentangle productivity by gender directly. Indirectly, several approaches are possible, such as looking at the development of the share of female workers employed in the informal sector, and the analysis of labor productivity by economic sectors and its correlation with the share of female workers. Additionally, factors that contribute to labor productivity, for example, levels of educational attainment and the degree of urbanization, can be analyzed. This indirect approach is also what has been taken for this report.

FIGURE 7-14

PRODUCTIVITY IN THAILAND (INDEX YEAR 2000=1), 1970–2013



Source: [20]

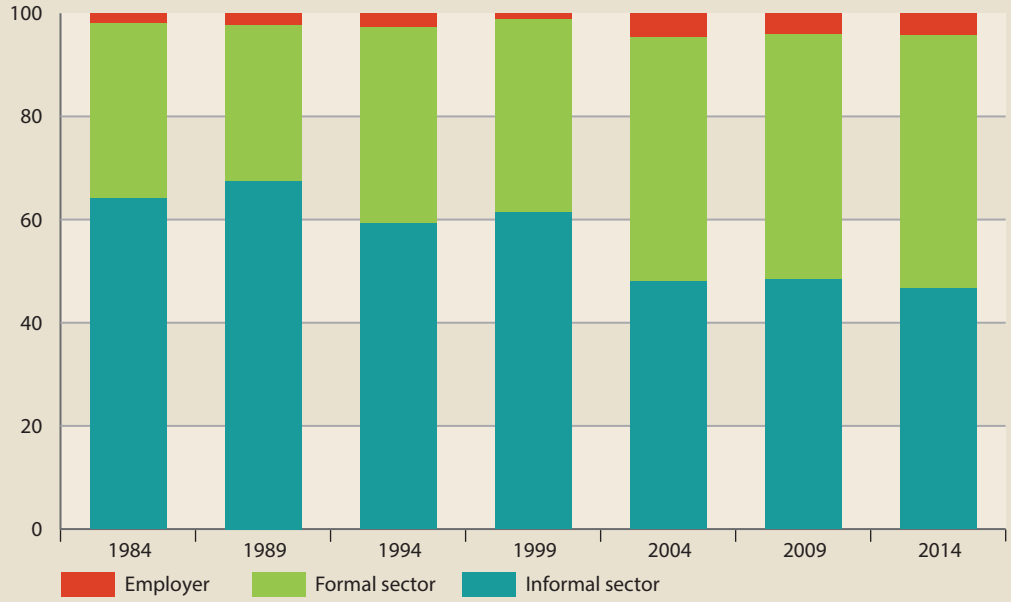
Khunkarnrai [23] estimates age-productivity profiles of self-employed workers in Thailand, using data for several years of the Socio-Economic Survey. Self-employment comprises own-account workers and unpaid family workers, according to the definition of the National Statistical Office of Thailand. The analysis only includes persons working in the non-agricultural sector. The estimated productivity profiles for women by age and education show an inverted U-shape, which implies a lower productivity for the young and the old and higher productivity for middle-aged workers. There is a positive correlation between education and productivity: women with less than high school education have lower productivity than those who finished the high school, who again have lower productivity than those with vocational education or a university degree. This finding is in line with previous findings for other countries, i.e., higher levels of human capital, proxied by education, are positively correlated with higher productivity, often proxied by earnings.

The educational composition of the population is changing. Men and women of younger birth cohorts have higher levels of educational attainments than those who were born earlier. This means that over time, the Thai working-age population is experiencing an upgrade in its educational composition, which translates into a change toward higher educational levels of its workforce. This process has been going on and has been shown to have had a positive impact on labor productivity in Thailand, even though it was not the dominant factor [22].

As demonstrated in Figure 7-10, the employment pattern of women saw a gradual shift from informal to formal employment between 1984 and 2014, with the share of women employed informally decreasing from 61.3% to 50.3%, in the respective years. This still means though that half of all working women were in the informal sector, which is generally considered to be less productive than the formal sector. This shift from informal to formal employment was more pronounced for men than for women (Figure 7-15). While the share of men that were employed informally in 1984 was larger than that for women, it got reduced to lower levels by 2014, meaning that more than half of males now work in the formal sector or represent the employers.

