

# Understanding the demographic dividend in Ghana: The National Transfer Accounts (NTA) Approach

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## 1. Background to the study

Demographic Dividend refers to the process of accelerated economic growth that begins with changes in the age structure of a country's population as it moves through the demographic transition from high to low birth and death rates. With a smaller proportion of the children under 15 years and the population aged 65 years and older relative to the population of working-age adults (15-64), there is a decrease in the dependency ratio of the population. This onset of a demographic dividend opens a window of opportunity to harness the benefits associated with the demographic dividend through the successful implementation of key national (eg. economic and social) policies. However, to harness the benefits of the demographic dividend, there should be in place effective population, social and economic policies (NDPC 2016).

Ghana's population growth rate decreased from 2.7 percent per annum from 1984 to 2.5 percent in 2010. Currently, the population of Ghana is estimated at 31 million and is expected to be 53 million in 2050 (GSS, 2013;2014). There have been changes in the age structure of the population of Ghana for the past three decades. By 2010, the proportions of the population less than 15 years and 65 years and older have decreased, with an increase in the population aged 15-64 year. For instance, the population under 15 years was 41.3 percent in 2000 and 38.3 percent in 2010 and 37.0 percent in 2020). Similarly, the proportion of the population aged 65 years and older was 5.3 percent in 2000, 4.7 percent in 2010 and 4.3 percent in 2020. However, the population aged 15-64 years has increased in proportion over the period, 54.1 percent in 2000, 57.9 percent in 2010 and has further been estimated to have increased to 58.7 percent in 2020. The changes in the age structure over the years have reduced the age dependency ratio from 87 in 2000 to 76 in 2010 and 70 in 2020 (GSS, 2013;2014). The dynamics of the population structure have been largely due to declining fertility and mortality trends, as well as migration whose contribution is difficult to track due to inadequate data.

Ghana's fertility has decreased over the years. However, the rates have stalled during the past two decades as shown in the 2014 Ghana Demographic and Health Survey (GDHS). Fertility is one of the three components of population change that determine the size, structure, and composition of the population in any country. Ghana has made substantial progress in reducing fertility, which is critical to the development of population policies and programmes (GSS et al. 2015). The total fertility of Ghana which stood at 6.4 in 1988 has steadily decreased to 3.9 in 2017 (GSS et al, 2018). Mortality rates have similarly declined over the same period. In 2000, the life expectancy for Ghana was 58 years and increased to 62 years in 2010 as a result of improvement in health and nutrition. The maternal mortality ratio declined from 350/100,000 in 2010 to 310 per 100,000 live births in 2017. Childhood mortality rates (deaths per 1000) have also declined over the years. The infant mortality rate has declined from 41 in 2014 to 37 in 2017, the under-5 mortality rate from 60 to 52 and the neonatal mortality rate has decreased from 43 to 25 over the same period (GSS et al 2018).

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## 2. Methodology and Data

The NTA is a comprehensive system for measuring economic resource flows across ages, done at the aggregate level and for a prescribed period of time. In the NTA, the individual is the fundamental analytic unit. All transactions are treated as flowing to (inflows) and from individuals (outflows) and are classified on the basis of the age of those individuals. In the NTA approach, inflows to age group  $x$  should equal outflows from age group  $x$ . The inflows are made up of labour income, transfer inflows, capital income, and property income. The outflows on the other hand are made up of Consumption, transfer outflows, property income outflows, and saving. This is summarized in equation (1) as:

$$Y^l(x) + \tau^+(x) + Y^k(x) + Y^{p+}(x) = C(x) + \tau^-(x) + Y^{p-}(x) + S(x) \text{----- (1)}$$

In equation (1),  $Y^l$ ,  $\tau^+$ ,  $Y^k$  and  $Y^p$  refer to labour income, transfer inflows, capital income and property income, respectively for each age  $x$ . Similarly,  $C$ ,  $\tau^-$ ,  $Y^{p-}$  and  $S$  refer to consumption, transfer outflows, property income and savings, respectively for each age  $x$ . Aggregating equation (1) yields the profiles for all ages producing equation (2) where the left hand side represents national disposable income and the right hand side represents the net of consumption and saving.

$$Y^l + Y^k + Y^p + \tau = C - S \text{----- (2)}$$

Rearranging the equation (2) gives equation (3).

$$C(x) - Y^l(x) = Y^A(x) - S(x) + \tau^+(x) - \tau^-(x) \text{----- (3)}$$

The left hand side of equation (3) represents lifecycle deficit for age group  $x$ . The lifecycle deficit (LCD) is defined as Consumption ( $C$ ) less Labor Income ( $Y^l$ ). The lifecycle deficit is positive during the dependent years and negative during the working years of the person. The right hand side gives the asset based reallocations within the age group  $x$  ( $Y^A = Y^k + Y^{p+} - Y^{p-}$ ). Equation (3) can further be aggregated as

$$C - Y^l = Y^A - S + \tau^+ - \tau^- \text{----- (4)}$$

Equation (4) presents the key variable of interest which is  $C - Y^l$  and is defined as the lifecycle deficit (the difference between consumption and labor earnings at each age). In this equation, inflows consist of labor income ( $Y^l$ ), capital and property income inflows ( $Y^A$ ), and transfer inflows ( $\tau^+$ ). On the other hand, outflows consist of consumption ( $C$ ), savings ( $S$ ), transfer outflows ( $\tau^-$ ), and property income outflows. Thus, equation (1) basically states that the difference between consumption and production, known as the lifecycle deficit (LCD), must necessarily equal age reallocations made up of asset-based reallocations and net transfers.

In this study, we provide estimates of the Demographic Dividend. First, we compute the consumption and income profiles per capita, the life cycle deficit and the economic support ratios for each of the three countries. The Demographic Dividend is then computed as the growth of the economic support ratio. The National Income Accounts (NIA) "equivalent" of the NTA components were obtained from the World Development Indicators. These values that are consistent with the national income accounts are then regarded as the aggregate control that is used in the estimates. Aggregate consumption expenditure was further decomposed by purpose: education, health, and other expenditure items for both the private and public sectors.

