

Demographic Dividend of Ghana: The National Transfer Accounts Approach

Eugenia Amporfu[#], Daniel Sakyi[↓], Prince Boakye Frimpong[±]

February, 2014

Abstract

The paper uses the National Transfer Accounts Approach to estimate the lifecycle deficit and hence the first demographic dividend for Ghana in 2005. The results of the National Transfer Accounts for Ghana indicate that, lifecycle surplus runs for about 30 years and peaks around age 50. Further, there is early entry in the labor force as well as late exit from the labor force, probably due to significant unregulated labor market activities in Ghana, particularly in the informal sector. The results reveal that Ghana started enjoying the first demographic dividend in 1990 and is expected to peak around 2031. The paper, however, proposes some policies geared towards strengthening the labor market which potentially would develop the human capital particularly in the productive ages to help sustain the benefits.

Keywords: Ghana, National Transfer Accounts, Demographic Dividend, Lifecycle Deficit, Economic Support Ratio

[#] Department of Economics, KNUST, Kumasi, Ghana. Email: eamporfu@gmail.com

[↓] Department of Economics, KNUST, Kumasi, Ghana. Email: dsakyi2003@yahoo.com

[±] School of Business Studies, Garden City University College, Kumasi, Ghana. Email: winconsin@yahoo.com

1. Introduction

Demographic dividend refers to the increase in economic growth which results from a fall in fertility and the subsequent change in the age structure of the population (Bloom et al., 2003). A significant reduction in the number of children implies a reduction in the number of dependants which in turn frees up resources for development and improvement in welfare (Lee and Mason, 2006). With lower fertility every year, the working age population temporarily grows faster relative to the number of dependents hence creating a window of opportunity for rapid economic growth if the right social and economic policies developed and investments made (Gribble and Bremner, 2012). The temporary nature of the increase in the growth of the working age population makes it imperative to study the time path of the demographic dividend of a country in order to ensure the right policies are set in place. A popular approach that is used to estimate demographic dividend is the National Transfer Accounts (NTA) approach.

The NTA comprises an accounting system for measuring intergenerational reallocation of resources across ages at the aggregate level in a way that is consistent with the National Income and Product Accounts (NTA at flickr, 2010). Unlike the National Income and Product Accounts which only estimates macro variables such as consumption and income that are delinked from population's age structure, the NTA is able to estimate the aggregate consumption and income for the population of each age in a given economy. Consequently, the NTA has been developed to assess the economic performance of countries in relation to changes in the population structure (Lee et al., 2008).

The NTA uses the economic lifecycle deficit to exhibit intergenerational transfers, and hence the extent of dependency, in a population (Mason and Lee, 2011). At any point in time the working age population, supplies the resources that are consumed by the whole population through transfers to dependents (mostly children and the elderly), saving by effective workers and dissaving by, mostly, the elderly. An increase in the number of effective producers per consumer, the support ratio, then implies improvement in welfare. The number of the working age population increases when fertility rate falls to free more women to join the labor force (Martin, 2012). In addition, continuous fall in fertility rate decreases the proportion of children in the population relative to the working age. The resulting demographic transition creates a window of opportunity for economic growth depending on the response of the markets and

workers (Martin, 2012). And demographic dividend is estimated as the growth rate of the effective number of producers per effective consumer (support ratio) (Mason and Lee, 2011).

Generally, less developed countries have high fertility rates and low life expectancy (United Nations, 2012). This has resulted in a large proportion of the population in the younger age groups. Bongaarts and Bulatao (1999) have argued that Sub-Saharan African countries are not likely to earn demographic dividend. However, recent studies (e.g. Bloom et al., 2007; Ashford, 2007) have argued that Ghana is among eight Sub-Saharan countries with high potential to benefit from demographic dividend. The purpose of this study is to use the National Transfer Accounts (NTA) approach to estimate demographic dividend for Ghana. The study seeks to construct the age profiles for labor income and consumption and subsequently lifecycle deficits for Ghana in 2005 using individual and household level data as well as some relevant macroeconomic control variables.