FIGURE 7-15

EMPLOYMENT STATUS OF WORKING-AGE MEN AGED 25–54 YEARS, 1984–2014



Source: Calculated by the authors using the Labor Force Survey 1984–2014

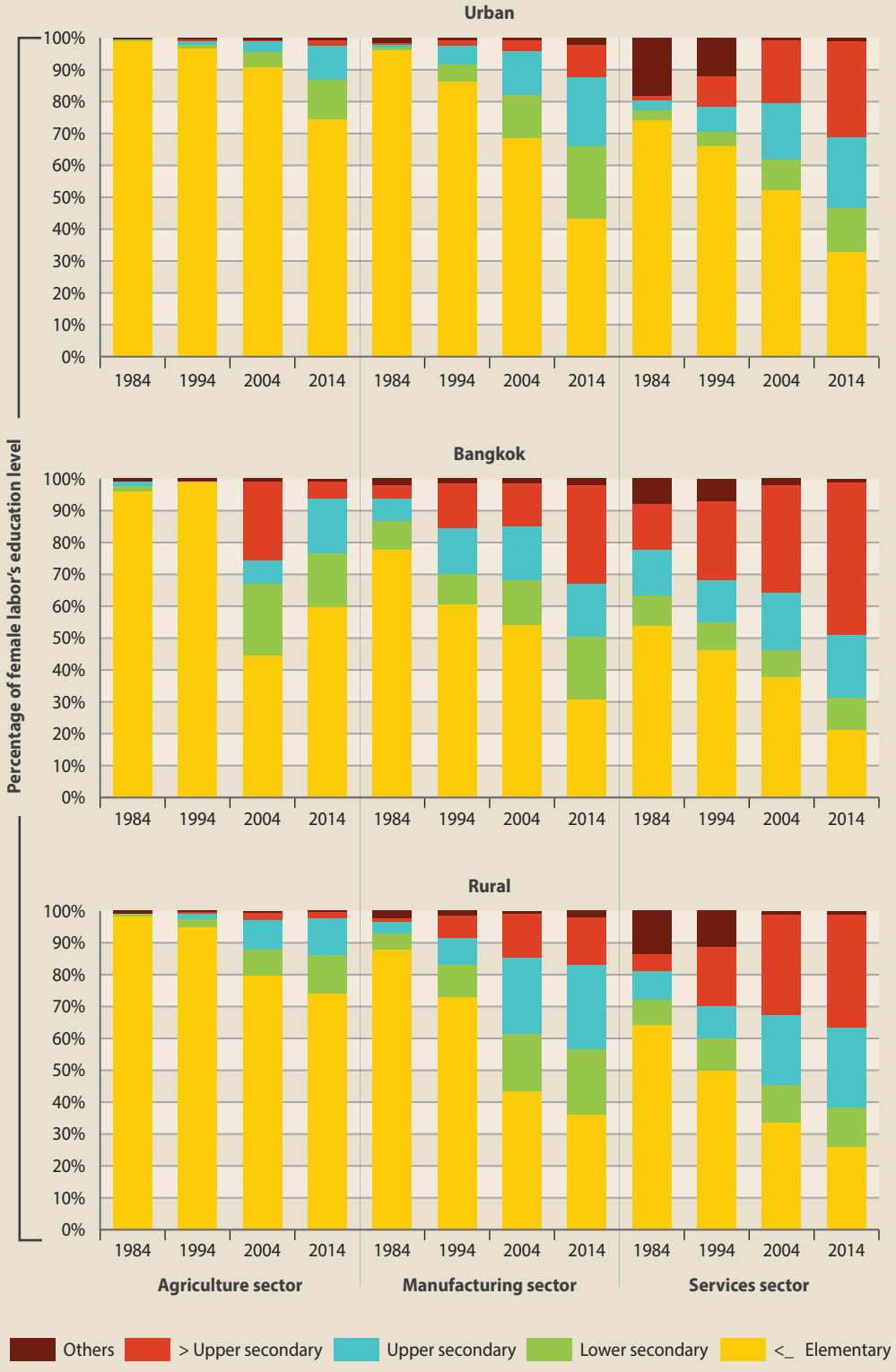
The change between 1984 and 2014 in the composition of female employment with respect to the formal level of employment went hand in hand with a shift away from the agriculture sector toward the manufacturing and services sectors (Figure 7-11). This is generally equivalent to a shift of employment from a sector with low productivity to sectors with higher productivity. Thailand is no exception, with labor productivity in the agricultural sector being only a fraction of those in the industrial and services sectors [19]. Hence, changes in the sectoral composition of total employment away from agriculture usually entail a positive effect on aggregate labor productivity and can be an important source of economic growth. This change happened simultaneously with increased urbanization in Thailand, and the employment in urban areas is normally more productive than employment in rural areas.