The age profile allocation was derived using the 2013 Ghana Living Standard Survey (GLSS). This is a nationally representative survey of 8,687 urban and rural households and 37,128 household members in Ghana. It was carried out by a series of detailed household interviews conducted by the Ghana Statistical Service (GSS) over a 12-month period. Detailed

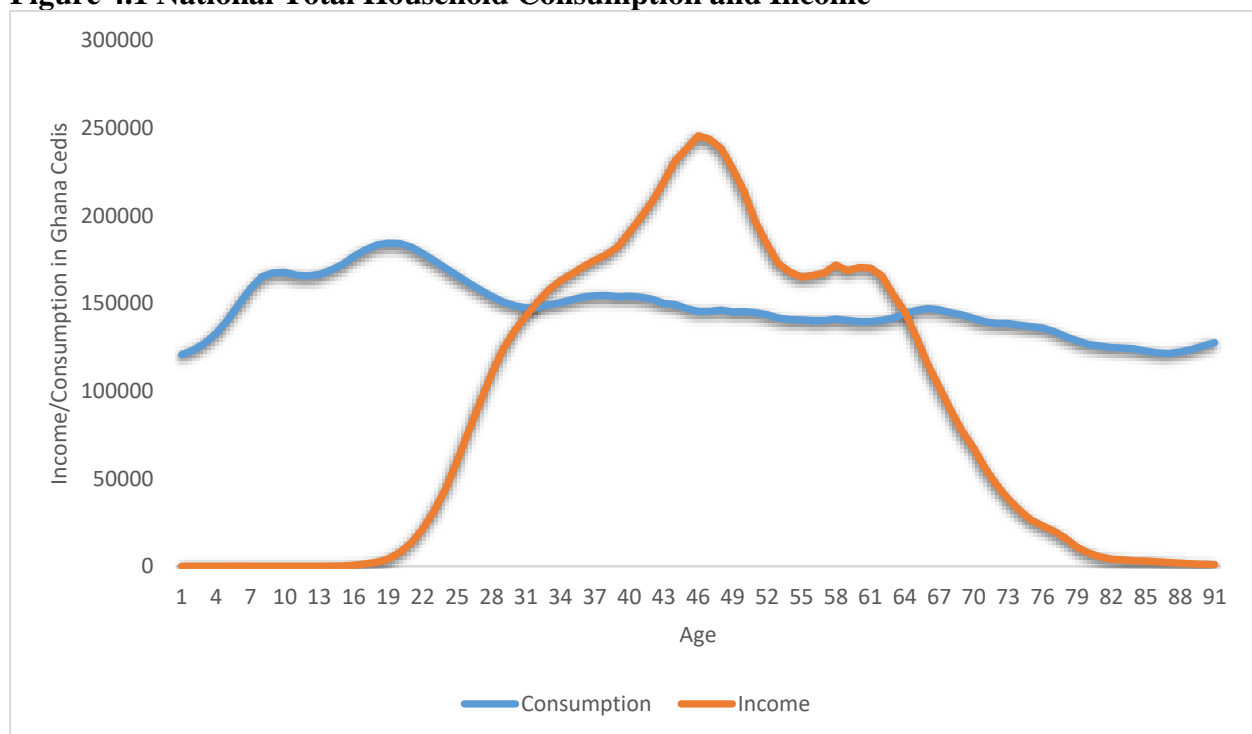
information was collected on demographic characteristics of respondents and all aspects of living conditions including health, education and housing. Information on private expenditure composed of food and non-food items while income comprises of employment and self-employment. The survey collected household-level data on household size; and individual-level data on age in years, wage income, self-employment income, level and costs of education, health status, number of visits to health facilities and costs of treatment.

In addition, we used data from the ministries of finance, education and health to compute the public expenditure on the various age groups, and we also used the three most recent population and housing censuses conducted in 1984, 2000 and 2010. The National Income Accounts data was obtained from the World Development Indicators. These values that are consistent with the national income accounts are then regarded as the aggregate control that is used in the estimates.

#### 4.1 Results for the three countries.

Figure 4.1 shows the consumption and income of all ages for households. The total consumption comprises education, health and all other consumption. Income from labour remains insignificant until age 19 when it starts to rise and peaks between ages 43 and 45. After age 45 it declines continuously until age 80. Labour income (income from assets or investments) is very low before age 20 because most young people are either still in school or learning a trade. Labour income also drops sharply after 60 because of mandatory retirement at 60 for most formal sector employees. Majority of those who continue to earn labour income after 60 are self-employed.

