Female Labor Participation and Demographic Dividend in Sub-Saharan Africa: Lessons from Asia and Latin America

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Abstract

It is clear that achieving economic development with large number of well-educated young work force will be derived from the demographic dividend. In the era of SDGs where the Goal 8, “Decent Work for All” is brought to the front line of development and in the current context of Sub-Saharan Africa with increasing promotion of female autonomy and their empowerment, female labor force participation will be an important element to facilitate social change including the acceleration of fertility transition. How about the demand side of the labor? Majority of young people including women are in informal sector or underemployed in reality. This paper will examine the lessons from Asia and Latin America in terms of job creation for women in their demographic transitions and demographic dividend experiences. Africa is rich in its natural resources and becoming rich in human capital especially for women with increasing quality of education and health.

Background

It is clear that achieving economic development with large number of well-educated young work force will be derived from the demographic dividend. In the era of SDGs where the Goal 8, "Decent Work for All" is brought to the frontline of development and in the current context of Sub-Saharan Africa with increasing promotion of female autonomy and their empowerment, female labor force participation will be an important element to facilitate social change including the acceleration of fertility transition. How about the reality? Some young people including women are in informal sector or underemployed in reality. Africa is rich in its natural resources and becoming rich in human capital with increasing quality of education and health. Then, which sector and industry will have better chance with further investment to create sufficient quantity of employment especially for women in the near future in Africa?

The continuing population growth in Africa will create youth bulge in most of the countries where potentially underemployment and unpaid or underemployment among youth might be prevalent with lack of sufficient jobs unless sufficient economic investments based on domestic savings or increased foreign direct investment (FDI) will be made by the international community.

Africa is said to have majority of the population still engaged in agriculture especially in rural settings but is it really feasible to foresee growing number of employment for youth and young women to stay in rural areas for the development of more productive agribusiness? The push toward market economy is likely to improve productivity and reduce poverty in African settings?

How about industrialization? In the past, donors or international community supported the development of export substitution industrialization in developing regions. Is this approach feasible in Africa? What were the experiences of Asia and Latin America? Can Africa continue developing competence in this area and potentially obtain comparative advantage vis-à-vis other regions of the world?

What kind of service sectors have further potential in Africa to absorb growing number of more educated youth including women? Communication and information technology, represented by fast expansion of mobile telecommunication network and use in Africa has greatly improved communication among people and business. Will Africa potentially have a silicon valley like information technology space with the growing number of numeric expertise among youth? Banking services have been also growing in their volumes and the needs for the funds transfer and industrial loans for business investments have been on the increase. How are they likely to contribute to the growing economies and domestic savings?

The World Bank report (2012) explains how women in the Latin America and Caribbean region have played a critical role in achieving the poverty declines in last decades, with their labor market participation rates growing 15 percent from 2000 to 2010. Growth in women's labor market earnings and higher participation rates, particularly among poorer women, along with the introduction of non-contributory pension programs for women, explained the important role of women in reducing the region's poverty in the last decade. A focus on women's participation rates, especially those of low-income women, is fundamental for understanding the significance of the increase in female labor earnings. Greater female labor

force participation was most pronounced among low-income women, a fundamental insight into LAC reductions in extreme poverty and its severity.

In Asia, the cases of miracle East Asian Tigers have been studied with numerous research projects for their success stories. How about its replication to African context? In general, it is considered that having both the economic and the demography working together is why East Asia was so successful. Good governance and long-term economic policies, such as job creation, openness to trade, and access to credit, are just as important as better education and health care (Henson 2013). But how about women's role in their success in economic development? Phang (2007) reported that the discrimination against married women that is characteristic of the traditional male-dominated corporate culture in Korea has been a major barrier so far to the extension of female labor force participation. The current trend of delayed marriage among young women reflects their behavioral adaptation to this situation in the job market.

As for Southern Asia or Western Asia, regardless of recent economic development, the female labor force participation is decreasing which is considered to be a puzzled trend or simply on the regular track which is U-shape (Dasgupta and Verick 2016).

This research will first compare the labor force participation of youth, particularly of young women by SDGs region and clarify the Sub-Saharan African situation, then examine the distribution of the employment by sectors, in view of providing evidence for boosting the decent employment in the region.

We know that the theoretical framework for the demographic dividend is based on the demographic transition theory and the positive impact of fertility transition on economic growth potential. This can be achieved with the improvement on education and health with the creation of productive generations of work force with the window of opportunities due to the decline of fertility and decreasing dependency ratio. This research tries to complement this framework with inductive approach by examining the data and experiences of demographic dividend in Sub-Saharan Africa, Asia and Latin America. The focus is on the analysis of labor sector with particular focus on women's roles and labor force participation lessons in different periods and geographic settings.

In sum, this paper is a preliminary research as part of global investigation on demographic dividend perspectives on Sub-Saharan Africa with a focus on health, education and labor. In other words, health with more specifically on fertility situation will be examined. Education with more specifically on female education progress will be examined. And labor more specifically on female employment situations will be examined. Geographical focus is on Asia and Latin America because they have far more advanced stages of the demographic dividend, thus how Sub-Saharan African can benefit from their experiences.

Method and Data

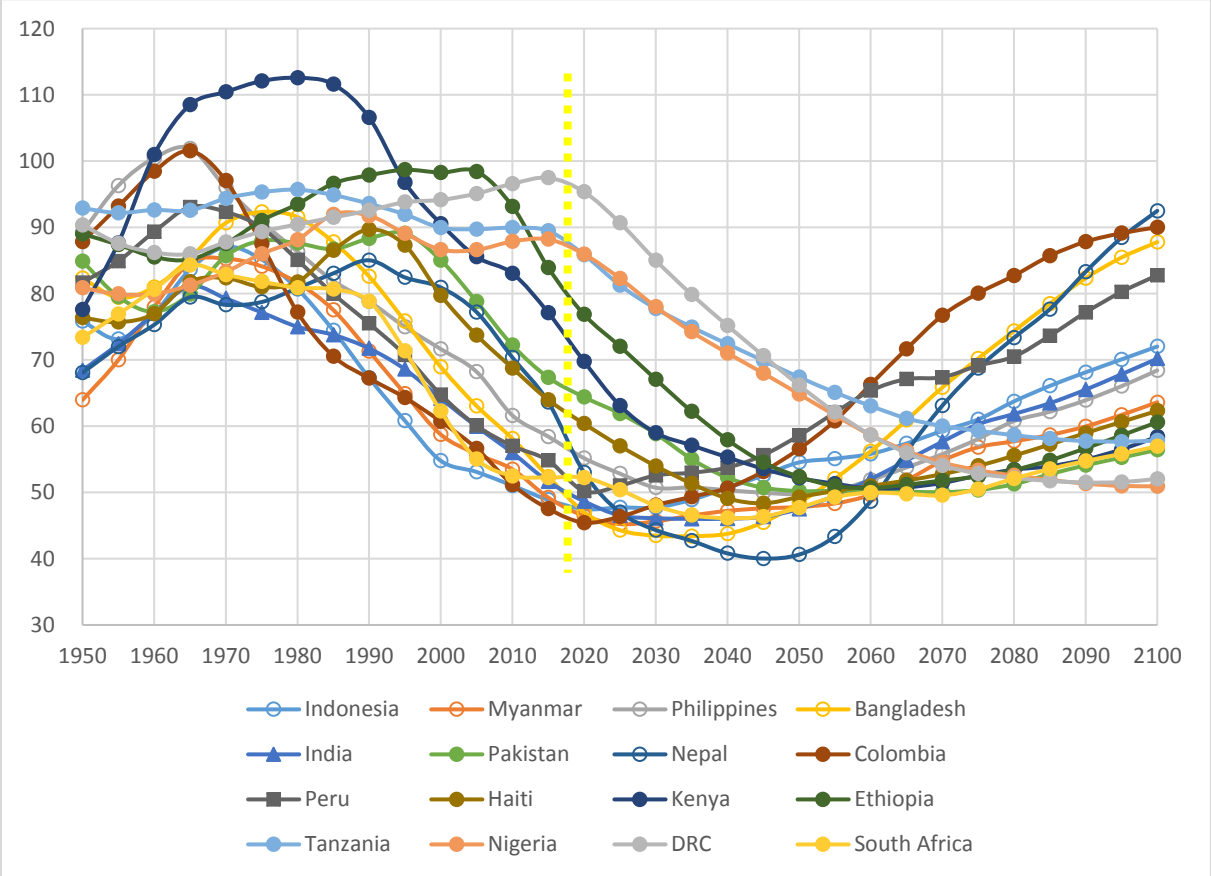
We looked at data on fertility, education and labor of women in particular because our focus in on female empowerment and their contribution to demographic dividend and economic growth. Those three contributing factors are important to achieve demographic dividend. The data on demographic and health surveys (DHS) of 3 countries in Eastern and South-Eastern Asia (Indonesia, Myanmar, Philippines), 4 countries in South Asia (Bangladesh, India, Pakistan, Nepal), 3 countries in Latin America (Colombia, Peru, Haiti) and 12 countries in

Sub-Saharan Africa (Ethiopia, Kenya, Tanzania, Nigeria, DRC, South Africa) have been selected with their availability of most recent data between 2015 and 2019.
These countries are grouped into three groups based on the demographic dividend phase. There is a common trend of total dependency ratio (TDR) which remains high at the beginning (phase 1), then decline (phase 2), then increase again due to population ageing (phase 3), countries are grouped into three accordingly as follows (Table 1, Figure 1).

Table 1 Three groups according to the demographic dividend phase

Demographic dividend phase	Countries
1	Tanzania, Nigeria, DRC
2	Philippines, Nepal, Pakistan, India, Haiti, Ethiopia, Kenya, South Africa
3	Indonesia, Myanmar, Bangladesh, Colombia, Peru

Figure 1 Total dependency ratio (0-14 and 65+ population divided by 15-64 population)



Data Source: United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019, Online Edition.

For the data on fertility, we looked at the total fertility rate of women age 15-49 and the age of first marriage of women 25-49. We have examined the current level of the total fertility rate with the latest available DHS data. With the age of first marriage of women 25-49, we examined if the age has increased enough or not to avoid early and unwanted pregnancy of girls and women in those countries.

As for the data on education, we looked at the completion of secondary or higher education of women age 15-49. As the campaign on education for all is making progress in the world, we have seen growing primary school enrollment rates in most of the countries in the world. However, grade repetitions and school dropout rates have been remaining high in many countries. Therefore, examining 'at least some secondary education' will indicate the completion of primary education for women. Then, the proportion of women who have completed secondary or higher education will indicate the availability of more skilled female labor force in the country.

Regarding labor and employment, we looked at the current (working experiences of last 12 months prior to the surveys) employment situation of women age 15-49 and men age 15-49. Then, we looked at sectors of employment among women age 15-49 and men age 15-49. Those sectors were divided into three according to the economic theory of industrial transformation with three-sector model (Fisher 1939). The model divides economies into three sectors of activity: primary industry with extraction of raw materials, secondary industry with manufacturing, and tertiary industry with services. According to this three-sector model, the main activities of an economy and their labor force participation will shift from the primary industry to the secondary industry with earlier economic development as the society will start experiencing industrialization. Then, as the economy grows more, another shift of main activities and labor force participation from the secondary industry to the tertiary industry.

In other words, a country's activities are mainly with agriculture and primary industry at the beginning with a low per capita income level. The national income or its GDP will be mainly produced by the primary industry. As a country makes more economic development, it will start experiencing the production of more goods and services requested by its population. The share of the secondary industry with manufacturing of goods will increase for their activities and more effective employment of labor force in the sector. Because this sector will be more efficient in terms of income generation compared with the labor in the primary industry. Therefore, the share of national income or its GDP with the secondary industry will increase with the shift of more skilled labor force from primary to secondary industry. Population will attain a medium per capita income level. Then, as the country further makes the economic development, service sectors will increase their activities and proportion in its economy. This sector is more cost efficient in terms of the generation of income, thus major shift of activities from primary or secondary to tertiary industry will occur with more people working in the tertiary industry. But even before its entire shift in labor force, the economy is likely to be mostly dominated by the tertiary industry in terms of the share with GDP. A high per capita income level will be produced at this stage.