The more recent development, between 2001 and 2010, was slightly different for both men and women [24]. The share of employment in the agricultural sector initially declined for both the sexes and then started to stagnate around 2005, while remaining at a slightly higher level for men (at about 40%) than for women. The employment share in the industrial sector remained about constant for men and declined slightly for women, with men (less than 15%) overall having a lower share than women. In the services sector, the employment shares of both men and women increased gradually, reaching almost 50% for both the sexes by 2010 [24].

Figure 7-16 summarizes the experience of female employment by showing the development by area of residence, sector of employment, and level of educational attainment between 1984 and 2014. The aforementioned change in the population's education level is reflected in a reduction in share of women with at most elementary education and an increase in the share of women with at least lower secondary education. This upgrade in the composition of female employment was most pronounced in Bangkok. Within each area of residence, the service sector saw the most noticeable increase in human capital, followed by the manufacturing sector.

FIGURE 7-16

EDUCATIONAL ATTAINMENT OF WORKING-AGE WOMEN AGED 25–54 BY AREA OF RESIDENCE AND SECTOR OF EMPLOYMENT



Source: [25] using the Labor Force Survey 1984–2014.

Summing up the evidence presented in this section, the change in educational attainment toward higher levels of education, the gradual reduction in the share of female employment in the informal sector, and the shift away from agricultural employment to employment in the industrial and service sectors very likely meant that female participation in the labor market had a positive impact on labor productivity.

5. Policy Issues

The ongoing shift in the population structure toward fewer and fewer people of working age and the concurrent increase in the population of those aged above 65 years, along with the potential consequences this change has on economic growth and the society, has been the focus of a recently suggested 20-year long-term population plan [26]. One of the explicitly stated measures is "unleashing the full potential of female workforce through promotion and incentives for more female workforce to engage meaningfully and gainfully in decent economic activities and for more availability of flexible work arrangements for women whose labor supply is constrained by family responsibilities" [26]. Hence, FLFP is a crucial factor in Thailand's preparation for dealing with its aging society.

In general, many factors, such as the stage of economic development, cultural norms, sector composition, and the overall macroeconomic climate, have an influence on the selection of policies that a country may consider in order to promote and facilitate FLFP. This section summarizes the overall reaction of the Thai government with respect to gender equality and the participation of women in the labor force, in particular.

5.1 Gender Equality

The Thai government has been investing in addressing gender inequality. The first explicit effort to promote gender equality was introduced in the third National Economic and Social Development Plan (1972–76). The Plan addressed the situation of gender disparity that Thai women, both in urban and rural areas and in the labor force, were disadvantaged when compared to men in many aspects of life, and stressed upon the need for the relevant organizations to devise welfare policies and programs to assist women who were deprived of access to education, healthcare and family planning services, and employment security.

Another significant development was the adoption of the first National Long-term Plan for Women's Development covering the period of 1982–2001 [9, 25]. The importance of gender equality was addressed prominently again in the 11th National Economic and Social Development Plan (2012–16). This current plan emphasizes upon building a gender-equal society where everyone is aware of women's status and has a positive attitude toward women's roles in different contexts, including economic, social, and political arenas. The plan also emphasizes upon women's equal access to basic and higher education as well as training to enhance their capabilities [27]. Further, in 2015, the Office of Women's Affairs and Family Development (under the Ministry of Social Development and Human Security) was upgraded to a departmental status as the Department of Women and Family Development. This gave it a higher authority to implement programs to support women's quality of life and to combat human trafficking of women.