**Figure 4.1 National Total Household Consumption and Income**



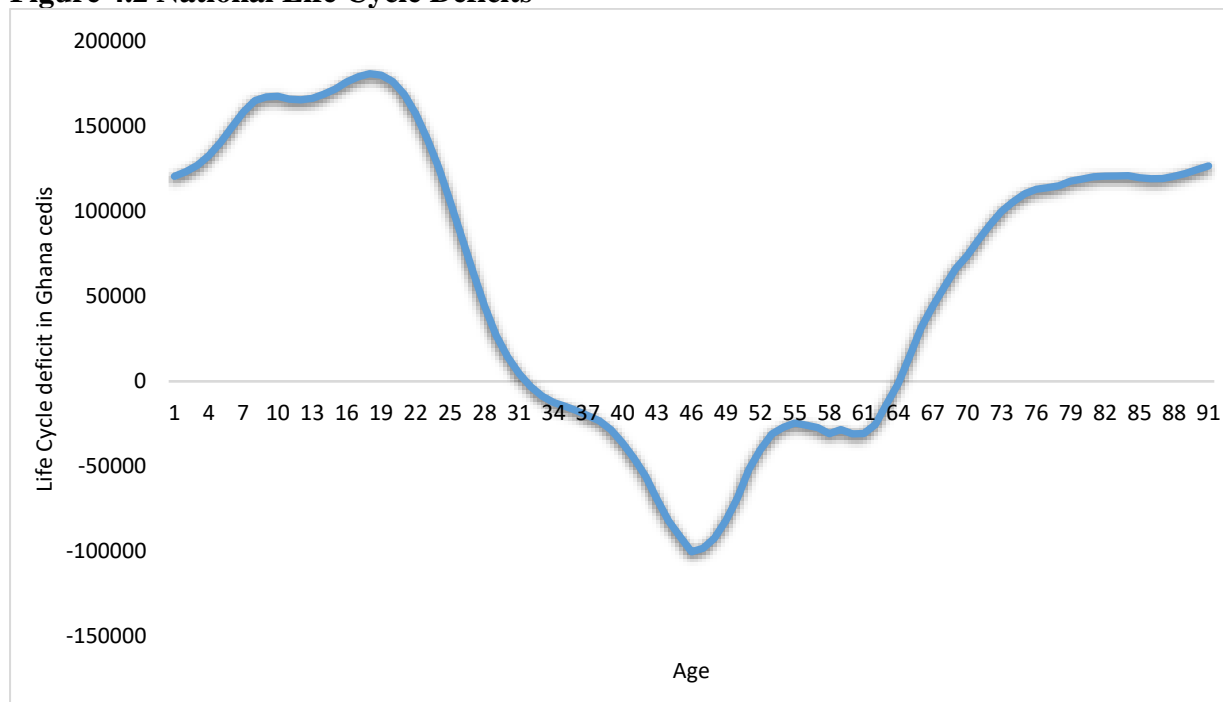
Source: Generated from the GLSS 6, 2013

Unlike the income pattern, consumption is higher at the younger ages peaking between ages 16 and 19 and thereafter declining with age. Higher expenditure at younger ages is the result of higher education and health expenditure. For instance, the peaking of expenditure between ages 16 and 19 coincide with the age of secondary education. At older ages, it is expected that consumption will rise because of increased health expenditure but expenditure continues to decline. This may suggest that older people in Ghana do not benefit much from generational transfers like young people. Lower consumption relative to income among those aged 31-64 is because of transfer to finance the life cycle deficit at younger and older ages.

#### 4.6.2 Life Cycle Deficits

Figure 4.2 shows the lifecycle deficit for Ghana in single years. The lifecycle deficit (LCD) is defined as consumption (C) minus Labor Income (YL). While consumption covers all forms of expenditure, income is from only labour earnings. The life cycle deficit is therefore related to the ability to finance consumption from only labour income. The lifecycle deficit is positive during the dependent years and negative during the working years. As indicated in figure 4.2, the lifecycle deficit is positive at the lower ages and older ages because expenditure exceeds income. The positive deficit for younger and older ages is partly due to transfers from the working-age as shown in a negative deficit between ages 32 and 63. The life cycle deficit may be financed from other income sources like income from capital, rent and royalties. For instance, some people may not be receiving income from labour after 60 but maybe receiving income from other sources.

**Figure 4.2 National Life Cycle Deficits**

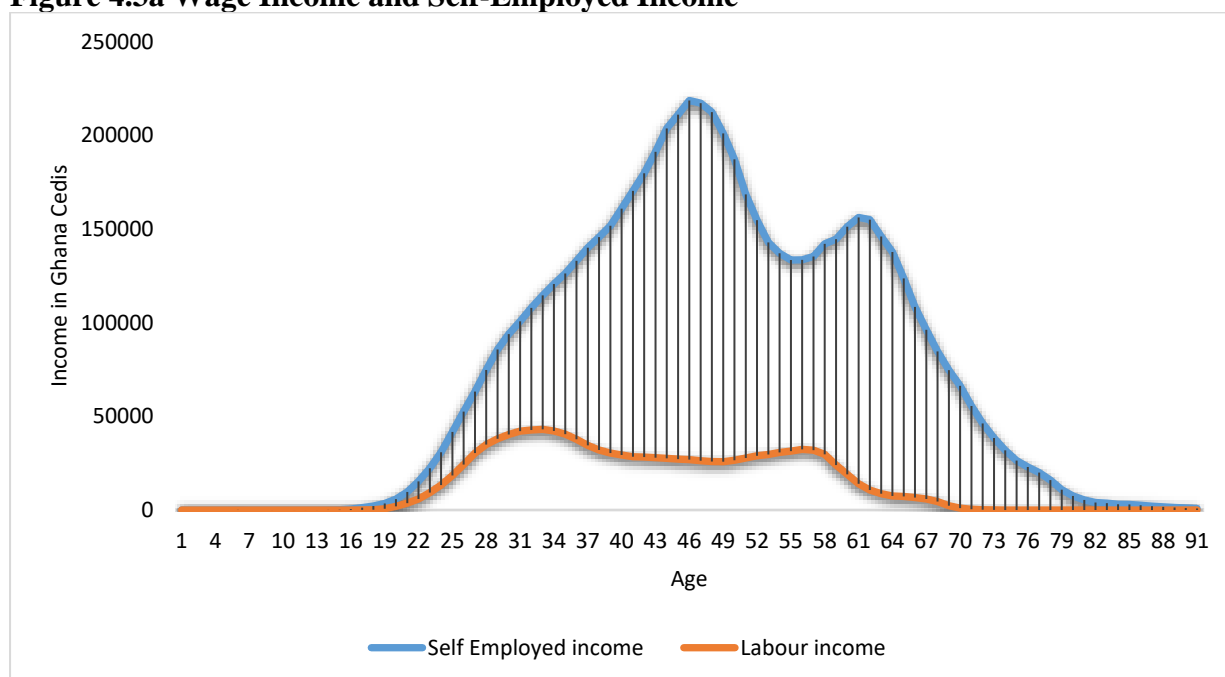


**Source: Generated from the GLSS 6, 2013**

#### 4.6.3 Public and Private Consumption and Income Profiles

This section shows the consumption and income profiles for Ghana disaggregated according to public and private. First is a disaggregation of the profiles by income in figure 4.3a and a disaggregation of consumption also by public and private (figure 4.4.3b and 4.4.3c).