Based on European experiences, Fourastie (1949) has provided approximate proportions of each industries and their work force with the stages of a country's economic development.

- First phase: Traditional civilization
  Primary sector (65%); Secondary sector (20%); Tertiary sector (15%)

- Second phase: Transition period
  Primary sector (40%); Secondary sector (20%); Tertiary sector (20%)

- Third phase: Tertiary civilization
  Primary sector (10%); Secondary sector (20%); Tertiary sector (70%).

Most of the developing countries at present may fall into the first phase if their economies have not started major economic development. Then, as the primary industry will start the use of more machinery or scientific technology, this mechanization will reduce the number of labor force in the primary industry and at the same time will increase a demand for the production of machinery in the secondary industry. And with the more demand on quality goods, a higher level of mechanization and manufacturing of goods will start with industrialization. Finally, the automation of primary and secondary industries will increase and reduce the requirement for the number of labor force in both industries. More specifically for consumer demand, services such as financing, banking, information and communication technology, etc. will increase. And as the level of income increases, the demand for tourism, shopping, private schools, private hospitals, etc. will increase as well. Then, with the development of primary and secondary industry, the demand for services, such as transport, trade, storage, etc. will increase. Most of the GDP is likely to be produced in the tertiary industry and most of labor force will be eventually employed in this sector.

With our DHS data, primary industry is comprised of agriculture, forestry, fishery, poultry, cattle raising, domestic servant, unskilled manual labor, military and security forces, etc. Secondary industry is comprised of factory worker, blue collar services, manufacturing, construction, utilities, skilled manual labor, sales and services, etc. The categorization of sales and services into secondary industry has been based on the fact that in reality there are informal labor markets in many developing countries. Tertiary industry is comprised of profession, technical, managerial, clerical, business, finance, information and communication technology, etc.

In terms of the determination of the economic development of countries, we have used the World Bank classification in 2019 and examined the gross national income (GNI) per capita in US dollars. Then, using the study of Ahmet et al. (2016) which examined the stage of demographic dividend with fertility transition and income level situations, the countries have been classified into 4 groups:

- Pre-dividend economy (high fertility and mostly low income economies);
- Early-dividend economy (fertility started to falling and mostly low and lower middle income economies);
- Late-dividend economy (fertility declined and dependency ratio will increase in the near future and mostly upper middle income economies);
- Post dividend economy (below replacement fertility and large share of elderly population and mostly high-income economies.

A country with its total fertility rate above four is categorized as pre-dividend country, even if there has been reductions in the fertility level from its highest in the past. The country with its total fertility rate below four is categorized as early-dividend country, as the country is already in fertility transition and is likely to continue its fertility decline until the replacement level of fertility in the near future. A country with its total fertility rate above 2.1 and if the growth of working age population share for 2015-2030 is less than zero, the country is categorized as late-dividend country. A country with its total fertility rate below 2.1 and if the growth of working age population share for 2015-2030 is more than zero, the country is categorized as post dividend country.

Low income economies are those countries with GNI per capita at less than 1,025 UD dollars.

Lower-Middle income economies are those countries with GNI per capita between 1,026 and 3,996 US dollars. Upper-Middle income economies are those countries with GNI per capita between 3,996 and 12,375 US dollars. High income economies are those countries with GNI per capita at 12,375 US dollars or more.

The international poverty line was revised in October 2015 by the World Bank and defined as 1.9 US dollars per day. With this new threshold, the proportion of the population in the world living in absolute poverty declined to 10% by 2015 according the United Nations estimates.

Results

Country Situation: Indonesia

The 4th populated country in the world, Indonesia, contains more than 264 million population. Its GNI per capita in 2018 was 3,840 US dollars and classified as a lower middle income economy. Indonesia has made substantive economic growth in the last two decades. The poverty rate declined to the lowest level, 9.8%, by March 2018.

The economy of Indonesia has been traditionally dominant in agriculture but its industrial transformation has been underway. The country is also abundant in natural resources especially natural gas and oil. Almost all the men are working and more than 50% of the women are also working (53.0%). The majority of work force for both women and men are in the secondary industry: 61.8 of women and 59.3 of men. It seems that the proportion of the labor force in the primary sector has been on decline and the shift of work force towards the secondary industry has been accelerated.

The demographic dividend indicators on health and education have recorded major progress. The total fertility rate has declined to 2.4 per woman by 2017 and the age at first birth of women age 25-49 age was 22.4 years old. Women age 15-49 who have completed at least secondary school increased to 41.0% in the same year and if we include some secondary school attendance, the rate will increase to 71.0% of women.

With major progress in fertility decline and female education increase, Indonesia has been considered as an early dividend country. With sufficient domestic consumer demand, the economy of Indonesia continues to grow rapidly. It will benefit from demographic dividend soon with the large share of working population which is increasingly well educated including girls and women. The consequent creation of employment is likely to reduce the proportion of poor people and produce middle class for sustainable consumption and domestic savings.

Country Situation: Myanmar

The population of Myanmar is more than 53 million. Its GNIP per capita in 2018 was 1,310 US dollars and classified as a lower middle income economy. Myanmar has made moderate economic growth in the last decades. The poverty rate in Myanmar has however declined substantially in the last decades from 48.2% in 2005 to 24.8% in 2017. The political instability with longstanding civil wars and military regime and its human rights violations have been criticized by the international community since the independence of the country. Which may have delayed more rapid economic development, even though Myanmar has sufficient natural resources, such as minerals, oil and natural gas.

The economy of Myanmar has been traditionally dominant in primary industry, notably in agriculture and mineral extracting industry. Most of the men age 15-49, 94.0%, and a large number of women age 15-49, 72.7%, had been working in the primary industry in 2015-16.

The demographic dividend indicators on reproductive health have been recorded major progress because the total fertility rate has declined to 2.3 per woman by 2015-16 and the age at first birth of women age 25-49 age increased to 24.7 years old. As for education, women age 15-49 who have completed at least secondary school was 14.5% in the same year and if we include some secondary school attendance, the rate was 46.3% of women. The educational progress of women has been slower compared with the evolution of the fertility decline in Myanmar.

In spite of the relatively slower progress in female education, Myanmar has been considered as an early dividend country as its fertility decline has been substantial. After successful political transformation from military to civilian government in 2010, reenergized efforts in industrialization has been currently ongoing with the comeback of foreign investments. Thus, further economic development has been expected in the near future. A further increase in female education will be a force to facilitate industrial transformation of the Myanmar's work force from primary to secondary industry. The country will benefit from demographic dividend soon if the female work force will be well educated and trained on time to accompany the economic development. The poverty rate is likely to decline further if the economic development will occur with the demographic dividend.

Country Situation: Philippines

The population of the Philippines is more than 100 million. Its GNI per capita in 2018 was 3,830 US dollars and classified as a lower middle income economy. The country has made moderate economic growth in the last decades. The poverty rate in the Philippines has declined to 7.8% by 2015. The country has been considered one of the newly industrialized countries in Asia together with China, India, Indonesia, Malaysia and Thailand.

The economy of the Philippines had been traditionally dominant in primary industry, notably in agriculture. And the country has rich mineral resources, such as copper and gold, but the share of mining industry in its economy has been on the decline since the 1980s. The first phase of the industrial transformation of the Philippines' economy occurred in the 1960s from primary industry to secondary industry with light industrialization but subsequent political instability hindered further rapid progress of the economy. Then, the second phase of the industrial transformation on the shift of work force towards tertiary sector has been ongoing since last decades. The proportion of working women in the tertiary sector, 37.4%, in particular services, has already surpassed that of working women in the secondary sector, 32.7%.

The major characteristics of the tertiary sector growth in the Philippines has been supported by its high level of education including female education and its relatively less expensive labor force. The expansion of the business process outsourcing industry has been substantial in the last decades. They are composed of eight sub-sectors: (1) knowledge process outsourcing; (2) back offices; (3) animation; (4) call centers; (5) software development; (6) game development; (7) engineering design; and (8) medical transcription. The Philippines has been one of the main centers of the business processing outsourcing services in Asia together with India.

The demographic dividend indicators on reproductive health have been recorded moderate progress over the decades with its total fertility rate declined to 2.7 per woman by 2017 and the age at first birth of women age 25-49 age increased to 23.5 years old. The level of female education is high with 62.8% of women age 15-49 completed at least secondary school and its rate will increase to 86.2% if some secondary school attendance is included.

The Philippines has been considered as an early demographic dividend country. But its economy has been already benefiting from demographic dividend with a large number of low cost but highly qualified work force including women. Further economic progress has been expected in the near future with additional foreign investments and it will continue to reduce the poverty rate.

Country Situation: Bangladesh

The population of Bangladesh is more than 159 million. Its GNI per capita in 2018 was 1,750 US dollars and classified as a lower middle income economy. The country had been considered one of the poorest countries, least developed country (GNI per capita of less than 992 US dollars), for the long time in Asia but its economy has made major progress in the last decades. The poverty rate in Bangladesh has declined remarkably from 82.0% in 1972, to 18.5% in 2010, and to 9.0% by 2018. A major contributor of the recent economic growth is textile industry. The existence of low cost labor force, in particular that of women, has been contributing the export led industrial production. More than 80% of its work force have been women, but the employment in textile industry does not require particularly higher education.

The economy of Bangladesh has been still dominant in primary industry, notably in agriculture. The majority of working women, 62.7%, has been employed in primary industry. The relatively moderate proportion of women age 15-49, 35.6%, have been working. The economy of Bangladesh has been expanding rapidly with the diversification of private sector and industrialization, such as textiles, pharmaceuticals, shipbuilding, steel, electronics, energy, construction materials, chemicals, ceramics, food processing and leather goods. The proportion of working women in secondary industry, 22.6%, has been lower than that of primary industry, but we can expect a rapid shift towards secondary industry in the near future if social transformation of norms in relation with gender equality and women's empowerment will continue. The more women will be educated at the higher level, the more women will be employed in secondary industry.

The demographic dividend indicators on reproductive health has recorded mitigated progress over the decades with its total fertility rate declined to 2.3 per woman by 2014, but the age at first birth of women age 25-49 age is still 18.2 years old, showing persistent early marriage and pregnancy in the country. The level of female education remains low with 14.4% of women age 15-49 completed at least secondary school, even though its rate will increase to 45.9% if some secondary school attendance is included.

Bangladesh has one of the largest population in Asia. Its population is sustaining strong domestic demand on production and consumption. The emergence of middle class population including that of women will further sustain ongoing economic growth. Bangladesh has been considered as an early demographic dividend country, as its fertility level has been reduced substantially to contribute to the economic development.

Country Situation: India

The population of India, the second populous country in the world, has been estimated more than 1,339 million in 2017. Its GNI per capita in 2018 was 2,020 US dollars and classified as a lower middle income economy. With its large population and economic growth in the past decades, India is one of the newly industrialized countries in Asia. Its economy has recorded high economic growth since the implementation of economic reforms in the 1990s. The poverty rate in India was 21.2% in 2011. It has declined remarkably but still relatively high considering the large number of its population. The economic growth of India has been led by major industries, such as information and (tele) communication technology, software, textiles, automotive manufacturing, electronics, pharmaceutical, and transport equipment, after the economic reforms.