5.2 FLFP

It is evident that the Thai government has put in considerable efforts to promote and facilitate the participation of women in the labor force. In 1998, the government passed the Labor Protection Law to stipulate gender equality in employment, health protection, work safety, and the prohibition

of sexual harassment of female employees by employers [28]. Recently, the government detailed a clear strategy to increase women's employment in the Development Plan for Women which is included in the 11th National Economic and Social Development Plan (2012–16).

The strategy covers a range of measures including the following:

1. The promotion of vocational and higher education, especially in fields with high sex segregation.The provision of various training programs to improve occupational skills and information technology knowledge targeted specifically at women, residing in both urban and rural areas, and with greater attention to women who are socially disadvantaged.[5]
2. The revision of existing regulations, especially the financial regulations related to wage discrimination, access to appropriate financial services, and other regulations related to working environment, which could have adverse effects on the physical and psychological health of the female employees.

As Thailand is undergoing rapid population aging and because even women who work full-time are primarily responsible for childcare and are also expected to provide care to older parents, the government has implemented policies to alleviate some of the burden placed on women. This can be seen from several important measures initiated at the national level to support families with children and elders, as summarized in Table 7- 8. According to a recent report produced by the Committee on the System Reform to Prepare for an Aging Society [29], the measures can be grouped into three forms of support, namely, time, finance, and service.

Although the Thai government has initiated various comprehensive measures and programs aimed at showing how determined it is to promote the participation of women in the labor force, there remains a concern regarding the stability of these programs, given the frequent changes in national leadership. Further, within the context of Thailand's aging population, social policies to support women to balance their roles in the formal labor market as well as in informal labor, such as caregiving for dependent parents and children, are yet to be developed.

TABLE 7-8

SUMMARY OF NATIONAL MEASURES TAKEN BY THE THAI GOVERNMENT TO SUPPORT CHILD AND ELDER CARE

Form of support	Measure	Targets/beneficiaries
Support measures for child rearing and childcare		
Time	Maternity leave, up to 90 days per pregnancy	Female government officials and employees of private firms
	Leave to take care of child	Female government officials who are allowed maternity leave (up to a total of 150 days inclusive of maternity leave)
	Paternity leave	Male government officials whose registered wives have given births (up to 15 days)

CONTINUED ON NEXT PAGE

5 Socially disadvantaged women are referred to women with disability, women minors, women living in the three southernmost provinces and hill tribes, and women who are at risk of abuse and violence.

CONTINUED FROM PREVIOUS PAGE

Form of support	Measure	Targets/beneficiaries
Finance	Welfare for children of low-income families	1. Low-income families facing difficulties due to the head of family's inability to take care of the family as a result of death, severe sickness, disability and imprisonment 2. Newborns of low-income families (limited to those who were born between 1 October 2015 and 30 September 2016 only)
	Child allowance of THB15,000 per child younger than 25 years	Taxpayers
	Education allowance for children studying in educational institution in Thailand)	Taxpayers who have children studying in Thailand
	Allowance for children aged 0-6 years	Social security fund members
	Compensation during maternity leave	Social security fund members (full pay: 45 days from the employer and 45 days from the Social Security Fund)
Service	Preschool child care center	Any
Support measures for elder care		
Finance	Parents' allowance of THB30,000	Taxpayers whose parents or parent-in-laws are 60 years and above and earn less than THB30,000 per year
	Tax deduction for health insurance premium paid for parents or parent-in-laws	Taxpayers who purchase health insurance for parents or parent-in-laws with income less than THB30,000 per year
Service	Public old-age home	Abandoned elders
	Social care and services provided by home health care volunteers	All community elders
	Healthcare provided by community-level hospitals and health care volunteers	All community elders
	Community-based integrated long-term care system	Dependent elders

Source: [29]

References

[1] United Nations. World Population Prospect, 2015 Revision. New York; 2015.

[2] Foundation of Thai Gerontology Research and Development Institute. The Situation of Older Persons in Thailand. Nonthaburi; 2014.

[3] Knodel J., Chayovan N. Population Aging and the Well-being of Older Persons in Thailand. Population Studies Center Research Report 08–659, October 2008. http://www.psc.isr.umich.edu/pubs/pdf/rr08-659.pdf.

