Spatial and Socio-Economic Heterogeneity of the Demographic Dividend in Nepal

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Abstract

The demographic dividend offers a special time-limited growth in economic growth when the population of working age increases compared to those who depend on the population in a country. In this paper, secondary data were used to determine the spatial and socio-economic inequalities of this dividend in Nepal, through the National Statistics Office (NSO) 2021Census. Through the application of a powerful quantitative research approach that involves the use of Z-tests to test proportions, the Chi-square ($\chi 2$) tests to test independence, and Pearson Correlation (r), the study can map the population distribution of the working-age population (WAP) and the dependency ratio among ecological belts, provinces, and wealth quintiles. The findings demonstrate that the spatial difference is

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statistically significant, with urban municipalities and the Bagmati province having a high level of demographic transition, whilst rural regions and the Karnali province are characterized by high child dependency (41.6%). The result was a near-perfect negative correlation between the wealth quintiles and dependency ratios (r = -0.98, p =.001), which shows that the dividend is now a privilege of the upper-most strata of the socio-economic hierarchy. Most importantly, the research determines that there is a negative population growth rate (of the working-age population) of rural municipalities (-2.73%), which is an indicator of the demographic hollowing-out as a result of out-migration. This essay claims that the demographic dividend in Nepal will only serve to reinforce the regional and class disparities in the region, without localized, equity-based policy interventions, and will not be a spur to national prosperity.

Keywords: demographic dividend, dependency ratio, federalism, spatial inequality, wealth quintiles

Introduction

The theory of the demographic dividend has become one of the most important pillars of developmental economics in the last thirty years. It is the period in the history of a country when the age composition of the population changes in such a way that the data of the working-age (15 64) group are much more significant than those of the non-working-age groups (children below 15 and the ageing population over 64). This move, as described by the classical framework given by Bloom, Canning and Sevilla (2003), generates a flood of available labour force, growth in household savings and a rare chance of massive investment in human capital. The successful examples of East Asian countries such as South Korea, Taiwan and Singapore are often mentioned as the successful examples in which the demographic window was used to bring the countries out of the low-income range to the high-income range in just one generation. Nevertheless, a youth bulge does not necessarily result in the demographic dividend. It is a window that should be opened by proper policies in the health, education and labour market (Gribble & Bremner,2012). When a nation does not offer employment to its growing youth group, the dividend may, within a very short time, turn into a demographic disaster that is marked by social unrest, high unemployment and political confusion. The dividend can turn into a “demographic disaster” without employment opportunities and with additional social and political

destabilization (Bista, 2019). In a nation such as Nepal that has suffered a lot of socio-political upheavals due to a decade-old civil war, to the formation of a federal republic that recognizes the inheritance of this dividend, the realization of the objectives of a prosperous Nepal, a happy Nepali (UNDP, 2020), can only be achieved. Nepal is in the process of a major demographic change. The country was traditionally a highly fertile and highly mortal country, but in the late 20th century, the gaps in the mortality and fertility rates started decreasing. In the year 2011, the statistics of the National Statistics Office (NSO) indicated the total population was 26.49 million, and the working-age population (WAP) was 59.8%. This national average would indicate that Nepal got into its dividend window in the mid-1990s and was at its peak phase. The level of dependency in the country is 67.2 per 100,000 individuals, indicating the pressure on the working group (2011). Although this is a significant change compared to the days when the ratios were more than 90 in the 1970s, the national figure covers deep-rooted internal inequalities. The country of Nepal is segmented into three different ecological belts: Mountain, Hill, and Tarai and seven administrative provinces each facing different demographic and economic challenges (Pant, 2016). All these regions have various geographic, economic and social issues that affect demographic behavior. The key issue that will be covered in the research is the fact that the demographic dividend is so heterogeneous among various layers of Nepalese society. The empirical evidence of the spatial and socio-economic split, despite the promising national statistics, exists. Urban regions and affluent households are shifting to a low-dependency regime, but the rural regions and the poorest households have been stagnated in the high dependency cycles. This study effort carries from the critical analysis that national level statistical frequently mask deep-seated structural inequalities that could transform a crucial dividend into a demographic complication. Beside promising national figures, there is a gap of empirical evidence regarding how the ‘hollowing out’ of rural municipalities and the ‘feminization’ of the domestic workforce affect local economic viability. In the context of Nepal, recent transfer to federalism, identifying these spatial and socio-economic heterogeneities is essential to equitable resource allocation and targeted human capital investment. By analyzing demographic-poverty issue through the lens of wealth quintiles and provincial barrier, this study suggests the necessary evidence base to move through a one-size-fits-all population policy to a nuanced, equity based framwork for national property.

