POLICY Brief

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National Statistics Bureau

HARNESSING DEMOGRAPHIC DIVIDEND IN BHUTAN

Contents in this Issue

With the rapid decline in fertility, Bhutan has entered into an advance stage of demographic transition which will lead to changes in the age structure of the population. The declining dependency ratio in future will lead to a phenomenon known as the demographic dividend. The demographic dividend once started would last for three to four decades and will eventually close due to rise in the share of elderly population. Considering the population dynamics and its consequences on the economic development in future, the National Statistics Bureau (NSB) has taken the initiative to analyse the population projection data and has come up with the analytical report on "Harnessing Demographic Dividend in Bhutan", both at national and sub-national levels.

The report highlights the window of opportunity and the dynamics of both current and future labour force as well as the number of jobs required in future.

The report also provides feasible options in the form of policy recommendations for formulating plans to harness the potentials of demographic dividend in Bhutan.

About Policy Brief

The policy brief is a periodic edition of the National Statistics Bureau. The current issue presents the summaries from a thematic study on "harnessing demographic dividend in Bhutan". The aim is to reach the findings to the key policy and development players. We hope our readers will find this issue relevant to their interest and needs.

Director's Note

The National Statistics Bureau has been producing post-census thematic reports often supplementing it with qualitative analysis. The NSB policy brief is one of our efforts to disseminate the results to a wider public and to advocate for evidence-based policy decisions. Many of our policy makers and development implementers have little time to read through our main reports. The policy brief, therefore, presents the summaries of the report in its entirety.

I hope the policy brief will contribute towards meaningful interpretations and policy dailouges among the policy makers, development implementers, stakeholders and the public. I wish every reader an interesting and insightful reading.

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Director
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Acknowledgements

Harnessing Demographic Dividend in Bhutan

The population of Bhutan has increased from 634 thousand in 2005 to 735 thousand in 2017 and this is expected to reach a peak of 883 thousand in 2047. However, it is not likely that the population of Bhutan would reach the one million mark in the foreseeable future. The rate of natural increase was 3.1% in 1994, it has declined to 0.88% in 2017 and is further projected to decline to 0.27 by 2047.

Almost all the countries undergo 'demographic transition', which characterizes changes in fertility and mortality over a period. The crude birth rate of 39 births per thousand population in 1984 was quite high in Bhutan. However, it started declining steadily after 2000 and reached a level of 15.5 in 2017. During the same period, the crude death rate which was 13.4 per thousand population also started declining even before the onset of decline in fertility, and the level remained comparatively lower. As of 2017, the crude death rate in Bhutan stands at 6.7 per thousand population (Figure 1)
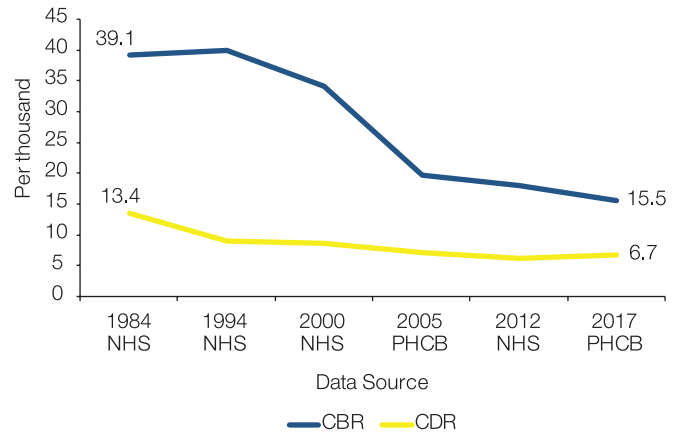
Figure 1 Trends in Crude Birth and Death Rates, Bhutan 1984-2017

One of the striking features of the demographic transition in Bhutan is the rapid decline in fertility rates in a short period of time. As can be seen from Figure 2, the Total Fertility Rate (TFR) has come down from more than 6 children per woman in 1982 to 1.9 in 2017 which is below the replacement level of 2.1. The TFR as estimated from 2017 Population and Housing Census of Bhutan (PHCB)