**Figure 4.3a Wage Income and Self-Employed Income**

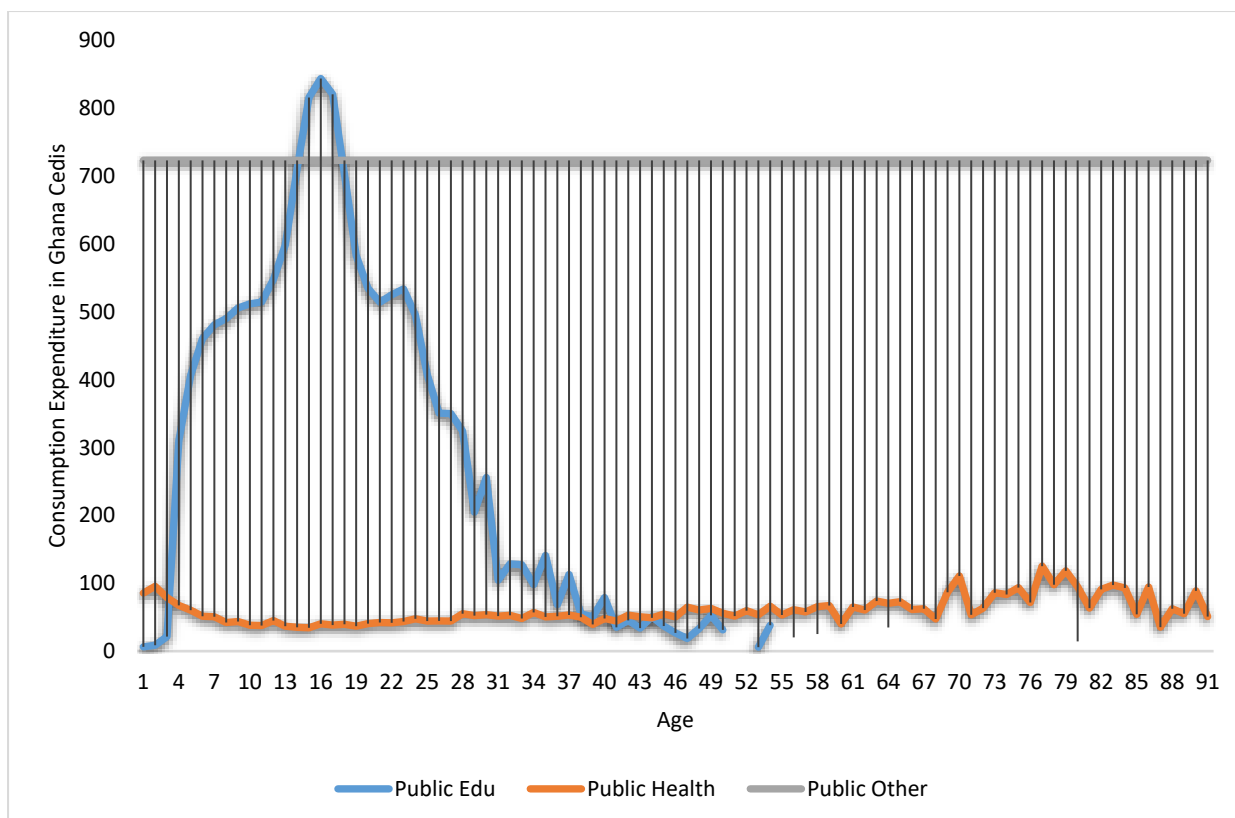


**Source: Generated from the GLSS 6, 2013**

Figure 4.3a presents information on wage and self-employment for Ghana. The figure shows that wage and self-employment start around age 19 for both wage income earners and the self-employed. By age 70, income from wage employment becomes insignificant, while incomes for self-employment continue up to age 80. Wage and self-employment incomes according to age are consistent with the nature of wage and salary employment. While the self-employed will mostly remain in employment at later ages, most wage earners retire after attaining age 60.

Incomes of the self-employed are also higher than income from wages. Self-employment income starts a little earlier than wage income and increases rapidly till it peaks at Ghc 200,000.00 among self-employed aged 45. Self-employment income declines sharply and peaks again at age 64 before declining continuously up to age 80. On the other hand, wage income peaks at an early age 28-34, at a lower level of Ghc 50,000.00. Wage employment may be more related so formal training because it starts around age 21 when most young people are finishing school or apprenticeship. Furthermore, the end of wage-earning coincides with the age of retirement while self-employment extends beyond 60. Self-employment income is usually in the form of profits and this may account for the differences in levels of earning.