The economy of India had been traditionally dominant in primary industry, notably in agriculture. The country is the second largest rice producer in the world. The majority of its work force had been employed in primary industry. But, the shift towards secondary industry has been accelerated since the last decades. The DHS 2015-16 shows the proportion of men age 15-49 working in secondary industry as 52.6% compared to 32.0% in primary industry and 10.4% in tertiary industry. As for women age 15-49, the proportion of women working in primary industry, 48.3%, is higher than those working in secondary industry, 36.8%. But the difference has been narrowing. The proportion of women working in tertiary industry was 11.0%. Otherwise, the proportion of women currently employed, 30.3%, had been much lower compared with that of men, 80.7%. It shows the existence of a large gender gap in employment.

The demographic dividend indicators on reproductive health has recorded good progress over the decades with its total fertility rate declined to 2.2 per woman by 2015-16 and the age at first birth of women age 25-49 age increased to 21.0 years old. The persistent early marriage and pregnancy in the country might have been reduced to some extent. However, the level of female education remains low with 21.5% of women age 15-49 completed at least secondary school. The proportion of employed women age 15-49 remains relatively low, 30.3%. The large disparity compared with that of men age 15-49, 80.7%, shows the existence of gender inequality in India.

India has been considered as an early demographic dividend country, as its fertility level has been reduced substantially to contribute to the economic development. The population of India will surpass that of China soon and is expected to reach 1,500 million during the 2030s. Continuously growing population will certainly contribute to the provision of large work force and to the growing demand for consumption of goods and services in its domestic market if they are accompanied by continuous economic growth. India has started to benefit from a young and rapidly growing working-age population for its economic growth. They have been experiencing the growth in the manufacturing sector because of rising education and engineering skill levels. And its sustained growth of the consumer market has been driven by a rapidly growing middle-class population. However, the substantive reductions of gender inequality and of economic inequality need to be accelerated in order to sustain further economic and social progress. Then, the proportion of middle class will further increase and result in the reduction of the population below poverty line in the near future.

Country Situation: Pakistan

The population of Pakistan, one of the populous countries in the world, has been estimated as more than 197 million in 2017. Its GNI per capita in 2018 was 1,580 US dollars and classified as a lower middle income economy. Pakistan's history has been characterized by continuous political instability with military rules and conflicts with neighboring India. However, the country's economy has grown rapidly in the last decades with growing number of middle class population. Pakistan has substantially reduced its poverty rate from 64.3% in 2002 to 29.5% in 2014. The economic growth of Pakistan has been led by the development of industries as well as that of service sectors. Secondary industry, such as cement and textiles, have been the major contributors. Tertiary industry, such as information and communication technology and services, have been a major driver of economic growth in the country. Pakistan has been considered as one of the newly emerging world's largest economies in the 21st century, called NEXT 11. In Asia, Bangladesh, Indonesia, Pakistan and the Philippines are among those countries. They are expected to catch up the economies of BRICs (Brazil, Russia, India and China).

The economy of Pakistan had been traditionally dominant in primary industry, notably in agriculture with rice, cotton and wheat production. However, the shift of labor force from primary industry to secondary industry has been well underway. The DHS 2017-18 shows the proportion of women age 15-49 working in secondary industry, 48.7%, has been already much higher than that of primary industry, 38.8%. As for men age 15-49, the proportion working in primary industry, 42.6%, is at the same level as in secondary industry, 42.0%.

The demographic dividend indicators on reproductive health has recorded moderate progress over the decades with its total fertility rate declined to 3.6 per woman by 2017-18 and the age at first birth of women age 25-49 age increased to 22.8 years old. The persistent early marriage and pregnancy in the country might have been reduced to some extent as indicated by the increase of the age at first birth. However, the level of female education remains low with 24.9% of women age 15-49 completed at least secondary school and the rate is at 34.3% even if we include some secondary school education. The proportion of employed women age 15-49 remains low also with 20.0%. The large disparity of working population compared with that of men age 15-49, 97.7%, shows the existence of gender inequality in Pakistan.

Pakistan has been considered as an early demographic dividend country with its modest fertility level reduction but a major increase at the age of first birth. The large number of youth in the country have been providing low cost labor force in order to respond to growing consumer demand on goods and services in the domestic market. However, more equitable economic growth with the reduction of gender inequality has been expected for sustainable social development.

Country Situation: Nepal

The population of Nepal has been estimated as more than 29 million in 2017. Its GNI per capita in 2018 was 960 US dollars and classified as a low income economy. Nepal has recorded substantive economic growth recently. Thus, Nepal has substantially reduced its poverty rate from more than 70.0% in early 2000s to 15.0% by 2010. Nepal has experienced one of the fastest economic growth in the past two decades. Agriculture or primary industry accounted for around 25.0% of its GDP and secondary industry and tertiary industry have been growing recently. However, more than 60% of the total population are working in the primary industry, the labor productivity is still low. Agriculture and primary industry remains one of the growing sectors, but industry sector and service sector have been growing as well including infrastructure and tourism.

The economy of Nepal had been traditionally dominant in primary industry, notably in agriculture with the production of rice, cotton, wheat, etc. The majority of its population, about 70%, has been still working in primary industry. The 2016 DHS shows the proportion of women age 15-49 working in secondary industry as 73.3%, whereas that of men age 15-49 as 45.8%. High proportion of women 15-49, 66.9%, are employed but most of them are in the primary industry. The proportion of women 15-49 working in secondary and tertiary industries were 18.9% and 7.7%, respectively. As for men, the proportion of men working in secondary industry, 37.8%, seems to be on the increase. Men age 15-49 working in primary and tertiary industries were 45.8% and 15.7%, respectively.

The demographic dividend indicators on reproductive health has recorded major progress over the decades with its total fertility rate declined to 2.3 per woman by 2016 and the age at first birth of women age 25-49 age increased to 20.4 years old. The persistent early marriage and pregnancy in the country might have been reduced to some extent as indicated by the increase of the age at first birth. The level of female education remains low with 24.4% of women age 15-49 completed at least secondary school, but it shows some progress at the primary education level because if we include some secondary school education attendance, the rate will go up to 50.0%. This increase in girls' primary school attendance could be a factor that have been contributing to the decline in fertility. The proportion of employed women age 15-49 remains high with 66.9%. Compared with neighboring South Asian countries, such as Bangladesh, India and Pakistan, this is a huge difference. We will need to examine further if Nepal is culturally different in terms of gender equality from other South Asian countries. The proportion of working men age 15-49 was 85.7% in Nepal.

Nepal, in spite of its low level economic development status, has been considered as an early demographic dividend country with its major fertility reduction situation with a modest increase at the age of first birth. The large number of youth in the country have been providing low cost labor force as secondary and tertiary industries have been growing recently. Continuous support for quality education of girls and women will further provide solid foundation for the provision of quality labor force and economic growth.

Country Situation: Colombia

The third populous country in Latin America, the population of Colombia has been estimated at more than 49 million in 2017. Its GNI per capita in 2018 was 6,190 US dollars and classified as an upper-middle income economy. The economy of Colombia has experienced steady growth during the 20th century in spite of recurrent political instability and civil wars. The economic growth has recorded one of the highest in LAC region. The poverty rate of Colombia declined to 7.4% by 2017. Agriculture led by coffee production, one of the world top three exporters, had been contributing to the majority of its economy in the past but its share on labor force has declined since then. The country has also rich in natural resources, such as coal, oil, natural gas, minerals, etc. But with the economic development, Colombia has diversified its economic sectors successfully. Its main exports include minerals, oils, agricultural products, sugars, food products, plastics, precious stones, metals, forest products, chemical goods, pharmaceuticals, vehicles, electronic products, electronical equipment, perfumery and cosmetics, machinery, textiles, clothing, glassware, furniture, home and office materials, software, etc.

The economy of Colombia has experienced industrial transformation. The shares of agriculture have much diminished compared with other industries in terms its GDP contribution as well as that of labor force. The proportion of women age 15-49 working at primary industry was 10.5%, whereas those of secondary and tertiary industries were 62.7% and 26.8%, respectively. Equally, the proportion of men age 15-49 working at primary industry was 27.2%, whereas those of secondary and tertiary industries were 53.3% and 19.6%, respectively. In sum, the majority of both women and men are working in either secondary or tertiary industries.

The demographic dividend indicators on reproductive health has recorded major progress over the decades with its total fertility rate declined to 2.0 per woman by 2015 attaining the replacement level of fertility and started to go below 2.1. And the age at first birth of women age 25-49 age increased to 21.7 years old. The level of female education attained one of the highest in the sub-region with the secondary or higher school completed rate with 60.3% and including some secondary school education it reached 82.7%. The proportion of employed women age 15-49 reached the high level as well. The rate was 71.2% compared with that of men as 89.8%.

Colombia has been considered as a late demographic dividend country as its fertility level already reached the replacement level of fertility. The labor structure of the country has been transformed since decades with much higher emphasis on secondary and tertiary industries. Education attainment including that of women have been contributing to the availability of skilled labor force. A large number of middle class population has been contributing to domestic demand for consumption of goods and services. Economic inequality remains to be resolved though. Further economic development has been expected in the near future in the country and this social inequality including the eradication of poverty has been much anticipated in the country.

Country Situation: Peru

The population of Peru has been estimated at more than 32 million in 2017. Its GNI per capita in 2018 was 6,530 US dollars and classified as an upper-middle income economy. The economy of Peru has recorded steady growth during the 20th century but especially fast growth in the past two decades. The economy has been largely supported by exports of natural resources, such as silver, gold and copper. Fishery is also one of the major industries. The poverty rate of Colombia declined to 21.7% in 2017. Compared with its substantive economic growth and Peru's categorization as an upper-middle income economy, the poverty rate remains substantive, indicating remaining economic inequality. Industrial development and economic diversification may have been limited compared with those of Colombia.

The economy of Peru may have experienced industrial transformation but with a different path compared with that of Colombia. The proportion of women age 15-49 working at primary industry was 33.8%, whereas those of secondary and tertiary industries were 39.6% and 26.2%, respectively. Those figures may indicate a transitional period for industry transformation of the economy of Peru from primary industry to secondary and tertiary industries. Compared with the labor repartition of industries in Colombia, the proportion of primary industry in Peru has been higher, even though the proportion has been close to that of secondary industry. Nevertheless, what is interesting is higher proportion of women working in tertiary industry in Peru compared with that of Colombia. Services, or tertiary industry, account for more than 50% of GDP in Peru.

The demographic dividend indicators on reproductive health has recorded major progress over the decades with its total fertility rate declined to 2.5 per woman by 2014 and the age at first birth of women age 25-49 increased to 22.1 years old. The changes are more or less similar to those of Colombia. The level of female education also attained one of the highest in the sub-region with the secondary or higher school completed rate with 59.7% and including some secondary school education it reached 79.1%. The proportion of employed women age 15-49 reached the high level as well. The rate was 73.4%. Those female education and employment rates were also similar to those of Colombia.

Peru has been considered as an early demographic dividend country as its fertility level has recorded a moderate decline and the age at first birth increased sufficiently. As in Colombia, Peru is one of the leading LAC countries in economic growth. Its economy has been undergoing industry transformation. Educational attainment including that of women have been contributing to the availability of skilled labor force. A large number of middle class population has been contributing to domestic demand for consumption of goods and services. Economic inequality, however, remains to be resolved. Further economic development has been expected in the near future in the country.

Country Situation: Haiti

The population of Haiti has been estimated at more than 11 million in 2017. Its GNI per capita in 2018 was 800 US dollars and classified as a low income economy. Haiti is one of the poorest countries in the world and more than 80% of population is considered to be economically poor. The national poverty rate of Haiti was at 58.6 in 2017. The country has been experiencing chronicle poverty, corruption, political instability, poor infrastructure, lack health care and education, natural disasters, etc. The economy has not developed as much as expected due to the above mentioned situations until today. The country largely depends on agriculture and industrial and service sectors development have been limited and labor productivity remains low.

The proportion of women age 15-49 working at primary industry was 16.1%. The majority of working women, 74.6%, have been with secondary industry. The working women with tertiary industry was at 9.3%. As for men age 15-49, the majority of them were working in primary industry at 42.4%. The proportion of men with secondary industry was at 39.1%, whereas that of tertiary industry was at 18.2%.