Figure 2 Trends in Total Fertiltiy Rate(TFR) in Bhutan

Source: Population Projecctions Bhutan 2017-2047, National Statistical Bureau

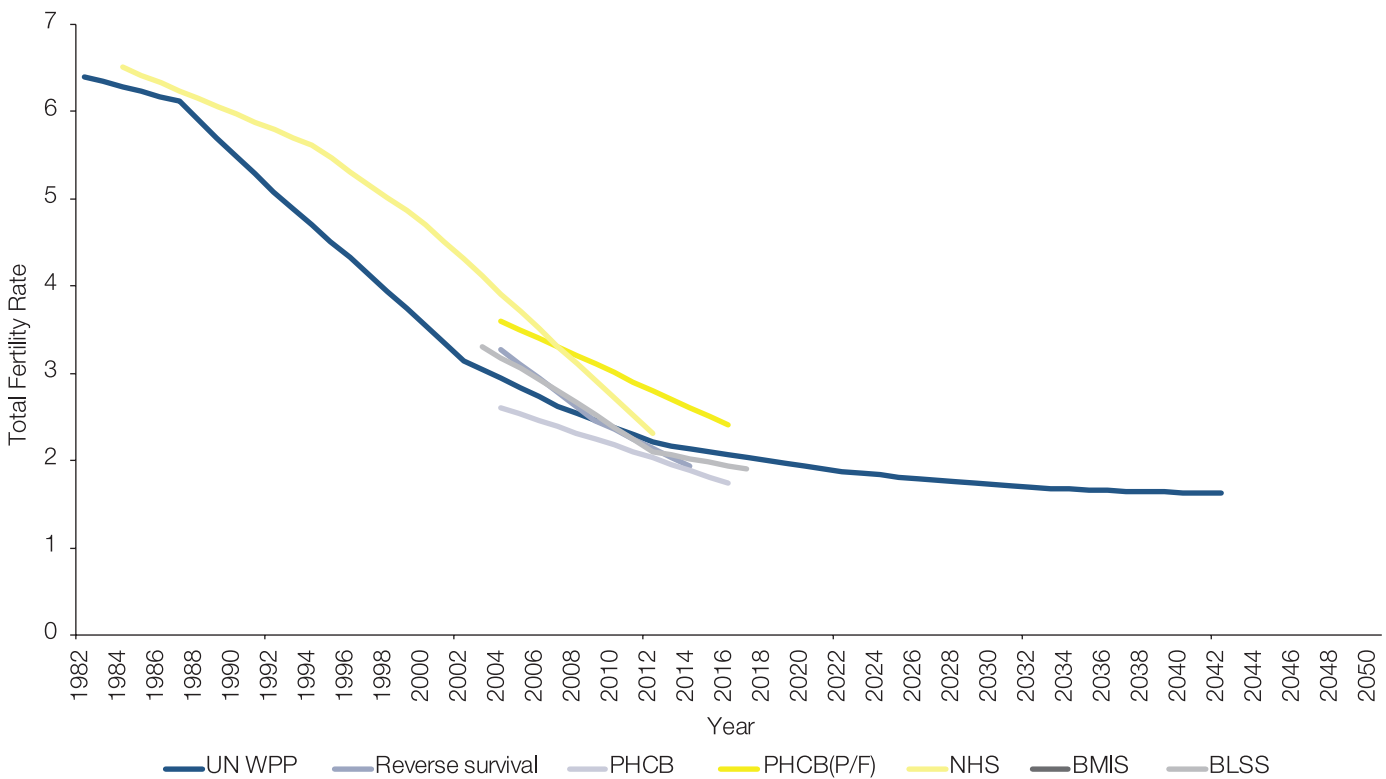using conventional method is 1.7 per women. The P/F ratio method and reverse survival method yielded 2.4 and 1.9 respectively. Thus, the average of several estimates (1.9) was considered in the report[1].

The demographic transition, especially the decline in fertility leads to change in the age structure of a population. The consequences of this change is the rise in the share of working-age population and accruing of demographic dividend, implying a fall in the total dependency ratio[2]. The increase in the share of working-age population declines after sometime as the share of elderly rises. The period during which the dependency ratio is low is the period of demographic dividend (window of opportunity). Such situation can have a large effect on the economic growth. A country with anticipated demographic dividend may reap the benefits of good health, quality education and decent employment and this produces economic advantage. The period of demographic dividend is only for a certain period, and when this is gone, the dividend is no longer available and will not be repeated.