Methods

Various key indicators were operationally defined and measured to measure the demographic dividend and the socio-economic pressures associated with it. The working-age population (WAP) is determined as the age group between 15 and 64 years, as the main driver of economic productivity. Dependency dynamics are further broken down to the Child Dependency Ratio (CDR), the ratio of the population in the age bracket 0 to 14 and the Old-age Dependency Ratio (ODR), the ratio of the population above the age of 65. Total Dependency Ratio (TDR) is calculated as a combination of CDR and ODR, and it gives a complete picture of the burden on the working population. In addition, socio-economic stratification is included in the model with the help of Wealth Quintiles, which is an asset-based measure that classifies households into five levels, with the low (1) and high (5) ones being the first and the fifth quintile. The analytical model will combine the descriptive and inferential statistical methods to test the hypotheses of the research with high levels of scientific way. The proportional Z-test was used to show whether differences in the observed percentages of the WAP values between genders (male and female) and residency (urban and rural) are statistically significant. The Chi-square ($\chi 2$) test of independence was used to test the relationship between the age structure categories and the context factor (geographic region and wealth status). It is necessary to make sure that the identified demographic preparedness in the study is not due to random distribution but has its systemic dependence on socio-economic and spatial variables. Also, a growth rate analysis was used to measure the strength and direction of the linear relationship between the wealth quintile index and the total dependency ratio using interpolation of 1991 and 2021 data provided by the NSO, and adjusted to the 2001 census base. This made it possible to map the working-age bulge and child dependency curves. All the inferential statistics tests were applied on a confidence interval of 95% (0.05). The null hypothesis (H0) of these tests is that there exist no significant differences in the demographic dividend measures of the various geographic or socio-economic groups, so that all the findings reported by the researchers meet the high standards of academic and scientific validity.

Literature

The theory of demographic transition is based on the fact that nations are shifting to low birth and death rates as opposed to high birth and death rates. According to Mason and Lee (2007), there are two types of demographic dividends: The initial dividend is short-term, which is brought about by an expansion of the labour force in comparison to the consumers. The latter dividend is more permanent and occurs when the population that is living longer accumulates assets to retire and drives the capital markets. The discussion is also largely stagnated on the first dividend in Nepal. Nevertheless, when the population of the elderly starts to increase in some provinces, the switch to the second dividend must be discussed (Adhikari, 2014).

In Nepal, the demographic transition is also influenced by international labour migration in such a way that it is not happening in the East Asian Tigers. It is estimated that the Nepalese are in millions out of the country. K.C. (2020) observes that this has caused the domestic labour market to be feminized. Although the remittances contribute a lot to the Gross Domestic Production (GDP), the domestic dividend is literally being exported (Bist,2019). While remittances contribute significantly to the GDP, this leaves a paradox in that a nation with a large working-age population experiences a domestic labour shortage in primary areas such as agriculture and construction (World Bank, 2022). This paper, in particular, examines the gendered character of the WAP to measure this effect. Nepal's geography itself diversity; Hill and Mountain regions have historically suffered higher death rates and lower literacy rates, migration is major factor grown massive in Tarai (Pant, 2016). After the 2015 Constitution, the state adopted the federal system in Nepal. Such decentralization implies that provinces such as Karnali and Sudurpashchim are now left to themselves to develop. Nonetheless, when these provinces are demographically disadvantaged, that is, they have high dependency ratio, it makes their capacity to create revenue internally and deliver services seriously impaired (UNFPA, 2017). According to the theory of the quantity-quality trade-off developed by Gary Becker (1960), as families become rich, the proportion of their investment in the quality of their children and less on the quantity increases. This results in reduced fertility and reduced dependency rates of the rich. The study will be conducted in Nepal, where the socio-economic stratification is high, and it is expected that the correlation between wealth and demographic preparedness will be significant. In Nepal, the link between wealth and

demographic readiness is crucial to whether the transition equalizes or compounds the wealth divide (Pradhan, 2016).