[4] National Economic and Social Development Board (NESDB). Changes in Population Structure and the Future of Country Development (in Thai). Keynote address at a seminar, Bangkok, Thailand, 12 December 2014.

[5] Dao M., Furceri D., Hwang J., et al. Strategies for Reforming Korea's Labor Market to Foster Growth. IMF Working Paper, WP/14/137; 2014.

[6] Worldbank. World Development Indicators. http://databank.worldbank.org. Accessed on 27 April 2016.

[7] Kawata H., Naganuma S. Labor Force Participation Rate in Japan, Bank of Japan Review December; 2010, 2010-E-7.

[8] Leetrakun P., Permpoomwiwant C., Suwanrada W. An analysis of tendencies for supporting female labor force participation in aging society (in Thai). Paper presented at the10th National Conference of Economists, Chiang Mai, Thailand, 27 April 2016.

[9] Leetrakun P., Permpoomwiwant C. An Analysis of Women's Engagement in the Thai Labor Market. Paper presented at the International Symposium on Gender Equality in the Research Environment, Meiji University, Japan, 7 November 2015.

[10] Permpoonwiwat C.K. Gender Analysis in Thailand: Socio-Economic Aspects. Journal of Information and Communication Studies; 2012, 12: 23–36.

[11] Becker G.S. A theory of the allocation of time. The Economic Journal; 1965, 75 (229): 493–517.

[12] ADB. Women in the workforce: An unmet potential in Asia and the Pacific. Mandaluyong City, Phillippines; 2015.

[13] Tuntiviat S., Tisayatikom K., Prakongsai P. Women's Roles in Non-Economic Activities Using Time Use Surveys in Thailand, Japan, and China. Paper presented at International Health Policies Program Journal Club, Thailand, 1 November 2010.

[14] Aemkulwat C. Labor Force Struturce Change and Thai Labor Market, 1990–2008. Paper presented at the Second ANDA International Seminar on "Skill Development for Emerging New Dynamism in Asian Developing Countries under Globalization" at Phnom Phen, Combodia, 8–10 January 2010.

[15] Warunsiri S., McNown R. Female Labor Supply in Thailand: 1985–2004. A Synthetic Cohort Analysis. Working paper of Population Program, University of Colorado at Boulder, USA. POP 2010-04.. http://www.colorado.edu/ibs/pubs/pop/pop2010-0004.pdf. Accessed on 30 August 2016.

[16] Maithongdee N. Discrimination against Women (in Thai). Journal of Economics and Management Strategy; 2014, 1(2): pp. 91–103.

[17] Alcaraz C. Informal and Formal Labor Flexibility in Mexico. Primer Semestrede; 2009, pp. 115–43. http://www.scielo.org.co/scielo.php?script=sci_arttext&pid=S0120-35842009000100004. Accessed on 17 January 2016.

[18] McMillan M.S., Rodrik D. Globalization, structural change and productivity growth. NBER Working paper; 2011, 17143.

[19] Klyuev V. Structural Transformation – How Does Thailand Compare? IMF Working Paper; 2015, 15/51.

[20] APO. APO productivity database 2015 (version 1). Accessed on 1 March 2016.

[21] Noruma K. A look at Asian productivity in the last decade. APO News May 2011. http://www.apo-tokyo.org/publications/wp-content/uploads/sites/5/2011_May_p2-3.pdf. Accessed on 11 February 2016.

[22] NESDB and Worldbank. Measuring Output and Productivity in Thailand's Service-producing Industries. No year.

[23] Khunkarnrai K. Age-earnings and age-productivity profiles of self-employed workers in Thailand. Master thesis. Thammasat University; 2013.

[24] ILO. Thailand. A labor market profile. Regional Office for Asia and the Pacific. Bangkok; 2013.

[25] Leetrakun P. Affecting Factors of Wage Differentials between Female and Male in Thailand (in Thai). Economics and Public Policy Journal; 2014, 5(9), pp. 38–54.

[26] Wongboonsin P. ed. 20-Year Long-Term Population Plan (2015–34). Final Report (vol. 2/5). Submitted to Office of the National Economic and Social Development Board. Bangkok; 2015.