An important question is to decide on how low should the dependency ratios be in order to gain the dividend. Generally, this is studied by examining how much the ratio would be in a stationary population and a ratio lower than this threshold level would be considered to be more advantageous than normal (or stationary) and hence a 'dividend'. The examination of the stationary age distributions in model life tables (four Coale-Demeny model tables and five U.N. model tables for males and females) shows that the share of working-age population is rather low at low life expectancies, rises as life expectancy increases and remains steady through moderate to high expectancies and falls at very high expectancies. The share of the 15-64 age group hovers around 66-67% in the middle and high life expectancy range and then declines at very high life expectancy. Therefore, a share greater than 67% may be considered to be advantageous as it is equivalent to the dependency ratio of below one-half (33/67 equals approximately one half). This is the time when the dividend accrue (Kulkarni, 2017[3]). For the analysis of demographic
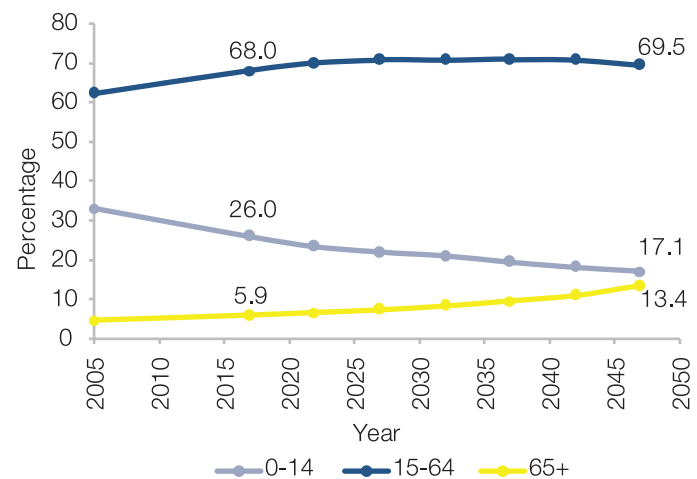

Figure 3 Projected Trends in Broad Age Distribution (Percentage), Bhutan 2017-2047

Source: Population Projections Bhutan 2017-2047, National Statistics Bureau

dividend phases in Bhutan, the working-age group in consideration is 15-64 years.

The population projections of Bhutan (2017 – 2047) indicate that the age-sex structure of the total population will undergo significant changes. The projected age-sex distribution by broad age group reveals that the share of the young population (below 15 years of age) will fall from 26% to 17% and that of elderly population(age 65 and higher) will rise from 6% to 13% between 2017 and 2047 (Figure 3). The young population is also projected to decline from about 189 thousand to 151 thousand during the same period. For some time, the share of the working-age population (15-64 years) will however, rise to over 70% and the dependency ratio fall to about 40% during 2027-2042. This provides a huge demographic dividend. However, the window of demographic opportunity will begin to close after that, as the share of the working-age population will decline. The share of elderly will continue to rise and is expected to cross 100 thousand by 2043.

Demographic Dividend in Bhutan

The period of demographic dividend can be assessed by the trends in dependency ratio over a period. Saad (2009[4]) has identified three stages of demographic dividend. Considering the working-age population as 15-64, the first phase of dividend is where dependency ratio remains above

1 National Statistics Bureau of Bhutan, 2019, 'Population Projections Bhutan 2017 – 2047, Thimphu, Bhutan

2 Dependency ratio is the ratio of the population of young (0-14 years) and old (60+ years) to the population in working-age (15-59 years), usually expressed in percentage terms.

3 Kulkarni P M, 2017, 'An Assessment of Demographic Dividend in India

and its Large States', A report submitted to the United Nations Population Fund (UNFPA), India