Results

According to the 2011 Census, the national working age population is 59.8% with child dependents of 34.9 and the elderly population of 5.3. Disaggregated by sex, however, the study reveals that the WAP is 57.9 percent amongst males and 61.6 percent among females. The dependency ratio of males is 72.8, which is very high compared to 62.2 for females. The proportions were compared, and that was done by performing a Z test of proportions between males and females who had WAP. The ensuing Z score of 8.42 ($p<.001$) gives substantial reasons to disapprove the null hypothesis. It means that the Nepal domestic demographic dividend is statistically female. This means that the national domestic economic productivity is increasingly reliant on the labour of working-age women, with a large share of working-age males no longer actually participating in the domestic economy by making their contribution through remittances, but not domestic production. The statistics show that there is a sharp divide between city and country municipalities. The WAP and dependency rate of urban municipalities are 61.7 and 62. Percent respectively. Conversely, the WAP of rural municipalities is 56.6% whereas the dependency ratio is 76.7. On examining pure urban areas, the WAP is the highest at 66.5% with a TDR at 50.4, pure rural areas still at 56.7% WAP and 76.4 TDR. The rate of increase in the working age population was 6.00 in urban municipalities, with a negative growth rate of -2.73 in rural municipalities. Moreover, the rate of child dependency in the rural municipalities is -3.93. Chi-square test was conducted on age structure and residency, resulting in $\chi 2=88.4$ ($P<.001$). This proves that urbanization is one of the key elements that lead to the demographic dividend. Rural Nepal is being emptied of its productive population, leaving a population that is ageing and young with a dependency rate of almost 15 points more than in the urban population. The Mountain region has been the most problematic belt, as geographically, the WAP is 56.1% and the dependency ratio is 78.2. The Hill area has the most WAP (60.8) and the lowest dependency ratio (64.5). The Tarai possesses the WAP of 59.5 but has the highest rate of the working-age population growth of 2.29. The growth rate of WAP in the Hill region is 1.91, but in the Mountain region it is only 1.09. This implies that the Tarai is fast turning out to be the demographic giant of the country because of internal migration, though the population of the Hill region still boasts

of the best demographic structure. The Mountain region is, however, experiencing a twofold problem of excessive child dependency (38.2) and sluggish growth in the productive sector. The provincial statistics cast a vote for a two-speed demographic transition. The province of Bagmati is at the top of the country with a WAP of 65.5% and the least dependency ratio in the country (52.7). In its turn, Karnali Province stands the lowest in the WAP (54.9%), the highest in child dependency (41.6%), and has the highest TDR (82.0). Sudurpashchim is the next with a TDR of 79.6. ANOVA test of provincial dependency ratios reveals that there is a high variance ($F=12.4$, $p<.01$). This gap indicates that Bagmati is in a position to change into a capital-intensive economy, whereas Karnali is grappling with the first dividend issue. Gandaki province is an exception with the highest proportion of old-age population of 7.2 in the country, which is an indication that the province is the first province to enter into an ageing society challenge. The most important result of this study is the correlation between wealth and demographic preparedness. The lowest quintile is 53.1 with a WAP and TDR of 88.2. In the highest wealth quintile, the WAP of 68.7 and TDR of 45.5 percent. Pearson correlation analysis strongly conform that there is negative association between socio-economic status and dependency ration (r -0.982, $P < 0.001$). It was located between the Dependency Ratio and the Wealth Quintile. It is an almost perfect negative correlation, and this indicates that the dependency burden has a linear negative relationship with wealth. A test of wealth and age-structure independence test was given. $\chi 2=412.4$ ($p<.001$). This makes it true that the demographic dividend is not a spontaneous phenomenon but is related to the socio-economic status in a strict manner. The dividend is a luxury in Nepal, which is now enjoyed only by 20-40% of the population.

Discussion

The discovery of a negative growth rate (-2.73%) among the rural working population is a serious demographic warning sign. In rural Nepal, a demographic deficit is being experienced at the same time as the national narrative is the demographic dividend. When the working-age population moves to the city or other countries, the rural economy, which is primarily agricultural, loses the innovative and physically capable employees. It is a hollowing out, which causes the “feminization” of agriculture and the ageing of the rural landscape. In the absence of rural-specific retention policies, the demographic dividend will just further increase the urban-rural disparity and result in deserted villages and congested and unsustainable urban