**Figure 4.3b Public Consumption Expenditure**



**Source: Generated from the GLSS 6, 2013**

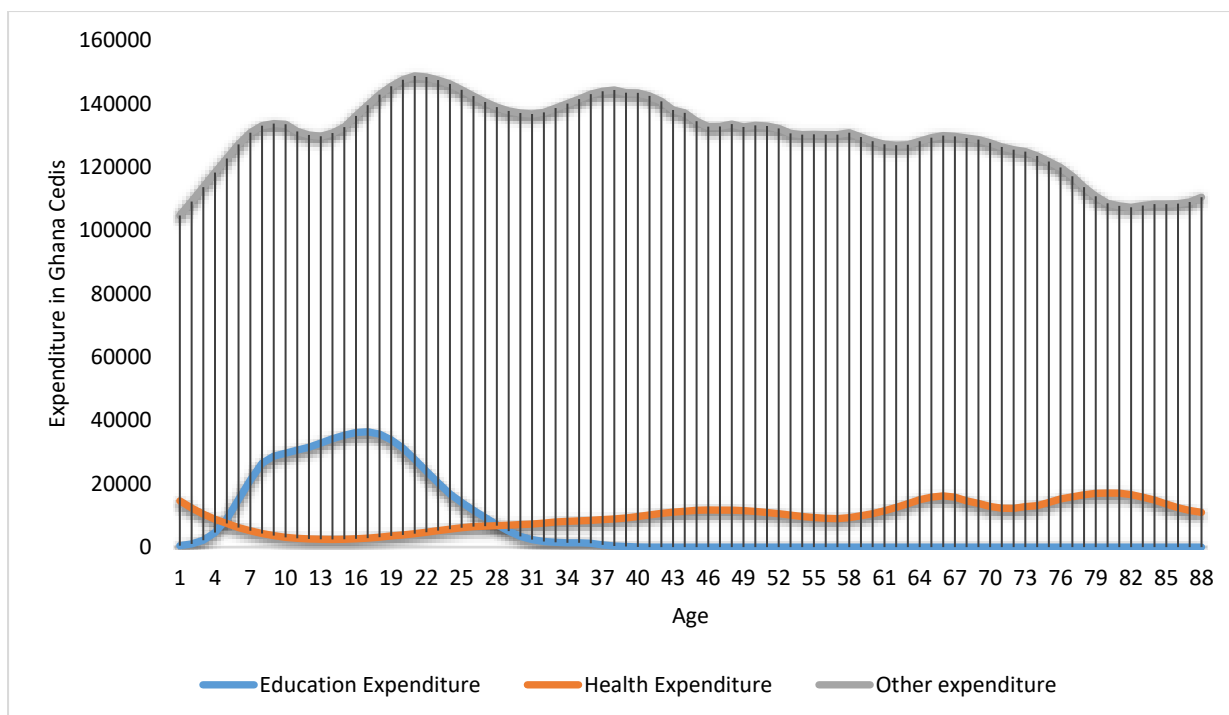
Figure 4.3b shows the public expenditure on education, health and all ‘other’ expenditure. Public education expenditure pattern follows the expected pattern of schooling years. Public expenditure on education starts from the pre-school age and peaks at the ages of secondary education (age 16-19). Senior secondary education in Ghana is mostly a boarding system and is, therefore, more expensive to run. It will be noticed that even though ‘other’ public expenditure per capita is high in Ghana, education expenditure at the ages of secondary education exceeds ‘other’ public expenditure.

Public expenditure on health is relatively higher at early ages and after 60 years as it is expected. More public health expenditure is committed to the health needs at younger ages because vulnerability is high and therefore, higher utilisation. Again, higher utilization of health at younger ages is due to the required postnatal care that occurs under five years.

The utilisation of health facilities declines among adolescents because of optimal health. Public health expenditure increases slowly and steadily from ages 30 to 60. By age 60, public health expenditure increases slightly because it is associated with degeneration and non-communicable disease. This may cause utilisation rates to increase and consequently expenditure. The level of expenditure on public health is relatively low for all ages compared to education and other expenditure. This may be due to the health insurance scheme that requires users to pay premiums.

The ‘Other’ public expenditure is high because it covers public expenditure on all other sectors (except education and health) including capital expenditure. However, ‘Other’ public expenditure remains fixed across ages because most of this expenditure is not age-specific or is not available according to ages for which reason it averaged across all ages.

**Figure 4.3c Private Household Consumption**



**Source: Generated from the GLSS 6, 2013**

Figure 4.3c presents the private household consumption on education, health and ‘other’ by age. Private ‘other’ consumption includes any household consumption except for education and health. Private ‘other’ consumption is higher than education and health consumption for all other ages. The ‘Other’ private consumption increases with age until it peaks between ages 19 and 25. Thereafter it declines steadily to the end.

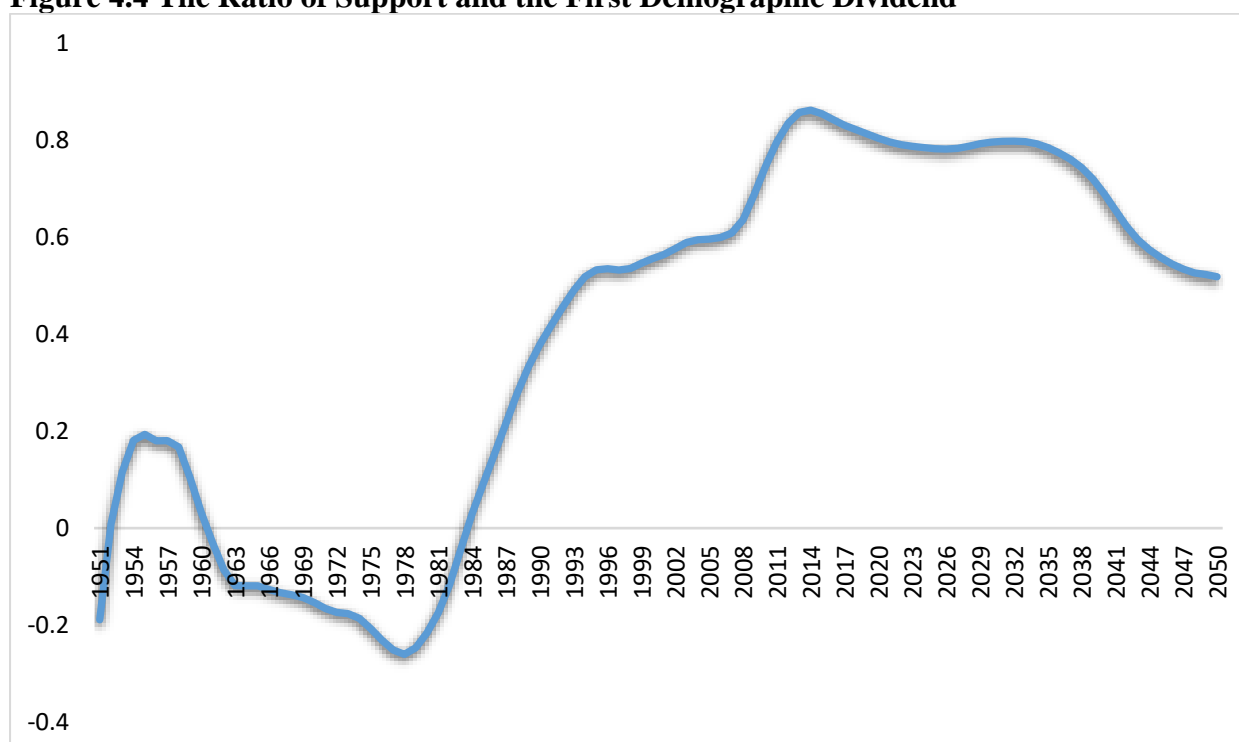
Private education consumption has a similar pattern of public education expenditure. The consumption pattern is consistent with years of schooling. It starts at pre-school age and peaks at the ages of senior secondary education. Private education consumption starts declining by ages 19 and by age 30 there is little education consumption.