4 Saad, Paulo M., 2009. "Demographic Trends in Latin America and the Caribbean", paper prepared for the Workshop on Demographic Change and Social Policy organized by the World Bank at Washington, D.C. July 14-15, 2009.
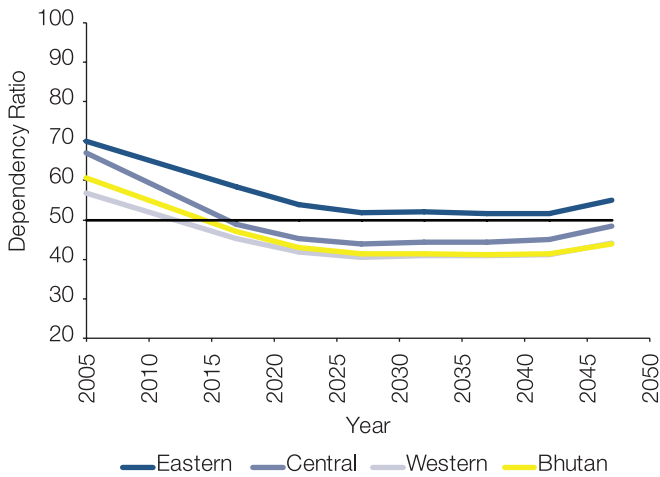
Figure 4 Projected trends in dependency ratio (15-64 as working-age) by Region, Bhutan, 2005 - 2047

one-half and starts declining. During this phase, the population is yet to begin to gain the dividend but moving towards it. The second phase occurs when the dependency ratio is below one-half and declining, which indicates that the dividend is available and one may call that the window of opportunity has opened. Finally, the third phase is when the dependency ratio below one-half but starts increasing and dividend is still being derived, however, since the dependency ratio starts rising, the window of opportunity is gradually closing. Once the dependency ratio goes above the critical level, the third phase comes to an end, and the window is closed.

In Bhutan, the dependency ratio with 61% was quiet high in 2005 but it fell to 47% by 2017 (Figure 4). Looking at the dependency ratio trend, Bhutan has already begun deriving the dividend before 2017. This is dependency ratio is projected to fall further to 41% by 2027 and remain around that level for about next 15 years. However, after 2042, the dependency ratio would increase and reach 44% by 2047. Moreover, the ratio would rise above the critical 50% point beyond 2047 and the dividend would no longer be available.

There is a considerable variations in the projected dependency ratios (Figure 4) by regions (east, central and west). The findings suggest that the dependency ratios was highest in eastern region with 70% in 2005 which is projected to decline to 52% by 2032. Although there is a decline, this dependency

ratio is still higher than the critical point of 50% and is projected to increase further. Similarly, the central region also had a very high dependency ratio of 67% in 2005 which later declined to 49% in 2017 (below the critical point) and entered into a period of demographic dividend. This dependency ratio is projected to fall further to 44% by 2027 and will remain around that level till 2042, before it starts increasing. On the contrary, the western region will have the lowest dependency ratio and will therefore, have the demographic dividend period well beyond 2047.

Thus, the demographic dividend period in Bhutan has started sometimes around 2015 and will continue to have this phase till 2047 and beyond. However, this phenomenon may never be seen in the eastern region. The higher dependency ratios in eastern region may be explained by a recent study on migration and urbanization based on 2017 PHCB data, which indicate that internal migration is taking place from eastern to central and particularly to the western region of the country. On the other hand, due to working-age population moving to western and central regions of the country, the period of demographic dividend has already started in these two regions and will continue to have this phase till 2047 and beyond.

Size and Growth Rate of Working Population

The analysis of population projections by age provides the future trends of the size of working population in Bhutan. Figure 5 presents the absolute size and growth rate of total as well as working-age population until 2047. It is evident that the size of the working-age population will peak at 615 thousand by 2042 and thereafter it will start declining due to large number of people moving to old age category. As a result, the annual growth rate of working-age population will be higher than that of the total population until it coincides with each other in 2032. While the overall population will continue to grow due to the population momentum, the growth rate of the working-age population will start declining due to ageing after 2042.