The demographic dividend indicators on reproductive health has recorded a major progress over the decades with its total fertility rate declined to 3.0 per woman by 2016-17 and the age at first birth of women age 25-49 increased to 22.4 years old. They are tremendous changes compared with its low economic progress. In fact, those reproductive health indicators are equivalent of those in Colombia and Peru. However, the level of female education has lagged behind, even if there may be some progress. The proportion of women age 15-49 who completed secondary or higher school was at 11.5%. The rate increased to 56.5% if we include some secondary school education. As the level of socioeconomic development remains low in Haiti, the start level of educational attainment has been low. If more than 50% of women have had some secondary education means major progress in primary education in the country. The proportion of employed women age 15-49 was at 56.3% compared with 77.1% for men age 15-49. The rate for women seems to be high in spite of low economic development in the country. This might be due to the presence of informal work by many women in the country. Because their activity with primary industry is relatively low.

Haiti has been considered as an early demographic dividend country even if its economic development level remains substantially low. The fertility level of Haiti has, nevertheless, recorded a major decline and the age at first birth has also increased significantly. Educational progress including that of female education at the primary level might be one of the reasons to facilitate this demographic change. The participation of women on informal work with sales does not really represent industrial development and transformation of labor maker in the country. We only hope that reduced fertility and increased at births of women will contribute to the improvement of social and economic infrastructure notably in the areas of health and education. This will lay a good foundation for the production of skilled workers with low cost. The economic development with industrialization or service sector development, even if it is not guaranteed, may come afterwards in the end with demographic dividend.

Country Situation: South Africa

The population of South Africa has been estimated at more than 55 million in 2017. Its GNI per capita in 2018 was 5,720 US dollars and classified as an upper-middle income economy. South Africa has been considered for the long time as Africa's one of the leading economic powers like Nigeria with its large market and technically advanced foundation with its former European colonizers. However, its poverty rate was at 18.8% in 2015 and it seems high compared with its economic development level. In addition, the income inequality level is high, measured by Gini coefficient. The economy has been well developed with diversification and major transition from primary to secondary and tertiary industries has occurred for its work force. The country has rich natural resources, such as gold, platinum and diamond. They have been also producing various agricultural products, such as maize and fruits. Manufacturing sector has been diversified as well.

The demographic dividend indicators on reproductive health has recorded a major progress over the decades with its total fertility rate declined to 2.6 per woman by 2016 and the age at first birth of women age 25-49 increased to 21.3 years old. The level of female education has already achieved one of the highest levels in Sub-Saharan Africa. The proportion of women age 15-49 who completed secondary or higher education was at 39.6%. The rate increased to 88.9% if we include some secondary education. From this rates, we can understand that most of the girls will finish primary education and proceed to secondary education. However, the proportion of employed women age 15-49 was at 38.5% compared with 51.8% for men age 15-49. The rate for women seems to be substantially low, even though they are relatively well educated and potential skilled labor force. The rate for men is also low, indicating the prevalence of high unemployment in the country.

The proportion of women age 15-49 employed in primary industry was 33.0%, whereas 22.5% and 35.3% of them were in secondary and tertiary industries, respectively. The industrial transformation of the economy has been achieved and a large number of skilled female labor force are working in tertiary industry. As for men age 15-49, the proportion employed at primary industry has been largely reduced with 18.3%. The majority of them were working in secondary industry at 46.9%. The proportion of men with tertiary industry was at 18.2%. The shift of male labor force has occurred from primary to secondary industry.

South Africa has been considered as an early demographic dividend country. Its fertility level declined over the last four decades and the age at first birth has substantially increased. The level of educational progress including that of female education has been substantial. The high prevalence of unemployment is largely due to the existence of high unemployment by black population which accounts for more than 80% of the total population in South Africa. The provision of further education and professional training opportunities to th vulnerable group is like to reduce economic inequality and reduce the poverty rate. As the economy has been already diversified, the creation of more opportunities for black population is a key challenge to reap the demographic dividend in South Africa.

Country Situation: Ethiopia

The population of Ethiopia has been estimated at more than 105 million in 2017 and Ethiopia is the second populous country in Africa after Nigeria. Its GNI per capita in 2018 was 790 US dollars and classified as a low income economy. Ethiopia is one of the poorest countries in the world. Its poverty rate was at 29.6% in 2017. The country experienced chronical famines during the second half of the 20th century. But since the 2000s, its economy has been fast growing led by agriculture and light manufacturing sectors. The majority of its labor force, however, are still working for agriculture, such as coffee and maize, but the majority of GDP have been produced by service sectors. Ethiopia is the largest producer of coffee in Africa. The country largely depends on agriculture its labor productivity remains low.

The demographic dividend indicators on reproductive health has recorded a major progress over the decades with its total fertility rate declined to 4.6 per woman by 2016 compared with 7.0 in the 1990s and the age at first birth of women age 25-49 increased to 19.2 years old. They are steady changes, compared with its low economic progress. However, the level of female education has lagged behind, even if there may be some progress. The proportion of women age 15-49 who completed secondary or higher school was at 6.8%. The rate increased to 17.2% if we include some secondary school education. The proportion of employed women age 15-49 was at 50.2% compared with 92.1% for men age 15-49. The rate for women seems to be high in spite of low economic development in the country. This might be due to the presence of some informal work especially for women outside of agriculture. The majority of the population in Ethiopia is still working for agriculture: 70.9% of men and 41.5% of women. A large number of women, 36.8%, are with sales and services related work, most likely for informal sector.

The proportion of women age 15-49 employed in primary industry was 44.1%, whereas 44.5% of them were in secondary industry, almost the same proportion. The share of the working women with tertiary industry was at 6.6%. As for men age 15-49, the majority of them were working in primary industry at 73.5%. The proportion of men with secondary industry was at 15.0%, whereas that of tertiary industry was at 6.1%.

Ethiopia has been considered as an early demographic dividend country because the TOR was considered as 3.99 (estimates coming from the World Population Perspectives) in the study of Ahmed et al. (2016). Its fertility level declined over the past two decades and the age at first birth has moderately increased. The level of educational progress including that of female education has been moderate, even though its starting level may be lower. As the country has started investing on the development of human capital, however, we will expect substantial improvement for educational quality in Ethiopia including that of women. This trend is likely to produce more skilled female labor force in the near future to support further development of secondary industry. The shift of female labor force from informal work to more skilled manufacturing work may occur. It will eventually reduce the poverty rate in the country.

Country Situation: Kenya

The population of Kenya has been estimated at more than 49 million in 2017. Its GNI per capita in 2018 was 1,620 US dollars and classified as a lower-middle income economy. The poverty rate of Kenya declined to 36.1% by 2015-2016 but it still remains high. The country's economy has made moderate progress but further advancement is necessary to reduce the poverty. A large proportion of the population has been employed by agriculture, led by tea and horticultural produce. Tourism, banking and telecommunications are growing sectors and the service sector account for the largest GDP of the country.

The demographic dividend indicators on reproductive health has recorded a major progress over the decades with its total fertility rate declined to 3.9 per woman by 2014 and the age at first birth of women age 25-49 increased to 20.3 years old. They are substantial changes, given that the country had recorded one of the highest fertility levels in the world in the past, more than eight children per woman in the 1970s. The level of female education has increased even if it may need further progress to reach the level of more advanced countries in Sub-Saharan Africa. The proportion of women age 15-49 that completed secondary or higher school was at 26.9%. The rate increased to 42.7% if we include some secondary school education. The proportion of employed women age 15-49 was at 66.4% compared with 83.0% for men age 15-49.

The proportion of women age 15-49 employed in primary industry was 69.0%, whereas 14.7% and 15.3% of them were in secondary and tertiary industries, respectively. As for men age 15-49, the majority of them were working equally in primary industry at 67.4%. The proportions of men with secondary and tertiary industries were at 16.4% and 15.0%, respectively. A particular characteristic for the employment in Kenya is its large proportion of domestic service. Among the women employed in primary industry, 27.5% of them were with domestic service, whereas 31.3% were with agriculture. We find the similar tendency for the employed men in primary industry, 20.7% of them were with domestic service, whereas 25.3 were with agriculture. Domestic workers include nannies, caretakers, cooks, gardeners, cleaners, drivers, and security officers. Their wages are relatively low and working conditions remain poor compared with more decent work.

Kenya has been considered as a pre-demographic dividend country, even though its fertility level substantially declined over the past four decades and the age at first birth has substantially increased. This is because its TFR is still high at 3.9 and the age of first birth may go up further. The industrial transformation of its economy remains low, even though further shifts may occur especially to tertiary or service sector. The country has strong potential to accelerate its economic growth and reap from its demographic dividend in the near future as improving educational level including that of girls is well underway, thus there will be abundant skilled labor force.

Country Situation: Nigeria

Nigeria, the most populous country in Africa, has the estimated population of more than 186 million in 2017. Its GNI per capita in 2018 was 1,960 US dollars and classified as a lower-middle income economy. The country is considered as an emerging economy with a huge market potential. The country has natural resources in particularly oil. The dependency on oil revenues continues but the share of oil and natural gas on GDP has declined recently with economic diversification, such as banking, services, ICT and manufacturing. However, Nigeria has the largest population in extreme poverty as its poverty rate is at 44.2% in 2015. A large number of population, more than 50%, have been still working in primary sector, such as agriculture, fishery and forestry.

The demographic dividend indicators on reproductive health has recorded some progress over the decades with its total fertility rate declined to 5.3 per woman by 2013 and the age at first birth of women age 25-49 increased to 20.4 years old. There is a sign of its fertility decline even if it is slow as for example the TFR was 6.0 in 1990. The level of female education has made a major progress and it is one of the highest among the Sub-Saharan African countries. The proportion of women age 15-49 who completed secondary or higher education was at 34.3%. The rate increased to 50.7% if we include some secondary school education. The proportion of employed women age 15-49 was at 68.4% compared with 87.9% for men age 15-49. The rate for women is high and gender gap is relatively smaller compared with other countries in the sub-region. The proportion of women employed in primary industry was at 21.6%. The vast majority of employed women were at secondary industry with 67.5% and in particular sales and services with 62.2%. This is largely due to the high prevalence of informal work by the many women in the country. As for men, 47.9% of them were in primary industry, whereas 37.9% and 14.6% of them were in secondary and tertiary industries, respectively. The economic diversification mentioned above may have shifted some increased in the proportion of working men with more skilled jobs.

Nigeria has been considered as a pre-demographic dividend country with its TFR remains high at 5.3 per woman even though the first age at birth have increased to 20.4 years old. Educational progress including that of female education has been an encouraging factor to produce skilled labor force with its economic diversification. However, the economy may not have produced as much decent employment for both men and women. The persistent high level poverty is somehow puzzling with its huge potential domestic markets. The structural transformation of the economy may be necessary to reduce underemployment and informal sector and create more decent jobs especially for women in order to reduce its poverty.

Country Situation: Democratic Republic of the Congo

The Democratic Republic of the Congo (DRC), the fourth populous country after Nigeria, Ethiopia and Egypt in Africa, has the population estimated at more than 81 million in 2017. Its GNI per capita in 2018 was 490 US dollars and classified as a low income economy. The country is one of the poorest in the world in spite of its huge economic potential with its considered one of the richest reserves in natural resources, such as coltan, cobalt, diamond and copper. The poverty rate was the highest, 73.0%, in Africa in 2018. The majority of the population has been working in agriculture but the sector is not productive. The country has faced decades of civil wars and political instability. The diversification of economy is limited with a huge dependence on mining sector.