Private health consumption is higher at early ages because of frequent utilisation of health care facilities because of higher vulnerability or low immunity. It declines after childhood, but a noticeable increase in consumption is observed by age 40 and beyond because of the effect of the non-communicable and degenerative diseases that cause utilisation of health care and consumption to rise at later ages.

#### **4.7 The Economic Support Ratio and the First Demographic Dividend**

Figure 4.4 presents the growth in the support ratio for Ghana from 1951 with projections up to 2050. The support ratio relates to the effective number of producers to an effective number of consumers to show how changes in age structure affect economic growth. The effective number of workers takes into account the labour force participation, income, unemployment and productivity or unproductivity. On the other hand, the effective number of consumers takes into account the age-specific variations in consumption. Changes in the age structure associated with fertility reduction cause an initial increase in the support ratio because of the increase in the productive population relative to consumers. The support ratio, together with productivity and lower unemployment will increase as observed between 1984 and 2014. The support ratio starts to decline slightly by 2014 as expected because growth in the effective producers will start to decline after a long period of sustained fertility reduction.

**Figure 4.4 The Ratio of Support and the First Demographic Dividend**



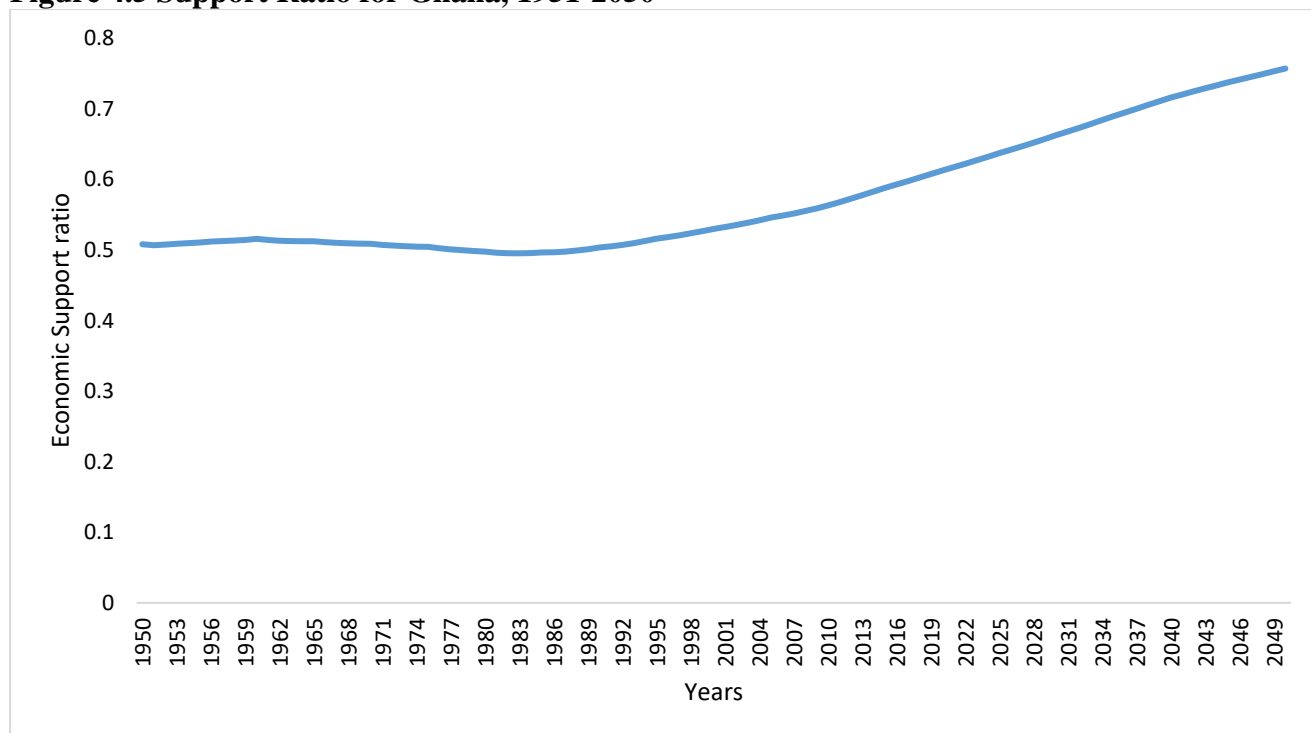
**Source: Generated from the GLSS 6, 2013**

The first demographic dividend is the result of an increasing support ratio. As indicated in the graph Ghana started reaping the effect of the first demographic dividend from 1984 which implies the age structure of the Ghanaian population had started changing. The growth in support ratio for Ghana will start declining from 2030 as indicated in figure 4.5.1.

Figure 4.5 shows that the support ratio (SR) for Ghana from 1951 with projections up to 2050. The support ratio as already described relates to the number of effective producers (with considerations of labour force participation, unemployment, and productivity) to the number of effective consumers (with consideration of consumption needs according to age). Fertility reduction causes the support ratio to increase because of an increase in the working-age population to dependents. Sustained fertility reduction that is accompanied by high labour force participation, low unemployment and high productivity will produce a more favourable support ratio that is associated with the first demographic dividend.