Figure 6 provides the total size of the projected working-age population (15-64 years) for the three regions (eastern, central and western). In 2017, there were 395 thousand persons aged 15-64 years which is projected to rise to 615 thousand by the year 2042.
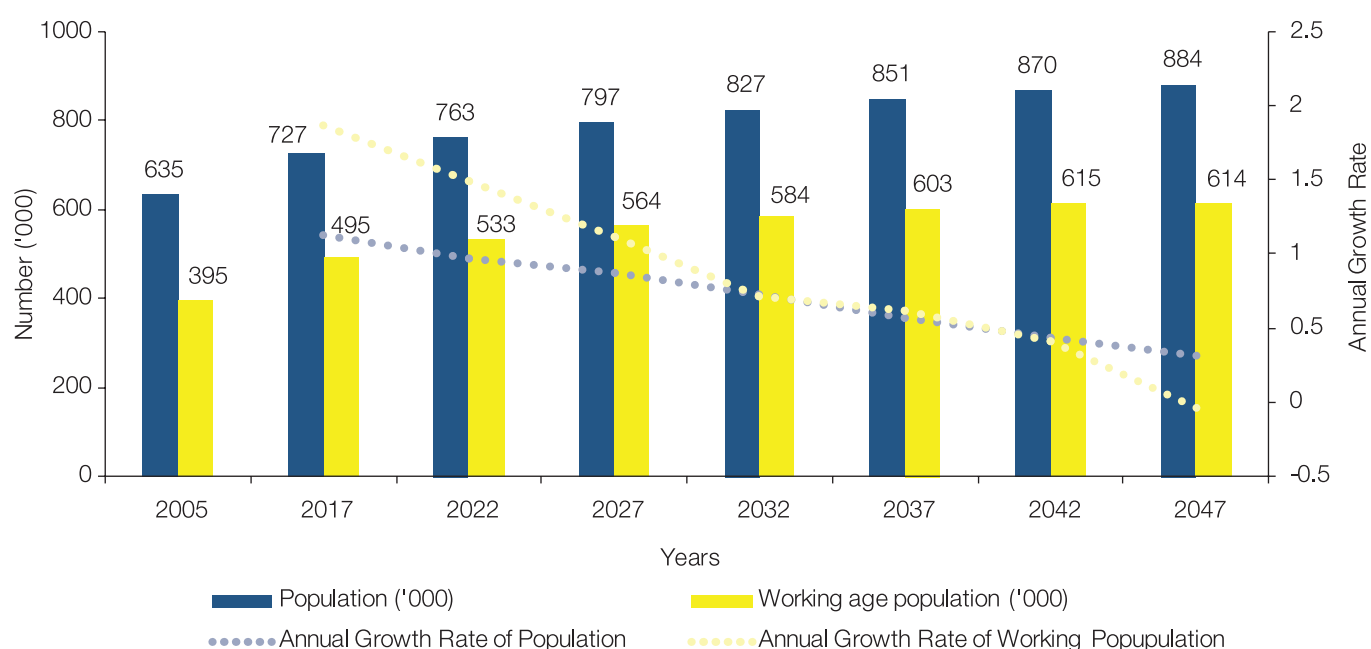
Figure 5 Projected Size and Annual Growth Rates of Total and Working-age Population, Bhutan, 2005 - 2047

This is the highest number of working-age population observed in the pojection period. By 2047, this size of working-age population will slightly reduce from its levels in 2042 and reach around 614 thousand.

The distribution of working-age population by the three regions of the country and its changes over time depicts an interesting feature. As can be seen from Figure 7, the western region had around half of the total working-age population (49.7%) in 2005, while this will increase to 60% by 2047.

On the other hand, the share of the working-age population in eastern region which was 26.2% in

2005 will decline to 12.8% by 2047. A recent study on migration and urbanization in Bhutan (NSB, 2019) has shown that the Dzongkhags in this region have experienced out-migration of labour force, and as a result the share will decline in future.