The demographic dividend indicators on reproductive health has recorded slow progress over the decades as its total fertility rate remained high at 6.6 per woman in 2013-2014 and its age at first birth of women age 25-49 increased to 19.9 years old. There may be some fertility decline especially in urban areas if we have more recent data as the age of first birth has shown moderate change over the years. This is because the level of female education has also made a major progress. The proportion of women age 15-49 who completed secondary or higher education was at 12.2%. The rate increased to 47.7% if we include some secondary school education. Certainly they are not among the highest but considering the low level of start in socioeconomic conditions, this is a major progress.

The proportion of employed women age 15-49 was at 72.3% compared with 82.3% for men age 15-49. The rate for women is among the highest in Sub-Saharan Africa. But as the majority of the population are still poor, the high female labor participation rate may mean rather the necessity of women to work to earn additional revenues for households and most likely in less productive sectors, such as agriculture and information work. The proportion of women employed in primary industry was at 61.1%. Among them, 57.7% were with agriculture. The proportion of women employed in secondary industry was 34.5%, which is also relatively high, estimated as the majority of them are with informal work (small scale sales and services). The proportion of women employed in tertiary industry was 4.4%. As for men, 57.0% of them were in primary industry. Among them, 51.6% were with agriculture. The proportion of men employed in secondary and tertiary industries were 30.3% and 12.8%, respectively. A high proportion of men were also with sales and services, 23.7%, presumably informal work.

The DRC has been considered as a pre-demographic dividend country, as its TFR remains high at 6.6 per woman even though the age at first birth have increased to 19.9 years old. The persistent high fertility level has been resulting in large demand for health and educational services. Educational progress including that of female education has been an encouraging factor, nevertheless, to produce skilled labor force but the economic diversification and industrial transformation have been relatively limited. Thus, there is a risk for educated and skilled young population to end up with unemployment and underemployment. If this is the case, the DRC is not likely to reap from the demographic dividend.

Country Situation: Tanzania

Tanzania has the population estimated at more than 57 million in 2017. Its GNI per capita in 2018 was 1,020 US dollars and classified as a low income economy. The poverty rate declined over the years but remained high at 36.0% in 2018. The economy of Tanzania has made moderate progress in the past and it has been growing fast more recently, led by tourism (Zanzibar, Serengeti National Park, Mount Kilimanjaro, etc.), banking and telecommunications sectors. Tourism sector contributed to 17.5% of GDP in 2016. The majority of the population has been, however, still working in agriculture, such as maize, cassava, sugar and cotton, with low productivity with the lack of credits, infrastructure, technologies, etc.

The demographic dividend indicators on reproductive health has recorded slow progress over the decades as its total fertility rate declined to 5.2 per woman in 2015-2016 and its age at first birth of women age 25-49 increased to 19.7 years old. The level of female education has made modest progress. The proportion of women age 15-49 who completed secondary or higher education including some secondary school attendance was at 23.4%. They are not among the highest but considering the low level of start in socioeconomic conditions, this is a major progress.

The proportion of employed women age 15-49 was at 77.1% compared with 88.7% for men age 15-49. The rate for women is among the highest in Sub-Saharan Africa. But the majority of the population both women and men are with primary industry: 56.3% of women are with agriculture and 21.6% of them are with unskilled manual work; and 58.7% of men are with agriculture and 11.0% of them are with unskilled manual work. The proportion of women employed in secondary and tertiary industries were at 9.7% and 5.0%, respectively. As for men, 22.1% and 5.6% of them were in secondary and tertiary industries, respectively. Among them, 51.6% were with agriculture. There seems to have some development in manufacturing and industrial transformation only for the work of men.

Tanzania has been considered as a pre-demographic dividend country, as its TFR remains high at 5.2 per woman even though the age at first birth have increased to 19.7 years old. The progress in education including that of girls has been steady but modest. Educational progress including that of female education has been an encouraging factor, nevertheless, to produce skilled labor force in the near future, but the economic diversification and industrial transformation have been relatively limited. Tanzania is likely to enter early demographic dividend phase in the near future. Thus, the country will need further efforts in encouraging industrial transformation of its economy together with educational progress to reap demographic dividend.

Discussion

The exploitation of data on selected countries in South Asia, Asia and Latin America showed that demographic dividend situations are different and their economic development situations in particular industrial transformation are also diverse. We have categorized countries into four different groups (pre-dividend; early-dividend; late-dividend; post dividend) depending on the stages of demographic dividend following the model used by the World Bank. We have also categorized countries into four economies (low income; lower-middle income; upper-middle income; high income) depending on the GNP per capita situations in 2019 according to the World Bank classification. Indicators of demographic dividend with a focus on female empowerment (fertility, education, employment) have also shown interesting mix depending on country's context. Nevertheless, we have grouped them in order to identify certain tendency and characteristics for the paths that they have taken towards their economic development.

All the selected South East Asian countries (Indonesia, Myanmar, and the Philippines) and South Asian countries (Bangladesh, India, Pakistan, and Nepal) were at the same stage of early demographic dividend where their fertility levels have started to decline. Selected countries in Latin America (Colombia, Peru, and Haiti) have shown different results in economic development but also the progress in demographic dividend. Colombia is already a late demographic dividend country where its total fertility rate, 2.0 per woman, has reached the replacement level of fertility. Two other countries (Peru and Haiti) were at the stage of early demographic dividend in spite of significant difference in their economic development levels.

(1) South East Asia

If we look at the results by each female empowerment measure (fertility, education, employment), we find interesting mix of country experiences. As for fertility, all the three South East Asian countries (Indonesia, Myanmar, and the Philippines) have already attained the total fertility rates below three and significant increase of the age at first birth, they are now between 22 and 25 years old. But if we look at female educational attainment, we find a significant gap (delay) in its progress with Myanmar. While Indonesia and the Philippines have already increased the rates of women who attained at least secondary or higher schooling above 40%, that of Myanmar is only at 14.5%. Including some secondary school attendance, the rate will go up to 46.3% but those rates for Indonesia and the Philippines were 71.0% and 86.2%, respectively. These numbers indicate the availability of skilled female labor force in Indonesia and the Philippines, whereas in Myanmar it is not yet available to amply support economic development.

As for female employment, this reflects traditional culture and pattern of each society. The participation of women on labor force shows different picture. The majority of women, 72.7%, in Myanmar has been employed compared with those of Indonesia (53.0%) and the Philippines (53.9). In fact, the female labor participation rates of latter countries have been high but that of Myanmar exceeds those rates. It becomes clear as we know that the majority of working women in Myanmar have been in primary industry (33.6% with unskilled manual and 19.7% with agriculture). This is equally true for working men. The majority of them have been in primary industry (31.1% with unskilled manual and 28.6% in agriculture). Then, if we look at industrial transformation with female participation, the cases of Indonesia and the Philippines show the changes of their economic growth but with different ways. The majority

of both women (61.8%) and men (59.3%) are employed in secondary industry in Indonesia. As for the Philippines, higher proportion of working women are employed in tertiary industry (37.4%) even though the rate is not far from that of secondary industry (31.7%). But what is sure is that they have already under industrial transformation including skilled female labor force.

(2) South Asia

As for fertility, three of the four South Asian countries (Bangladesh, India, Pakistan and Nepal) have already attained the total fertility rates below three but Pakistan has also made significant reduction in fertility to below four. But the increase of the age at first birth shows a cultural challenge. Bangladesh has the total fertility rate of 2.3 per woman but the age at first birth is still at 18.2 years old. Compared with other countries in the sub-region, the level is still low as three other countries have increased the age of first birth to more than 20 years old at least. If we look at female secondary educational attainment, we find significantly lower rates for all the four countries compared with South East Asian countries. Their completion rates of secondary or higher schooling were between 14% and 25%. Probably their educational progress still stays at the primary level because the rates of some secondary schooling were between 34% and 50%, implying a progress at this level. Traditional gender inequality in the sub-region may have been delaying female educational progress and as a consequent skilled female labor force have not been sufficiently available in the sub-region.

As for female employment, this reflects traditional culture and pattern of each society. The participation of women on labor force have been low in the sub-region, reflecting traditional low social status of women and they had not been expected to work outside in the past. But there is an exception with the case of Nepal. The majority of women, 66.9%, have been employed in Nepal. They have been indeed employed in primary industry (73.3%) and in particular with agriculture, 69.9%. The female employment rates for the rest of the three countries were between 20% and 36%. Nepal, nevertheless, seems to be at the beginning of its industrial transformation because the proportion of men working in secondary and tertiary industries seem to be on the rise, 37.8% and 15.7%, respectively. The case of Bangladesh is in a way similar to that of Nepal because the majority of employed women are still in primary industry, 62.7%, and in particular with poultry and cattle raising, 40.8%. There were no data with DHS for sectorial employment of working men. But, other sources indicate that Bangladesh has been also at the beginning of industrial transformation with growing emphasis on secondary and tertiary industries. Otherwise, India and Pakistan has been already in the phase of industrial transformation. The proportion of working women and men in primary industry have been on the decline, even if as mentioned above female labor participate rates of both countries were relatively low with below 31%. Working women in secondary industry (36.8%) is on the rise and higher proportion of working men (52.6%) are already in secondary industry in India. As for Pakistan, higher proportion of working women are in secondary industry (48.7%) and as high proportion of working men (42.0%) are in secondary industry as in primary industry (42.6%). In sum, in this sub-region economic development has been underway with certain industrial transformation. The fertility level has been reduced substantially in general but with the persistence of gender inequality the question is how their economic growth will be sustainable without sufficient participation of women. Further reduction of poverty in the sub-region is likely to depend on this advancement of women.

(3) Latin America

As for fertility, all the three Latin American countries (Colombia, Peru, and Haiti) have already attained the total fertility rates below three and significant increase of the age at first birth (between 21 years old and 23 years old) in particular this has occurred for Haiti as well in spite of their low level economic status. As Colombia has attained the replacement level of fertility, 2.0 per woman, it has been already considered as a late demographic dividend country. If we look at female secondary educational attainment, we find significant advancement in Colombia and Peru. The completion rates for secondary or higher education in those countries were 60.3% and 59.7%, respectively. If we include some secondary education, the rates go up to 82.7% and 79.1%, respectively. The case of Haiti is somehow like that of Bangladesh as the level of secondary or higher education attainment stays low, 11.5%, and with the level of low economic development in Haiti, it is rather the primary education which is on the rise because some secondary education level made substantive progress with 56.5%. This situation in Haiti indicates the lack skilled female labor force in the country in principle.

As for female employment, more than 50% women were employed in all the three countries. Colombia and Peru have one of the highest female employment rates in the sub-region, 71.2% and 73.4%, respectively. Their skilled female labor force have been certainly contributing to industrial transformation of the countries. In Colombia, as high as 62.7% of working women are in the secondary industry and relatively high proportion of 26.8% are in the tertiary industry. It is rather men whose proportion of working sector remains higher in primary industry, 27.2%, compared with that of women, 10.5%. The proportions of working men in secondary and tertiary industries were 53.3% and 19.6%, respectively. As for Peru, industrial transformation seems to be well underway but with slightly lagging behind compared with Colombia. The proportion of working women in secondary and tertiary industries have been higher at 39.6% and 26.2%, respectively. Nevertheless, the availability of skilled female labor force has been much contributing to the equitable economic growth. The situation in Haiti has also a particular characteristics. The majority of working women are with secondary industry, 74.6%, and in particular with sales and services, 71.1%. This seems to be rather reflecting the proportion of women with informal sector of work. The majority of them are with micro-level vendors and selling products, such as food, household items, used clothing and shoes, etc. The proportion of working men in primary industry was at 42.4% and with agriculture in particular at 42.3%. And the proportion of working men in secondary industry was at 39.1% and skilled manual work at 21.4%. There may be some increase for the activities in the secondary industry but given the relatively low economic progress, the majority of working population and that of female labor force participation with industrial transformation have limited changes in the context of Haiti.