**Figure 4.5 Support Ratio for Ghana, 1951-2050**



**Source: Generated from the GLSS 6, 2013**

#### **4.6 Gender and the Demographic Dividend**

Gender is defined as ‘the relations between men and women, both perceptual and material. Gender is not only determined biologically, as a result of sexual characteristics of either a woman or man but is constructed socially. Gender is often misunderstood as being the promotion of women against men. However, gender issues focus on women and the relationship between men and women, their social roles, access to and control over resources, the division of labour, interests and needs. Gender relations affect household security, family well-being, planning, production and many other aspects of life (Bravo-Baumann, 2000).

In harnessing the demographic dividend, there should be in an enabling policy environment in a wider social, economic, and cultural context. For instance, the increase in productivity from the increase in the proportion of the working-age population will depend on the absorption capacity of the labour market. This is possible when there is a growing economy that creates job opportunities for both men and women. The International Labour Organization (ILO) estimates that nearly half the youth of developing economies are not achieving their full economic potential because of the lack of decent jobs. Youth unemployment is a major to sustainable development and in sub-Saharan Africa, young girls tend to be more disadvantaged than young men in access to work and experience worse working conditions than their male counterpart, and employment in the informal economy or informal employment is the norm. Gender equality has also an impact on the demographic dividend because of its implications on the labour supply and the duration of the demographic transition. Closing the gender gap in education by promoting female education is often associated with lower fertility, giving the

population a narrower base of the pyramid and smaller family sizes (Kane 2004). Ghana continues to make considerable progress towards the attainment of gender parity in education, especially at the lowest level of education. Gender parity has already been achieved at the kindergarten level and primary, while at the Junior High School level it is (0.98), secondary level (0.96) and tertiary level indicating 0.69 in 2016/17. Gender disparity continues to be a major challenge to be addressed in the education sector (MOE, 2018).

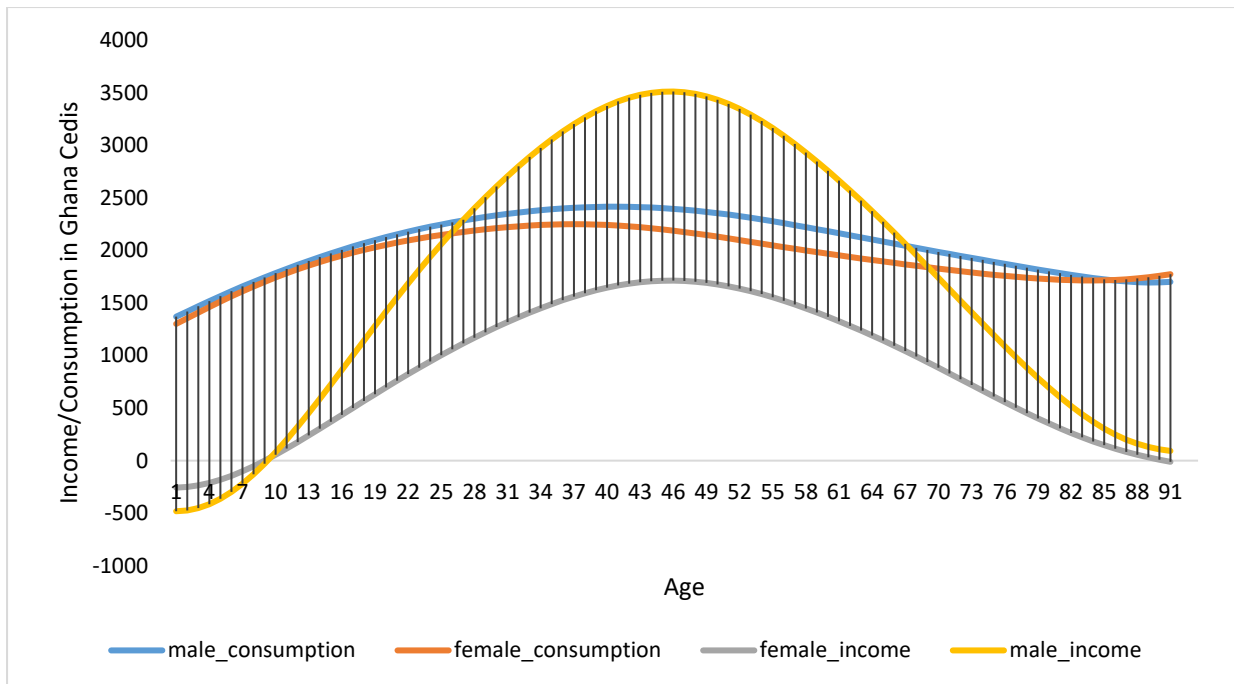
Another issue concerning the demographic dynamic is the changes in marriage patterns and reproductive health behaviour and increment of women's participation in economic activities. The median age at first marriage among women age 25-49 has increased steadily over time, from 18.1 years in 1988 to 19.4 years in 2003, 20.7 years in 2014, and 21.5 years in 2017. With the increase in age at first marriage, women will tend to spend more time in school and acquire employable skills, which will enable them to contribute to the economic growth of Ghana. Gender Dividend, a dividend that is achieved by using various methods that increase the volume of market paid work and the level of productivity of the female population. Gender Dividend complements and facilitates the harnessing of the demographic dividend. One of the positive impacts of gender dividend is the growing integration of women in the labour market and their contribution to the household's total income.

Issues related to gender are very critical in harnessing the demographic dividend. The Government of Ghana in January 2013, established a Ministry of Gender, Children and Social Protection in January 2013 to replace the Ministry of Women and Children Affairs. The primary objective of establishing the Ministry is to have a Ministry responsible for policy formulation, coordination, monitoring and evaluation of gender issues that affect both males and females, children and social protection within the context of the national development agenda. Further, the 2015 Gender Policy was launched in December 2015 to integrate gender equality and women's empowerment issues into the national development process. It is to also inform and improve the social, legal, civic, political, economic and cultural conditions of the people of Ghana, particularly women and men, boys and girls in an appreciable manner and as required by national and international frameworks (MoGSP, 2015).