The Dzongkhags in the central region had around 24.1% of the working-age population and this region will show slight increase in its share (around 27%) by 2047. This implies that this region will gain in-migrants in future; albeit a less as compared to the western region. The findings suggest designing of appropriate policies and programs as per these dynamics of the working-age population. Appropriate actions are to be taken either to have regionally-balanced or to create a region wise
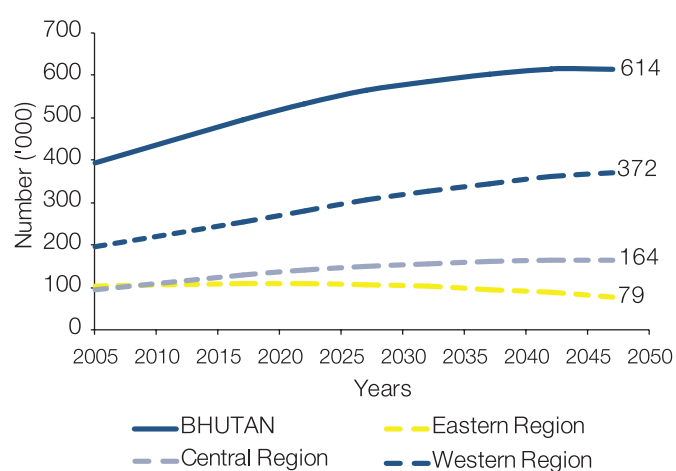
Figure 6 Projected size of working-age population (15-64 years), Bhutan by Region, 2005 - 2047
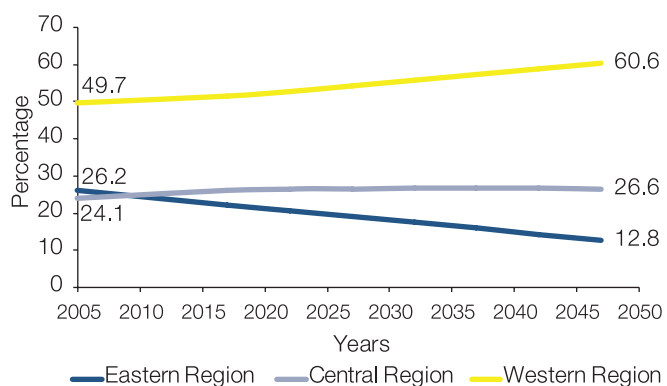
Figure 7 Projected share of working-age population (15-64 years) in Bhutan by Region, 2005 - 2047

requirements of the job in the country. The increase in the share of working-age population is only an opportunity, while the actual benefit depends on how efficiently this is tapped on.

Implication on Future Employment

As per the Labour Force Surveys (LFS), a person who have worked as paid employee, own account worker and contributed to family work were considered employed. This also included persons with a job but not at work during the reference period. Unemployed on the other hand are those persons who were seeking work in the last four weeks prior to the interview and were available for work in the next two weeks. The total of those employed and unemployed working-age population makes the labour force. The Labour Force Participation Rate (LFPR) is the proportion of labour force to the total working-age population. The LFPR for Bhutan has decreased by 6 percentage points from 68.6% in 2010 to 62.6% in 2018. It increased slightly again to 65.7% in 2017. The unemployment rate has also observed both decrease (3.3% in 2010 to 2.1% in 2016) and increase to 3.4% in 2018. Unlike the LFPR and overall unemployment rate, the youth unemployment rate has been gradually on the rise over the past few years(9.2 in 2010 to 15.7% in 2018).

The labour force participation rate for the male population is higher (70%) as compared to the female (56%) in 2018. Over the last 9 years, there has not been much change in the male participation rate, but the female participation rate has declined from 65% in 2009 to 56% in 2018. The unemployment rate is also higher for the female as compared to the males. The unemployment for female has improved from 5.3% in 2009 to 4.2% in 2018 while male unemployment rate only seen a slight change from 2.6% in 2009 to 2.7% in 2018.

The future size of the labour force has been estimated by applying the age and sex specific LFPRs to the number of working-age population projected in the age and sex groups. The LFPR of 2018 has been assumed to remain constant for future years.

The total labour force is projected to grow from 341 thousand in 2019 to 435 thousand in 2042 and thereafter decrease to 434 thousand in 2047. The labour force would be further expected to decrease

after 2047. Considering an ideal zero-unemployment scenario where everyone in the labuour force is employed, Bhutan will need to create 13 thousand jobs in 2019 in addition to those already employed. In the next three years, there will be an addition of about 20 thousand people to the labour force which comes out to 32 thousand jobs from between 2019 to 2022 or roughly about 8 thousand job per year. As the widow of opportunity to harness the demographic dividend opens up for Bhutan, the number of additional jobs required increase to 30 thousand in 2027. This means that additional 30 thousand jobs need to be created between 2022–2027 assuming that the surplus labor in the preceding years have all been employed. In the next five years after 2027, the number of additional jobs required would decrease to 23 thousand. If the number of jobs is created to accommodate the new entrants into the labour force by 2047, it is projected that there will be surplus of jobs. However, it is important to realize that about 110 thousand jobs need to be created between 2019 and 2042. On an average, it is roughly about 5 thousand jobs per year for the next 24 years.