centers. Statistical significance of the increased domestic female WAP ($p<.001$) implies that any policy that is aimed at exploiting the demographic divide should be gender specific. The phenomenon of the missing male is presently the reason why the domestic labour force is predominantly occupied by women. Nonetheless, the participation of the female labour force in Nepal is mostly informal, unpaid, or subsistence-based. To transform this demographic setting into an economic dividend, the government should focus on formalizing female labour, equal pay, and women's vocational education in the non-traditional fields. In case women are still kept on the periphery of the formal economy, Nepal will be tantamount to wasting more than 60 percent of its productive domestic potential. Empirical evidence of a demographic poverty trap is that the correlation ($r = -.98$) between the ratio of wealth and dependency is a near-perfect negative correlation. The Nepalese households living in poverty have the highest dependence ratio of almost 88 dependents per 100 workers. This gives no margin for savings or investment. The rich households, on the other hand, have only 45 dependents, and this means that they can invest in good education and health of their children, hence making the next generation even more fruitful. It is an indication that the demographic dividend left to the market will operate as a tool to augment the stratification of classes. The intervention of the population is needed to ensure the quality of the dividend, education and health for the lowest quintiles. The large difference between Bagmati (52.7) and Karnali (82.0) dependency ratios has far-reaching consequences towards federalism in Nepal. Provided by the new federal system, the roles of provinces will be to collect internal revenue and stimulate local development (UNFPA, 2017). But this is almost impossible because of the demographic overload Karnali has. A province with a child population of 41.6 means that the spending on education and health will have to be huge, and the tax base will be extremely small. This is why a federal government-provincial fiscal transfer is dependency-weighted. In the event that such an adjustment is not made, federalism could easily result in the success of Bagmati and the failure of Karnali. Nepal has a leaky and stretched dividend in comparison with its East Asian counterparts. Whereas South Korea was exploiting its youth bulge to create a domestic manufacturing base, Nepal is exploiting its youth bulge to sell labour (K.C. & Lutz, 2017). This results in an economy of remittance, which, although it can be of assistance in reducing short-term poverty, will never develop the home-country industrial base needed to make the transition to a high-income economy. Moreover, the 7.2 percent population of old age in Gandaki province will

imply that certain areas of Nepal will experience the problem of ageing crisis way before Nepal as a nation has overcome the issue of the middle-income trap. Nepal has to deal with a youth bulge westward and an ageing population in the central hills all at the same time.

Findings

The current paper has shown that the demographic dividend in Nepal is extremely fragmented in terms of gender, geographic, administrative, and socio-economic. The national average deep divides of 59.8% WAP masks deep divides:

Gender: The domestic dividend is also greatly female ($p<.001$), which is caused by male out-migration.

Urban-Rural: Rural regions are losing their working population at the rate of -2.73, and urban areas are increasing at the rate of 6.00.

Wealth: The negative correlation between wealth and dependency ratios ($r=-0.98$) is close to perfect, which signifies a transition based on classes.

Provincial: Karnali and Sudurpashchim are geographically underprivileged with TDRs of approximately 80, as against Bagmati of 52.7.

Policy Recommendations

The government needs to go beyond Kathmandu-based growth to curb the trend of demographic hollowing of the rural regions. Rural municipalities need to be provide special economic zones with fiscal incentives to be given to industries that make use of the local labour. Since women constitute the majority of the domestic WAP (61.6%), the labour laws should be gender sensitive. This involves offering state-subsidised childcare as well as vocational education to take women out of subsistence farming and into official manufacturing and services. The National Natural Resources and Fiscal Commission ought to bring the dependency ratio into the intergovernmental fiscal transfer formula. High-child dependency provinces such as the Karnali require increased per-capita funding in order to offer basic human capital provision. To overcome the demographic poverty trap that was found in this study, then scholarships, vocational training and maternal health interventions have to be focused on the bottom two wealth quintiles. In areas such as the Gandaki, there is a need to initiate policies that will tend towards geriatric healthcare and social security systems because the second demographic dividend (capital accumulation to old age) is an immediate reality.

Conclusion

This paper explores a research finding on the deep-rooted spatial and socio-economic heterogeneity that defines the demographic transition in Nepal. Although aggregate indicators on a national level have indicated a good demographic window, a disaggregation analysis has indicated a patchwork landscape characterized by a two-speed transition. The statistically significant difference between the gender distribution in the domestic working-age population (WAP) ($p < .001$ and the almost flawless negative dependence between quintiles of wealth and dependency ratios ($r = -0.98$) highlights an important demographic-poverty trap. Particularly, the hollowing out of the rural municipalities, indicated by the negative WAP growth rate of -2.73% is an indication that the demographic dividend is being exported and not tapped to industrialize the country itself. The results imply that there should be a paradigm shift of centralized population policies to decentralized, equity-based interventions. According to the federal system of Nepal, the demographic disadvantage of such provinces as Karnali, Sudurpashchim, etc. needs dependency-weighted fiscal transfers to avoid the scope of regional inequality expansion. Moreover, feminization of the domestic workforce requires a formal economic and structural transformation to convert the female voice into production rate. The lack of specific policies to seal these sub-national divisions means that the demographic window of opportunity will become a threat to consolidated social stratification and not a source of national prosperity.

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