(4) Sub-Saharan Africa

As for fertility, the selected six Sub-Saharan African countries (South Africa, Ethiopia, Kenya, Nigeria, DRC, and Tanzania) had mixed levels of TFR and the age at first birth. Two of them reduced substantially their fertility levels and were considered as countries under the fertility transition and are likely to reap from demographic dividend in the near future. South Africa's TFR, 2.6, is at the same level as the selected countries in East and South Eastern Asia, South Asia and Latin America. As for Ethiopia, the 2016 DHS provided 4.6 but the 2015 estimated by the World Population Perspectives showed it as 3.99. Then, the TOR of Kenya was at 3.9 according to the 2014 DHS and the country can be categorized as another early demographic dividend country but the World Population Prospects showed its fertility level as 4.1 in 2015, thus considered the country as pre-demographic dividend.

Three other countries (Nigeria, DRC, and Tanzania) had higher TFRs but they have recorded some reductions in their TFRs over the past decades. It is substantiated by unanimous increase of the age at first birth in all the six countries. Ethiopia had the lowest age at first birth but it still reached 19.2 years old, whereas the highest, South Africa, recorded 21.3 years old.

If we look at female secondary educational attainment, we find major advancement at the primary level in those African countries. But compared with other regions, such as Asia and Latin America, its level is still lower. Only South Africa and Nigeria have attained major progress including the level of secondary education. It is not clear if TOR decline occurred with the increase in educational progress. This situation in Sub-Saharan Africa may indicate the continuing lack of skilled female labor force in most of the countries (except for South Africa) to facilitate industrial transformation.

As for female employment, more than 50% women were employed in all the studies countries except for South Africa which is much lower at 38.5%. The female labor force participation rates were rather higher that we had expected especially for countries, such as Kenya (66.4%), Nigeria (68.4%), DRC (72.3%), and Tanzania (77.1%). This can be explained by the fact that their economic levels remain lower and the poverty situation obliges the women to work outside of their households to participate in household income generation. The sector of their work includes agriculture (Kenya, DRC, and Tanzania), domestic work (Kenya) and informal work (small scale commerce with sales and services) (Nigeria, DRC). The case of South Africa shows a contrast where there is much less informal work and educated women get decent jobs but overall the female labor force participation rate is much lower than other economically poor countries. Otherwise, most of the countries have not diversified enough its economy, thus they remain more reliant on natural resources, agriculture and other informal work. Only South Africa has shown the industrial transformation with the shift of labor force including that of women from primary to secondary and tertiary industries.

Way Forward

Our next step of the research will be more detailed analysis on emerging demographic dividend successful countries with female empowerment in Asia and Latin America on one hand. And we will look into the demographic dividend and female empowerment situations in selected Sub-Saharan Africa and verify if the identified patterns in this paper have been already applied in Sub-Saharan African context or its application will be possibly foreseen in those countries, on the other hand. Some countries are among the newly industrialized countries (NICs). Depending on the availability of the data, we will look into the cases of Mexico and Brazil as well. Otherwise, Turkey in Europe and South Africa in Sub-Saharan Africa, for example, have been considered as developed country by CIA.

We recognize that we have limitations in generalizing our findings to the same sub-regions as well as its direct application to Sub-Saharan African countries. We may need to add more Sub-Saharan African countries including relatively small countries into the analysis. More detailed examination of economic development literature on country by country case may be required to get to know the economic and social development paths that certain countries have succeeded recently. In the end, we would like to analyze policy implications in relation with women's further empowerment measures to reap demographic dividend, comparative advantage of each country including its economic diversification, and the preparation of the second demographic dividend in Sub-Saharan Africa.

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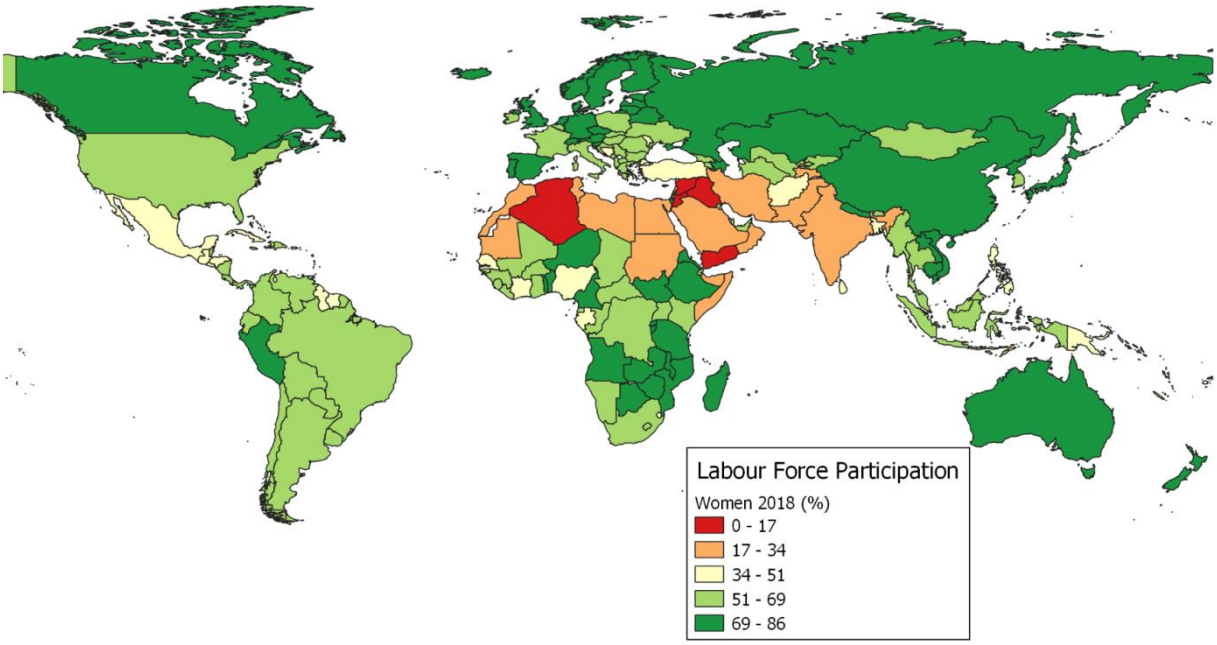
Figure 2. Female Labor Force Participation in 2018



				Health	
				Women age 15-49	Women age 25-49
Sub-Region	Country Group	Country	DHS year	TFR	Age at first birth
East Asia	Post dividend	-			
	Late-dividend	Thailand	1987		
		Vietnam	2002, 1997		
	Early-dividend	Cambodia	2014, 2010, 2005, 2000		
		Indonesia	**2017 (indicator values)**, 2012, 2007, 2002-03, 1997, 1994, 1991, 1987	2.4	22.4
		Lao PDR	2011-12		
		Myanmar	**2015-16 (indicator values)**	2.3	**24.7**
		Philippines	**2017 (indicator values)**, 2013, 2008, 2003, 1998, 1993	2.7	**23.5**
	Pre-dividend	Timor-Leste	2016, 2009-10		
Primary sector of industry: Agriculture, nonskilled manual, military and security forces, etc.					
Secondary sector of industry: Manufacturing, construction, utilities, skilled manual, sales and services, etc.					
Tertiary sector of industry: Professional, technical, managerial, clerical, etc.					

				Education
				Women age 15-49
Sub-Region	Country Group	Country	DHS year	Completed secondary or higher (some secondary)
East Asia	Post dividend	-		
	Late-dividend	Thailand	1987	
		Vietnam	2002, 1997	
	Early-dividend	Cambodia	2014, 2010, 2005, 2000	
		Indonesia	**2017 (indicator values)**, 2012, 2007, 2002-03, 1997, 1994, 1991, 1987	**41.0 (71.0)**
		Lao PDR	2011-12	
		Myanmar	**2015-16 (indicator values)**	**14.5 (46.3)**
		Philippines	**2017 (indicator values)**, 2013, 2008, 2003, 1998, 1993	**62.8 (86.2)**
	Pre-dividend	Timor-Leste	2016, 2009-10	
Primary sector of industry: Agriculture, nonskilled manual, military and security forces, etc.				
Secondary sector of industry: Manufacturing, construction, utilities, skilled manual, sales and services, etc.				
Tertiary sector of industry: Professional, technical, managerial, clerical, etc.				

				Labor/Employment							
				Women age 15-49	Men age 15-49	Sector for women aged 15-49			Sector for married men **15-54**		
Sub-Region	Country Group	Country	DHS year	Currently employed	Currently employed	Primary	Secondary	Tertiary	Primary	Secondary	Tertiary
East Asia	Post dividend	-									
	Late-dividend	Thailand	1987								
		Vietnam	2002, 1997								
	Early-dividend	Cambodia	2014, 2010, 2005, 2000								
		Indonesia	**2017 (indicator values)**, 2012, 2007, 2002-03, 1997, 1994, 1991, 1987	**53.0**	99.5	20.3	**61.8**	17.7	26.4	**59.3**	13.6
		Lao PDR	2011-12								
		Myanmar	**2015-16 (indicator values)**	**72.7**	94.0	**53.6**	35.9	10.1	**60.0**	31.1	8.7
		Philippines	**2017 (indicator values)**, 2013, 2008, 2003, 1998, 1993	**53.9**	-	29.5	32.7	**37.4**	-	-	-
	Pre-dividend	Timor-Leste	2016, 2009-10								
Primary sector of industry: Agriculture, nonskilled manual, military and security forces, etc.				12 months preceding the survey							
Secondary sector of industry: Manufacturing, construction, utilities, skilled manual, sales and services, etc.											
Tertiary sector of industry: Professional, technical, managerial, clerical, etc.											

				Health	
				Women age 15-49	Women age 25-49
Sub-Region	Country Group	Country	DHS year	TFR	Age at first birth
South Asia	Post dividend	-			
	Late-dividend	Sri Lanka	1987		
	Early-dividend	Maldives	2016-17, 2009		
		Bangladesh	**2014 (indicator values)**, 2011, 2007, 2004, 1999-00, 1996-97, 1993-94	2.3	**18.2**
		India	**2015-16 (indicator values)**, 2005-06, 1998-99, 1992-93	2.2	21.0
		Pakistan	**2017-18 (indicator values)**, 2012-13, 2006-07, 1990-91	3.6	22.8
		Nepal	**2016 (indicator values)**, 2011, 2006, 2001, 1996	2.3	20.4
	Pre-dividend	Afghanistan	2015		
Primary sector of industry: Agriculture, forestry, fishery, poultry, cattle raising, domestic servant, unskilled manaual, etc.					
Secondary sector of industry: Factory worker, blue collar service, manufacturing, skilled manual, sales and services, etc.					
Tertiary sector of industry: Professional, technical, business, clerical, etc.					

				Education
				Women age 15-49
Sub-Region	Country Group	Country	DHS year	Completed secondary or higher (some secondary)
South Asia	Post dividend	-		
	Late-dividend	Sri Lanka	1987	
	Early-dividend	Maldives	2016-17, 2009	
		Bangladesh	**2014 (indicator values)**, 2011, 2007, 2004, 1999-00, 1996-97, 1993-94	14.4 (45.9)
		India	**2015-16 (indicator values)**, 2005-06, 1998-99, 1992-93	21.5 (-)
		Pakistan	**2017-18 (indicator values)**, 2012-13, 2006-07, 1990-91	**24.9 (34.3)***
		Nepal	**2016 (indicator values)**, 2011, 2006, 2001, 1996	**24.4 (50.0)**
	Pre-dividend	Afghanistan	2015	
Primary sector of industry: Agriculture, forestry, fishery, poultry, cattle raising, domestic servant, unskilled ma				*Attended or completed Middle (classes 6-8) was co
Secondary sector of industry: Factory worker, blue collar service, manufacturing, skilled manual, sales and services, etc.				
Tertiary sector of industry: Professional, technical, business, clerical, etc.				