Conclusion

With the falling dependency ratio from 61% in 2005 to 47% in 2017, Bhutan has already entered into the demographic dividend phase. It is expected to fall further to 41% by 2027 and will hover around the same level till 2032 creating a situation where the country will be having the window of opportunity fully opened. However, after 2042 the dependency ratio will start rising and reach 43% by 2047 but still remaining below the threshold level. This implies that the demographic dividend period will continue to be available even after 2050 and will remain there for a decade or so before it start to closeThe sub-national level analysis of demographic dividend suggests that that the window of opportunity varies by geographic regions. While the western region will have the demographic dividend , the eastern region may not even open up for this situation mainly due to migration of working-age population to western and central regions. Therefore, any planning intended for reaping the benefit of the demographic dividend has to consider this phenomenon. The real benefit of demographic dividend will depend upon the ability of the economy to provide employment to the increasing size of the labour force.

Recommendations

The time-bound window to take advantage of favorable demographic conditions is quickly closing. Looking at the projected change in the dependency ratio, the region has approximately 30 years to exploit the growing labour force before the number of elderly persons starts to significantly increase, thus limiting savings, investment and future output potential.

Based on the findings of the analysis of demographic window of opportunity and its consequences on the requirement of additional jobs in future, the study prosed the following recommendations:

1. **Investment in the human capital:** The remaining benefits will be largely determined by the human capital base of the workforce. The kind of skills needed for the future labour force entrants needs proper planning in line with the occupation diversifications options as per the previous recommendation. Young people has to be prepared so that they are fully equipped with competencies to suit the diversified occupational categories. For example, if the country wish to promote IT sector, training institutions are to be opened up now and strengthen those that are already in place, with policy measures. This will help meeting demand for skilled labour forces as per the future plan of expansion of job market in the country. Similarly, various training avenues are to be planned for creating a cadre of geriatric care providers which will be needed in future. The government needs to explore various options of economic diversification and accordingly plan for preparing the human resources to reap the benefit of demographic transition.

2. **Strengthen social security and well-being measures in eastern part of the country:** Due to regional imbalances in the demographic dividend due to less number of workers in the eastern region, the dependency ratios are higher and will remain high in coming decades. This calls for strengthening the social security measures in all Dzongkhag in that region to strengthened mechanisms of taking care of the elderly. Due to population ageing, the proportion and number of old dependents will in-

crease in future and planning for their care and old age pensions etc. as social security measures to be initiated on priority basis.

3. **Develop regional hubs to diversify equitable population distribution and decongestions in the larger towns:** The analysis of census data on migration clearly indicates the movement of population from eastern to western region and this has a bearing on reaping the benefits of the demographic dividend. In order to diversify and have equitable spatial distribution of population, and to provide jobs to new entrants to the labour force, regional development model should be adopted.

4. **Plan for creating additional jobs in coming future:** Policies and plans are to be devised on urgent basis to boost the availability of newer jobs in anticipation of the future entrants of population in the working-age. The study has estimated the future likely number of additional jobs requirements and a roadmap of enhancing livelihood options and opportunity has to be prepared as soon as possible.

5. **Improve female labour force participation rate:** The female work participation rate has been lower than their male counterparts and over the years, this has declined further. In order to reap the benefits of demographic dividend, it is not only important to create jobs, but also to encourage and provide opportunities for females so that more and more of those willing to work can join the labour force and contribute to the economy.

6. **Plan for occupational diversification:** There is a need to plan for occupational diversification to accommodate the new entrants into job markets. Keeping the pace of digital development, Information and Technology (IT) sector needs to be developed along with planning of job creation in many other sectors such as care services. Due to population ageing, care economy has to be developed as more and more number of elderly will require various kinds of services in future. Similarly, options for diversification of jobs needs to be explored and action to be initiated to make it happen.

7. **Establish a Think Tank and Sectoral Tasks Forces to Translate Vision into Action:** There is a need to have a central body of think tank, comprising of experts from various fields and relevant stakeholders, which will suggest feasible options, plans and programmes for future as well as keeping an eye of the execution of such initiatives. This body could be assisted by establishment of sectoral Tasks Force, to translate the vision into action and support the government of Bhutanin preparing policies and relevant programmes in various sectors.

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