[27] Department of Women Affair and Family Development. The Development Plan for Women in the 11th National Economic and Social Development Plan (2012–16). Ministry of Social Development and Human Security; 2011.

[28] The Office of Women's Affairs and Family Development Ministry of Social Development and Human Security Thailand. Questionnaire to Governments On Implementation of the Beijing Platform for Action (1995) and The Outcome of the Twenty- Third Special Session of the General Assembly (2000); 2004. http://www.un.org/womenwatch/daw/Review/responses/THAILAND-English.pdf. Accessed on 5 February 2016.

[29] The Committee on the System Reform to Prepare for an Aging Society, Thailand's National Reform Council. A guideline for System Reform to Prepare for An Aging Society (in Thai); 2015.

APPENDIX

(1) Definitions of labor force concepts used in this report

a The definition of 'labor force' in Thailand for this study was taken from National Statistics Office, Ministry of Information and Communication Technology, as given below:

Thai labor force = all persons aged 15 years and over who reported:

i To work at least one hour during the past seven days prior to the survey as paid employees.

ii Not working but had jobs or businesses (including farming) from which they were temporarily absent.

iii To work for a family business at least one hour during the past seven days prior to the survey and did not get paid.

(Source : http://service.nso.go.th/nso/nsopublish/knowledge/medthod/lfs.htm)

Labor force = employed + unemployed + seasonally inactive

$$\text{Labor force participation rate } 15+ = \frac{\text{Total labor force}}{\text{The number of total population aged 15 and over}} * 100$$

b. The group of 'employed' includes the following:

i Private employees.
ii Government employees.
iii Public enterprise employees.
iv Own-account workers, and
v Unpaid family workers.

The 'formal sector' comprises (1) to (3) above while the 'informal sector' consists of (4) and (5) [14].

(2) The Thai Labor Force Survey (LFS) and the Socio-Economic Survey (SES) of households

The Thai LFS and the SES of households are both conducted by the National Statistical Office (NSO). A stratified two-stage sampling technique is adopted for both the surveys. The strata are the 76 provinces of Thailand and each stratum consists of two parts, namely the municipal areas and the non-municipal areas.

The selection of sampling units

Primary sampling unit: This refers to using the probability proportional to the total number of households in the village.

Secondary Sampling unit: For the LFS, in the first step, sample households were classified by the size of the household and in the second step, collective households were selected by using the systematic method in each stratum. The secondary sampling unit of the SES followed the same

approach; however, the households were initially classified by the size of the household and its economic type.