				Labor/Employment							
				Women age 15-49	Men age 15-49	Sector for women aged 15-49			Sector for married men 15-54		
Sub-Region	Country Group	Country	DHS year	Currently employed	Currently employed	Primary	Secondary	Tertiary	Primary	Secondary	Tertiary
South Asia	Post dividend	-									
	Late-dividend	Sri Lanka	1987								
	Early-dividend	Maldives	2016-17, 2009								
		Bangladesh	**2014 (indicator values)**, 2011, 2007, 2004, 1999-00, 1996-97, 1993-94	**35.6**	-	**62.7**	22.6	13.9	-	-	-
		India	**2015-16 (indicator values)**, 2005-06, 1998-99, 1992-93	**30.3**	80.7	48.3	36.8	11.0	32.0	**52.6**	10.4
		Pakistan	**2017-18 (indicator values)**, 2012-13, 2006-07, 1990-91	**20.0**	97.7	38.8	**48.7**	12.1	42.6	42.0	15.0
		Nepal	**2016 (indicator values)**, 2011, 2006, 2001, 1996	**66.9**	85.7	**73.3**	18.9	7.7	45.8	37.8	15.7
	Pre-dividend	Afghanistan	2015								
Primary sector of industry: Agriculture, forestry, fishery, poultry, cattle raising, domestic servant, unskilled manaual, etc.											
Secondary sector of industry: Factory worker, blue collar service, manufacturing, skilled manual, sales and services, etc.											
Tertiary sector of industry: Professional, technical, business, clerical, etc.											

				Health	
				Women age 15-49	Women age 25-49
Sub-Region	Country Group	Country	DHS year	TFR	Age at first birth
Latin America	Post dividend	-			
	Late-dividend	Brazil	1996, 1991, 1986		
		Colombia	**2015 (indicator values)**, 2010, 2005, 2000, 1995, 1990, 1986	**2.0**	21.7
		Guyana	2009		
	Early-dividend	Ecuador	1987		
		Mexico	1987		
		Paraguay	1990		
		Peru	**2014 (indicator values)**, 2013, 2012, 2011, 2010, 2009, 2007-08, 2004-06, 2000, 1996, 1991-92, 1986	2.5	22.1
		Bolivia	2008, 2003, 1998, 1994, 1989		
		Haiti	**2016-17 (indicator values)**, 2012, 2005-06, 2000, 1994-95	**3.0**	22.4
	Pre-dividend	-			
Primary sector of industry: Agriculture, domestic servant, unskilled manual, etc.					
Secondary sector of industry: Factory worker, blue collar service, manufacturing, skilled manual, sales and services, etc.					
Tertiary sector of industry: Professional, technical, manager, clerical, etc.					

				Education
				Women age 15-49
Sub-Region	Country Group	Country	DHS year	Completed secondary or higher (some secondary)
Latin America	Post dividend	-		
	Late-dividend	Brazil	1996, 1991, 1986	
		Colombia	**2015 (indicator values)**, 2010, 2005, 2000, 1995, 1990, 1986	**60.3 (82.7)**
		Guyana	2009	
	Early-dividend	Ecuador	1987	
		Mexico	1987	
		Paraguay	1990	
		Peru	**2014 (indicator values)**, 2013, 2012, 2011, 2010, 2009, 2007-08, 2004-06, 2000, 1996, 1991-92, 1986	**59.7 (79.1)**
		Bolivia	2008, 2003, 1998, 1994, 1989	
		Haiti	**2016-17 (indicator values)**, 2012, 2005-06, 2000, 1994-95	**11.5 (56.5)**
	Pre-dividend	-		
Primary sector of industry: Agriculture, domestic servant, unskilled manual, etc.				
Secondary sector of industry: Factory worker, blue collar service, manufacturing, skilled manual, sales and services, etc.				
Tertiary sector of industry: Professional, technical, manager, clerical, etc.				

				Labor/Employment							
				Women age 15-49	Men age 15-49	Sector for women aged 15-49			Sector for married men **13-49**		
Sub-Region	Country Group	Country	DHS year	Currently employed	Currently employed	Primary	Secondary	Tertiary	Primary	Secondary	Tertiary
Latin America	Post dividend	-									
	Late-dividend	Brazil	1996, 1991, 1986								
		Colombia	**2015 (indicator values)**, 2010, 2005, 2000, 1995, 1990, 1986	**71.2**	89.8	10.5	**62.7**	26.8	27.2	**53.3**	19.6
		Guyana	2009								
	Early-dividend	Ecuador	1987								
		Mexico	1987								
		Paraguay	1990								
		Peru	**2014 (indicator values)**, 2013, 2012, 2011, 2010, 2009, 2007-08, 2004-06, 2000, 1996, 1991-92, 1986	**73.4**	-	33.8	39.6	26.2	-	-	-
		Bolivia	2008, 2003, 1998, 1994, 1989								
		Haiti	**2016-17 (indicator values)**, 2012, 2005-06, 2000, 1994-95	56.3	77.1	16.1	**74.6**	9.3	**42.4**	39.1	18.2
	Pre-dividend	-									
Primary sector of industry: Agriculture, domestic servant, unskilled manual, etc.											
Secondary sector of industry: Factory worker, blue collar service, manufacturing, skilled manual, sales and services, etc.											
Tertiary sector of industry: Professional, technical, manager, clerical, etc.											

				Health	
				Women age 15-49	Women age 25-49
Sub-Region	Country Group	Country	DHS year	TFR	Age at first birth
Sub-Saharan Africa	Post dividend	-			
	Late-dividend	-			
	Early-dividend	Botswana	1988		
		Gabon	2012, 2000		
		Namibia	2013, 2006-07, 2000, 1992		
		South Africa	**2016 (indicator values)**, 2003, 1998	2.6	21.3
		Cabo Verde	2005		
		Eswatini (Former Swaziland)	2006-07		
		Ghana	2014, 2008, 2003, 1998, 1993, 1988		
		Lesotho	2014, 2009, 2004		
		Zimbabawe	**2015 (indicator values)**, 2010-11, 2005-06, 1999, 1994, 1988	4.0	20.3
		Ethiopia	**2016 (indicator values)**, 2011, 2005, 2000	4.6	19.2
		Rwanda	**2014-15 (indicator values)**, 2010, 2007-08, 2005, 2000, 1992	4.2	22.7
	Pre-dividend	Equatorial Guinea	2011		
		Angola	2015-16		
		Cameroon	2011, 2004, 1998, 1991		
		Comoros	2012, 1996		
		Congo, Rep.	2011-12, 2005		
		Cote d'Ivoire	2011-15, 1998-99, 1994		
		Kenya	**2014 (indicator values)**, 2008-09, 2003, 1998, 1993, 1989	3.9	20.3
		Mauritania	2000-01		
		Nigeria	**2013 (indicator values)**, 2008, 2003, 1999, 1990	5.3	20.4
		Senegal	**2017 (indicator values)**, 2016, 2015, 2014, 2012-13, 2010-11, 2005, 1999, 1997, 1992-93, 1986	4.6	21.8
		Sudan	1989-90		
		Zambia	2013-14, 2007, 2001-02, 1996, 1992		
		Benin	**2017-18 (indicator values)**, 2011-12, 2006, 2001, 1996	5.7	20.5
		Burkina Faso	2010, 2003, 1998-99, 1993		
		Burundi	**2016-17 (indicator values)**, 2010, 1987	5.5	21.5
		Central African Republic	1994-95		
		Chad	**2014-15 (indicator values)**, 2004, 1996-97	6.4	18.2
		Congo, Dem. Rep.	**2013-14 (indicator values)**, 2007	6.6	19.9
		Eritrea	2002, 1995		
		Gambia, The	2013		
		Guinea	2012, 2005, 1999, 1992		
		Liberia	2013, 2007, 1986		
		Madagascar	2008-09, 2003-04, 1997, 1992		
		Malawi	**2015-16 (indicator values)**, 2010, 2004, 2000, 1992	**4.4**	19.0
		Mali	**2018 (indicator values)**, 2012-13, 2006, 2001, 1995-96, 1987	6.3	19.2
		Mozambique	2011, 2003, 1997		
		Niger	2012, 2006, 1998, 1992		
		Sierra Leone	2013, 2008		
		Tanzania	**2015-16 (indicator values)**, 2010, 2004-05, 1999, 1996, 1991-92	5.2	19.7
		Togo	2013-14, 1998, 1988		
		Uganda	**2016 (indicator values)**, 2011, 2006, 2000-01, 1995, 1988-89	5.4	19.2
Primary sector of industry: Agriculture, forestry, fishery, domestic servant, unskilled manual, army and security forces, etc.					
Secondary sector of industry: Factory worker, industry, blue collar service, manufacturing, skilled manual, sales and services, etc.					
Tertiary sector of industry: Professional, technical, managerial, clerical, finance, ICT, etc.					

				Education
				Women age 15-49
Sub-Region	Country Group	Country	DHS year	Completed secondary or higher (some secondary)
Sub-Saharan Africa	Post dividend	-		
	Late-dividend	-		
	Early-dividend	Botswana	1988	
		Gabon	2012, 2000	
		Namibia	2013, 2006-07, 2000, 1992	
		South Africa	**2016 (indicator values)**, 2003, 1998	**39.6 (88.9)**
		Cabo Verde	2005	
		Eswatini (Former Swaziland)	2006-07	
		Ghana	2014, 2008, 2003, 1998, 1993, 1988	
		Lesotho	2014, 2009, 2004	
		Zimbabawe	**2015 (indicator values)**, 2010-11, 2005-06, 1999, 1994, 1988	**8.9 (72.8)**
		Ethiopia	**2016 (indicator values)**, 2011, 2005, 2000	**6.8 (17.2)**
		Rwanda	**2014-15 (indicator values)**, 2010, 2007-08, 2005, 2000, 1992	**7.6 (23.4)**
	Pre-dividend	Equatorial Guinea	2011	
		Angola	2015-16	
		Cameroon	2011, 2004, 1998, 1991	
		Comoros	2012, 1996	
		Congo, Rep.	2011-12, 2005	
		Cote d'Ivoire	2011-15, 1998-99, 1994	
		Kenya	**2014 (indicator values)**, 2008-09, 2003, 1998, 1993, 1989	26.9 (42.7)
		Mauritania	2000-01	
		Nigeria	**2013 (indicator values)**, 2008, 2003, 1999, 1990	**34.3 (50.7)**
		Senegal	**2017 (indicator values)**, 2016, 2015, 2014, 2012-13, 2010-11, 2005, 1999, 1997, 1992-93, 1986	**5.4 (30.8)**
		Sudan	1989-90	
		Zambia	2013-14, 2007, 2001-02, 1996, 1992	
		Benin	**2017-18 (indicator values)**, 2011-12, 2006, 2001, 1996	**2.7 (25.1)**
		Burkina Faso	2010, 2003, 1998-99, 1993	
		Burundi	**2016-17 (indicator values)**, 2010, 1987	**2.0 (24.5)**
		Central African Republic	1994-95	
		Chad	**2014-15 (indicator values)**, 2004, 1996-97	**2.7 (15.0)**
		Congo, Dem. Rep.	**2013-14 (indicator values)**, 2007	**12.2 (47.7)**
		Eritrea	2002, 1995	
		Gambia, The	2013	
		Guinea	2012, 2005, 1999, 1992	
		Liberia	2013, 2007, 1986	
		Madagascar	2008-09, 2003-04, 1997, 1992	
		Malawi	**2015-16 (indicator values)**, 2010, 2004, 2000, 1992	**9.5 (25.8)**
		Mali	**2018 (indicator values)**, 2012-13, 2006, 2001, 1995-96, 1987	**2.1 (21.3)**
		Mozambique	2011, 2003, 1997	
		Niger	2012, 2006, 1998, 1992	
		Sierra Leone	2013, 2008	
		Tanzania	**2015-16 (indicator values)**, 2010, 2004-05, 1999, 1996, 1991-92	**(23.4)**
		Togo	2013-14, 1998, 1988	
		Uganda	**2016 (indicator values)**, 2011, 2006, 2000-01, 1995, 1988-89	**9.5 (33.0)**
Primary sector of industry: Agriculture, forestry, fishery, domestic servant, unskilled manual, army and security forces, etc.				
Secondary sector of industry: Factory worker, industry, blue collar service, manufacturing, skilled manual, sales and services, etc.				
Tertiary sector of industry: Professional, technical, managerial, clerical, finance, ICT, etc.				