#### **4.6.1 Disaggregation of the Profiles by Gender and Location**

Figure 4.6a shows the total income of males and females in Ghana. The data indicates that there is a big gap in mean income between males (GHC25, 827.70) and females (GHC2, 587.60) in Ghana. The gap widens from ages 33 to 69. However, beyond 69 years, income for females is zero, while for the males, it is at a minimum of about GHC100.00 and could rise beyond GHC500.00 at the older ages. Further, the figure shows that the income of wage earners and self-employed is higher for males than females, implying that more males are working than females. To reap the demographic dividend, more women should have employable skills to acquire jobs to earn more income.

**Figure 4.6a National Consumption and Income Profiles by Gender**



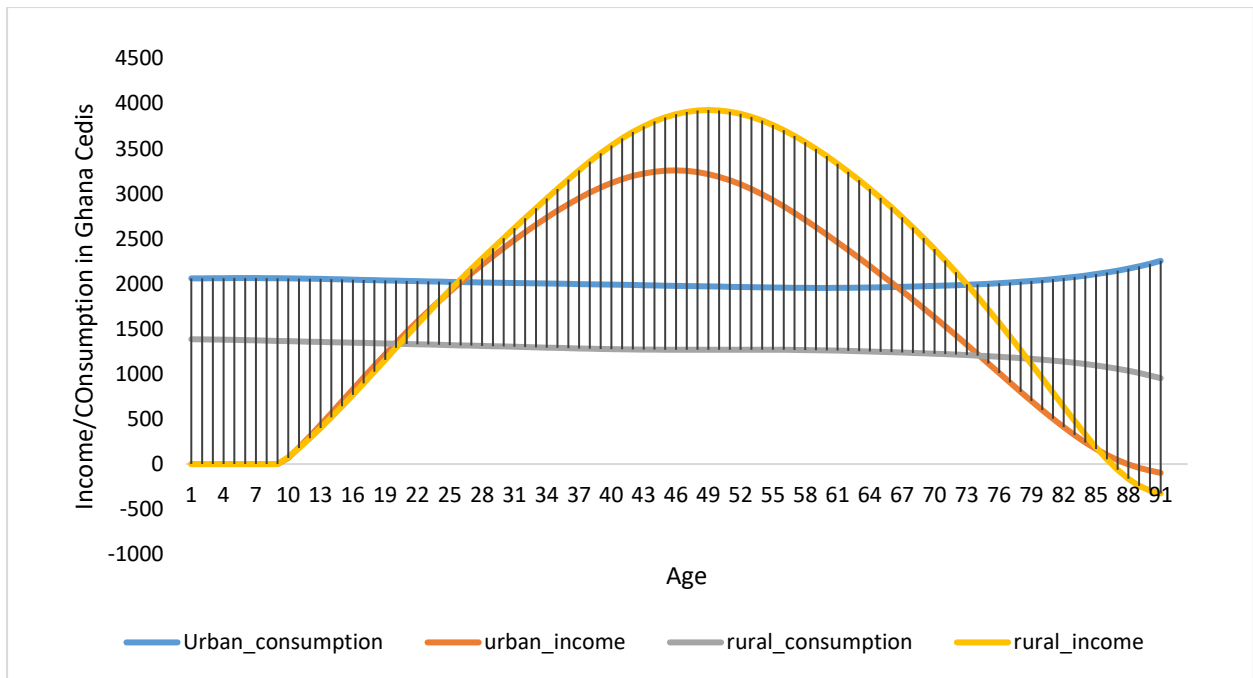
**Source: Generated from the GSS, GLSS 6, 2013**

The profiles presented in Figure 4.6.1a suggests that while male income and consumption are both higher than the female income and consumption, females on average consume more than they earn leaving a deficit. This is contrary to what is observed for the males who even though have higher consumption, consumes below their income creating a surplus. The possible reason for this might be the number of males employed and the sectors employed. This may indicate higher incomes than the average female who may be in the informal sector. Besides, research suggests that most females spend a lot of time in housework which is not valued economic hence understating the earnings of women in the economy (Amporfufu et al., 2018)<sup>3</sup>.

The unemployment rate for persons aged 15 years and older is 5.2 percent, the rate is higher for females (5.5%) than for males (4.8%). Similarly, among the youth (15-35 years), 5.7 percent of females and 5.2 percent of males are unemployed. To reap the demographic dividend, more women should have employable skills to acquire jobs to earn more income, increase savings and invest their earnings to accumulate wealth like their male counterparts. There should be more investment in education to enable the population, especially the youth to acquire the skills and knowledge to gain employment or enter entrepreneurship. The government of Ghana should strengthen its efforts to create jobs to accommodate the unemployment situation in the country. This will bridge the income variation observed.

**Figure 4.6b Consumption and Income Profiles by Rural and Urban**

<sup>3</sup> Amporfufu, E., Sakyi, D., Frimpong, P. B., Arthur, E., & Novignon, J. (2018). *The Distribution of Paid and Unpaid Work among Men and Women in Ghana: The National Time Transfer Accounts Approach* (No. cwwwp3).



**Source: Generated from the GSS, GLSS 6, 2013**

Figure 4.6b shows spatial inequalities and the demographic dividend derived from the NTA module. It is observed that there was not much difference in income by localities (urban and rural) in the lower ages, up to ages 36 to 41 years, where the rural areas have a relatively higher per capita income than the urban. However, at ages 41 to 55 years, the income level in the urban areas is higher than those in the urban areas with slight variations between the urban and rural localities getting to higher ages. To harness the demographic dividend, spatial income equality is very critical as it will enable people to invest in education and health. Efforts should be tailored in advocating for higher income in both the rural and urban areas. More jobs should be created in rural areas, especially for the youth to enable them to earn income.