Data Processing

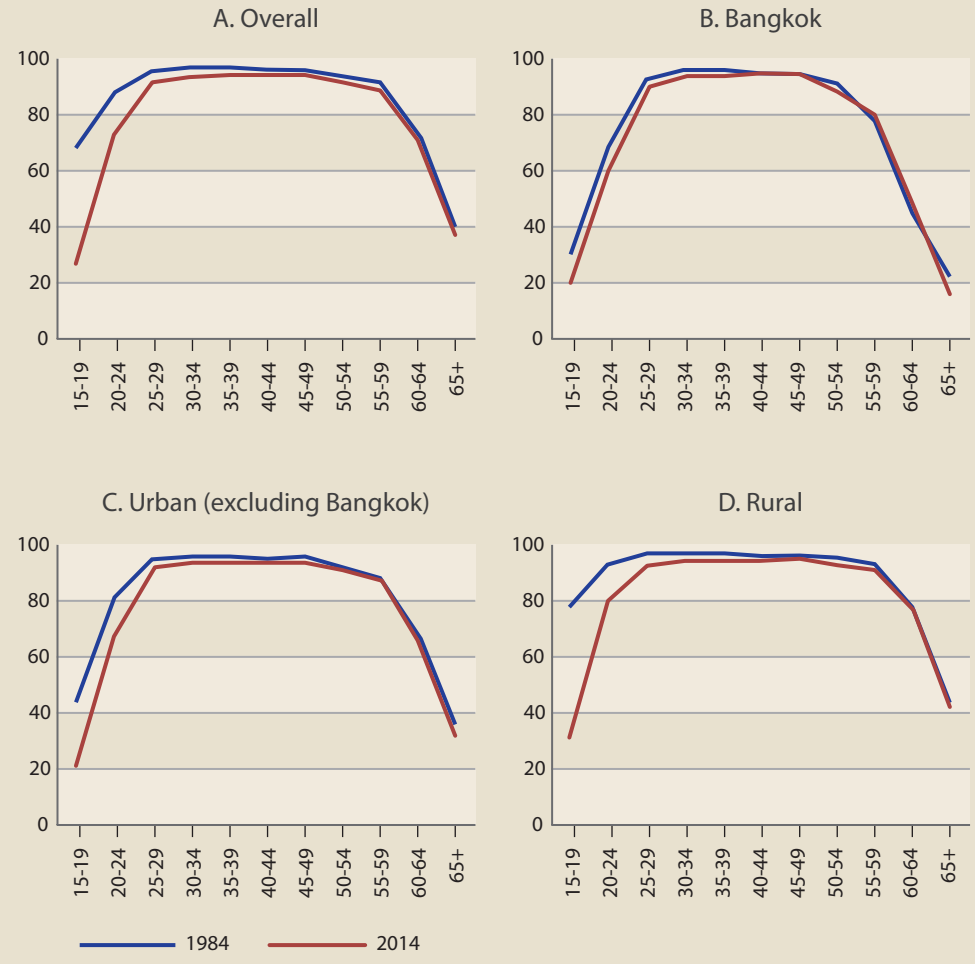
Data for both the surveys was collected through interviews. The Thai LFS data was collected every quarter and the SES data was collected every year. The questionnaires were reviewed, edited, and encoded directly by the field operators themselves before the completed questionnaires were sent to the NSO headquarter. At the central office, they were examined in detail for completeness and consistency. Finally, all raw data was computer edited before any tabulations were performed.

Source:http://web.nso.go.th/en/survey/house_seco/socio.htm, http://web.nso.go.th/en/survey/lfs/lfs_main.htm