				Labor/Employment							
				Women age 15-49	Men age 15-49	Sector for women aged 15-49			Sector for men 15-49		
Sub-Region	Country Group	Country	DHS year	Currently employed	Currently employed	Primary	Secondary	Tertiary	Primary	Secondary	Tertiary
Sub-Saharan Africa	Post dividend	-									
	Late-dividend	-									
	Early-dividend	Botswana	1988								
		Gabon	2012, 2000								
		Namibia	2013, 2006-07, 2000, 1992								
		South Africa	**2016 (indicator values)**, 2003, 1998	**38.5**	**51.8**	33.0	22.5	**35.3**	18.3	**46.9**	**18.2**
		Cabo Verde	2005								
		Eswatini (Former Swaziland)	2006-07								
		Ghana	2014, 2008, 2003, 1998, 1993, 1988								
		Lesotho	2014, 2009, 2004								
		Zimbabawe	**2015 (indicator values)**, 2010-11, 2005-06, 1999, 1994, 1988	**51.2**	74.2	29.3	53.9	14.2	31.6	50.4	12.6
		Ethiopia	**2016 (indicator values)**, 2011, 2005, 2000	50.2	92.1	44.1	44.5	6.6	**73.5**	15.0	6.1
		Rwanda	**2014-15 (indicator values)**, 2010, 2007-08, 2005, 2000, 1992	**85.7**	86.6	**82.2**	14.1	3.4	**71.0**	23.5	5.4
	Pre-dividend	Equatorial Guinea	2011				**Informal sector?**				
		Angola	2015-16								
		Cameroon	2011, 2004, 1998, 1991								
		Comoros	2012, 1996								
		Congo, Rep.	2011-12, 2005								
		Cote d'Ivoire	2011-15, 1998-99, 1994								
		Kenya	**2014 (indicator values)**, 2008-09, 2003, 1998, 1993, 1989	**66.4**	83.0	**69.0**	14.7	15.3	**67.4**	16.4	15.0
		Mauritania	2000-01								
		Nigeria	**2013 (indicator values)**, 2008, 2003, 1999, 1990	**68.4**	87.9	21.6	**67.5**	10.6	47.9	37.9	14.6
		Senegal	**2017 (indicator values)**, 2016, 2015, 2014, 2012-13, 2010-11, 2005, 1999, 1997, 1992-93, 1986	58.3	86.3	25.5	**44.9**	27.7	**58.3**	26.6	9.2
		Sudan	1989-90								
		Zambia	2013-14, 2007, 2001-02, 1996, 1992								
		Benin	**2017-18 (indicator values)**, 2011-12, 2006, 2001, 1996	**77.8**	87.3	23.3	**65.8**	4.3	45.1	30.0	**15.2**
		Burkina Faso	2010, 2003, 1998-99, 1993								
		Burundi	**2016-17 (indicator values)**, 2010, 1987	**85.1**	93.3	**86.1**	7.7	3.0	**73.6**	14.7	4.7
		Central African Republic	1994-95								
		Chad	**2014-15 (indicator values)**, 2004, 1996-97	51.0	87.5	2.0	**64.7**	30.7	4.7	25.6	**64.9**
		Congo, Dem. Rep.	**2013-14 (indicator values)**, 2007	**72.3**	82.3	**61.1**	34.5	4.4	**57.0**	30.3	12.8
		Eritrea	2002, 1995								
		Gambia, The	2013								
		Guinea	2012, 2005, 1999, 1992								
		Liberia	2013, 2007, 1986								
		Madagascar	2008-09, 2003-04, 1997, 1992								
		Malawi	**2015-16 (indicator values)**, 2010, 2004, 2000, 1992	67.1	86.0	**80.0**	10.0	9.0	**71.0**	19.5	9.6
		Mali	**2018 (indicator values)**, 2012-13, 2006, 2001, 1995-96, 1987	58.1	93.2	44.0	50.1	**4.2**	53.9	32.3	**9.4**
		Mozambique	2011, 2003, 1997								
		Niger	2012, 2006, 1998, 1992								
		Sierra Leone	2013, 2008								
		Tanzania	**2015-16 (indicator values)**, 2010, 2004-05, 1999, 1996, 1991-92	**77.1**	88.7	**85.3**	9.7	**5.0**	**72.3**	22.1	**5.6**
		Togo	2013-14, 1998, 1988								
		Uganda	**2016 (indicator values)**, 2011, 2006, 2000-01, 1995, 1988-89	**77.3**	94.4	**71.7**	17.2	10.9	**75.1**	12.4	11.6
Primary sector of industry: Agriculture, forestry, fishery, domestic servant, unskilled manual, army and security forces, etc.											
Secondary sector of industry: Factory worker, industry, blue collar service, manufacturing, skilled manual, sales and services, etc.											
Tertiary sector of industry: Professional, technical, managerial, clerical, finance, ICT, etc.											

Gross National Income per capita US$ (World Bank classification in 2019)					
Sub-Region					
East Asia	Country	US$	% of population below poverty line	Demographic dividend typology	DHS availability
High Income Economies	Burunei Darussalam	31,020		Late-dividend	No
(12,375 or more)	Hong Kong SAR, China	50,310		Post dividend	No
	Japan	41,340		Post dividend	No
	Korea, Rep	30,600		Post dividend	No
	Macao SAR, China	78,320		Post dividend	No
	Singapore	58,770		Post dividend	No
Upper-Middle Income Economies	China	9,470		Late-dividend	No
(Between 3,996 - 12,375)	Malaysia	10,460		Late-dividend	No
	Thailand	6,610		Late-dividend	Yes
Lower-Middle Income Economies	Cambodia	1,380		Early-dividend	Yes
(Between 1,026 - 3,996)	Indonesia	3,840		Early-dividend	Yes
	Lao PDR	2,460		Early-dividend	Yes
	Mongolia	3,580		Late-dividend	No
	Myanmar	1,310		Early-dividend	Yes
	Papua New Guinea	2,530		Early-dividend	No
	Philippines	3,830		Early-dividend	Yes
	Timor-Leste	1,820		Pre-dividend	Yes
	Vietnam	2,400		Late-dividend	Yes
Low Income Economies	-				
(Less than 1,025)					
	Korea, Dem. People's Rep.	NA		Late-dividend	No
	Taiwan SAR, China	NA		NA	No
Sources: The World Bank (2019); Ahmed et al. (2016)					
Pre-dividend economy: High fertility and mostly low income economies					
Early-dividend economy: Fertility started falling and mostly low and lower middle income economies					
Late-dividend economy: Fertility declined and dependency ratio will increase in the near future and mostly upper middle income economies					
Post dividend economy: Below replacement fertility and large share of elderly population and mostly high-income economies					

Gross National Income per capita US$ (World Bank classification in 2019)				
Sub-Region				
South Asia	Country	US$	Demographic dividend typology	DHS availability
High Income Economies	-			
(12,375 or more)				
Upper-Middle Income Economies	Maldives	9,310	Early-dividend	Yes
(Between 3,996 - 12,375)	Sri Lanka	4,060	Late-dividend	Yes
Lower-Middle Income Economies	Bangladesh	1,750	Early-dividend	Yes
(Between 1,026 - 3,996)	Bhutan	3,080	Early-dividend	No
	India	2,020	Early-dividend	Yes
	Pakistan	1,580	Early-dividend	Yes
Low Income Economies	Afghanistan	550	Pre-dividend	Yes
(Less than 1,025)	Nepal	960	Early-dividend	Yes

Sub-Region				
Latin America	Country	US$	Demographic dividend typology	DHS availability
High Income Economies	Chile	14,670	Late-dividend	No
(12,375 or more)	Puerto Rico	21,100	Late-dividend	No
	Uruguay	15,650	Late-dividend	No
	Venezuela, RB	13,080	Early-dividend	No
Upper-Middle Income Economies	Argentina	12,370	Early-dividend	No
(Between 3,996 - 12,375)	Brazil	9,140	Late-dividend	Yes
	Colombia	6,190	Late-dividend	Yes
	Cuba	7,230	Post dividend	No
	Ecuador	6,120	Early-dividend	Yes
	Guyana	4,760	Late-dividend	Yes
	Mexico	9,180	Early-dividend	Yes
	Paraguay	5,680	Early-dividend	Yes
	Peru	6,530	Early-dividend	Yes
	Suriname	4,990	Early-dividend	No
Lower-Middle Income Economies	Bolivia	3,370	Early-dividend	Yes
(Between 1,026 - 3,996)				
Low Income Economies	Haiti	800	Early-dividend	Yes
(Less than 1,025)				

Sub-Region				
Sub-Saharan Africa	Country	US$	Demographic dividend typology	DHS availability
High Income Economies	Seychelles	15,600	Late-dividend	No
(12,375 or more)				
Upper-Middle Income Economies	Botswana	7,750	Early-dividend	Yes
(Between 3,996 - 12,375)	Equatorial Guinea	7,050	Pre-dividend	Yes
	Gabon	6,800	Early-dividend	Yes
	Mauritius	12,050	Late-dividend	No
	Namibia	5,250	Early-dividend	Yes
	South Africa	5,720	Early-dividend	Yes
Lower-Middle Income Economies	Angola	3,370	Pre-dividend	Yes
(Between 1,026 - 3,996)	Cabo Verde	3,450	Early-dividend	Yes
	Cameroon	1,440	Pre-dividend	Yes
	Comoros	1,320	Pre-dividend	Yes
	Congo, Rep.	1,640	Pre-dividend	Yes
	Cote d'Ivoire	1,610	Pre-dividend	Yes
	Eswatini (Former Swaziland)	3,850	Early-dividend	Yes
	Ghana	2,130	Early-dividend	Yes
	Kenya	1,620	Pre-dividend	Yes
	Lesotho	1,380	Early-dividend	Yes
	Mauritania	1,190	Pre-dividend	Yes
	Nigeria	1,960	Pre-dividend	Yes
	Sao Tome and Principe	1,890	-	Yes
	Senegal	1,410	Pre-dividend	Yes
	Sudan	1,560	Pre-dividend	Yes
	Zambia	1,430	Pre-dividend	Yes
	Zimbabawe	1,790	Early-dividend	Yes
Low Income Economies	Benin	870	Pre-dividend	Yes
(Less than 1,025)	Burkina Faso	660	Pre-dividend	Yes
	Burundi	280	Pre-dividend	Yes
	Central African Republic	480	Pre-dividend	Yes
	Chad	670	Pre-dividend	Yes
	Congo, Dem. Rep.	490	Pre-dividend	Yes
	Eritrea	720	Pre-dividend	Yes
	Ethiopia	790	Early-dividend	Yes
	Gambia, The	700	Pre-dividend	Yes
	Guinea	830	Pre-dividend	Yes
	Guinea-Bissau	750	Pre-dividend	No
	Liberia	600	Pre-dividend	Yes
	Madagascar	440	Pre-dividend	Yes
	Malawi	360	Pre-dividend	Yes
	Mali	830	Pre-dividend	Yes
	Mozambique	440	Pre-dividend	Yes
	Niger	380	Pre-dividend	Yes
	Rwanda	780	Early-dividend	Yes
	Sierra Leone	500	Pre-dividend	Yes
	Somalia	130	Pre-dividend	No
	South Sudan	460	Pre-dividend	No
	Tanzania	1,020	Pre-dividend	Yes
	Togo	650	Pre-dividend	Yes
	Uganda	620	Pre-dividend	Yes