(3) Additional figures

FIGURE A-1

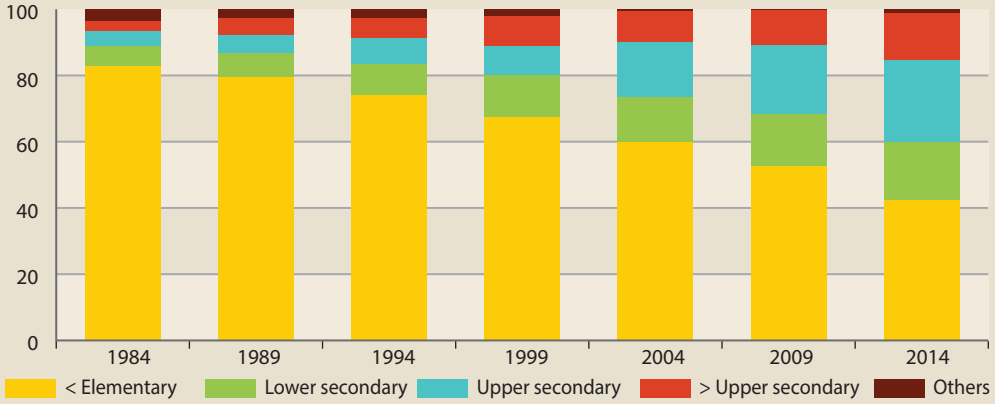
CHANGES IN MALE LABOR FORCE PARTICIPATION RATES BY AGE BETWEEN 1984 AND 2014



Source: Calculated by the authors using the Labor Force Survey 1984–2014

FIGURE A-2

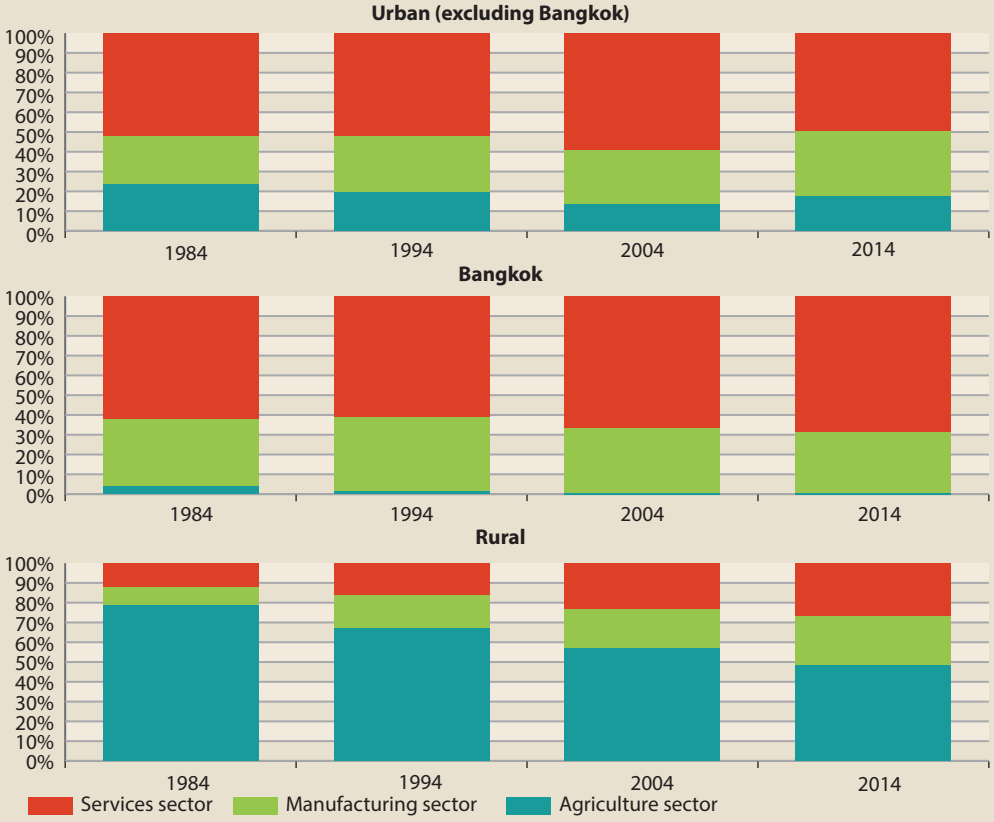
EDUCATIONAL ATTAINMENT OF WORKING-AGE MEN (25–54 YEARS) IN THE LABOR FORCE BY MAIN ROLE, 1984–2014



Source: Calculated by the authors using the Labor Force Survey 1984–2014

FIGURE A-3

PERCENTAGE DISTRIBUTION OF MALE EMPLOYMENT (AGED 25–54 YEARS) BY SECTOR OF ECONOMIC ACTIVITY AND AREA, 1984–2014



Source: Calculated by the authors using the Labor Force Survey 1984–2014

CONTRIBUTORS

Chief Expert/ National Expert for the ROC

Dr. Chin-Hui Hsiao
Associate Professor
Chihlee University of Technology

National Experts

INDIA

Dr. Seema Joshi
Associate Professor of Economics
Kirori Mal College
University of Delhi

INDONESIA

Dr. Lilis Heri Mis Cicih
Researcher/Lecturer
Demographic Institute, Faculty of Economics and Business
Universitas Indonesia

MALAYSIA

Kelvin Chee Meng Yeong
Assistant Director
Economic Planning Unit
Prime Minister's Department

PHILIPPINES

Dr. Ronahlee A. Asuncion
Officer-in-Charge
School of Labor and Industrial Relations
University of the Philippines Diliman

THAILAND

Dr. Wiraporn Pothisiri
Assistant Professor
College of Population Studies,
Chulalongkorn University

Dr. Elke Loichinger
College of Population Studies,
Chulalongkorn University

Paweena Leetrakun
Faculty of Management Sciences
Chiang Rai Rajaphat University

Asian Productivity Organization

Huong Thu Ngo
Program Officer
Research and Planning Department
Asian Productivity Organization

SUSTAINABLE PRODUCTIVITY

THE NEW FRONTIER FOR PRODUCTIVITY

Bangladesh

Cambodia

Republic of China

Fiji

Hong Kong

India

Indonesia

Islamic Republic of Iran

Japan

Republic of Korea

Lao PDR

Malaysia

Mongolia

Nepal

Pakistan

Philippines

Singapore

Sri Lanka

Thailand

Vietnam