2. Demographic Dividend

The nature and significance of population shifts from “youthful” to “old” population structures has become important in the development literature. This has arisen due to the potential effects that population shifts, as opposed to population size and population growth, have on economic growth of both developed and developing countries. Martin (2012), for example, notes that this interest has “reignited because of the demographic transition taking place in the developing countries, which are at varying stages in experiencing declining fertility and mortality rates”. Moreover, an increase in the young working age population in particular is beneficial for the economic growth of any country (Singh, 2012). Therefore by isolating and focusing on age-structural changes (rather than population size and population growth) it is possible to make clear the link between demographic change and economic growth (Bloom et al., 2003). This allows us to determine the extent to which growth in the proportion of the working ages contribute to the ratio of effective producers to effective consumers (i.e. the economic support ratio).

The effect of changes population age structure in economic growth, as described so far is referred to as the first demographic dividend (UN, 2013). The first demographic dividend operates through growth in the economic support ratio which defines the living standard of

countries. It is important to note, however, that if demographic change leads to increased saving and favourable changes in spending in human and physical capital formation, then we can talk of a second demographic dividend (Martin, 2012). The current study, however, focused on the first demographic dividend.

3. Economic and Demographic Structure of Ghana

Ghana is a developing economy that upgraded from low income status to a lower middle income status in 2011 with a per capita income of US\$1,343 and a GDP of US\$32.5 billion (World Bank, 2013). The growth of GDP was 8 percent in 2010, 14.4 percent in 2011 and around 7 percent in 2012 (World Bank, 2013). These growth rates are above African averages of between 3.5 and 6.6 percent during the same period (African Economic Outlook, 2013). The main contributor to the growth of GDP in 2011 was industry sector which rose from 6.9 percent in 2010 to 41.1 percent in 2011 as a result of oil production. However, Services forms the largest sector contributing 48.5 percent to GDP followed by industry which contributes 25.9 percent in 2011 (Bank of Ghana, 2009). Exports of gold, timber, cocoa, diamond, bauxite, and manganese are important drivers of Gross Domestic Product (GDP), albeit at an estimated value of USD \$5.2 billion, they are far overtaken by imports of capital equipment, petroleum, and food products with a total value of USD \$10.3 billion (Bank of Ghana, 2009).

Ghana's population growth rate has averaged 2.6 percent per annum between 1955 and 2010 and has seen a constant decline to 2.2 percent in 2012 (United Nations, 2013). At the same time the working age population (15-64 year olds) has been growing at an average of about 3 percent by 2010 but declined slightly to 2.5 percent in 2012 (United Nations, 2013). Since 1977 the working age population has been growing faster than the population such that the working age share of population has been more than 50 percent of the overall population. In 2010, for example there were 1.4 working age adults per dependent (child and elderly) (United Nations, 2013).

The trends in mortality and fertility in Ghana indicate that both decline after 1970 (United Nations, 2012). Total fertility has declined from 6.90 in 1970 to 4.22 in 2010 (United Nations, 2012) but increased from 4 in 2011 to 4.22 in 2012 (Ministry of Health, 2013). The slight

increase in fertility occurred in spite of the increase in contraceptive prevalence from 16.6 percent in 2008 to 23.4 percent in 2012 (Ministry of Health, 2013). Under five mortality decreased from 177 deaths per 1000 live births in 1970 to 84 deaths per thousand live births in 2010 (United Nations, 2012). By 2012, the under five mortality had decreased to 53 (Ministry of Health, 2013). Improvement in child mortality is mainly due to aggressive combat of malaria and improvement in maternal care reflected in the significant increase in antenatal attendance and supervised deliveries (Ministry of Health, 2013).

Life expectancy at birth has significantly improved over 55 year period (1955 – 2010) on average by approximately 50 percent, that is, the average number of years of life expected by a cohort of individuals improved from 41.7 years in 1955 to 62.7 years in 2010 (UN Population Division, 2011). The improvement in health indicators is accompanied by increase in female enrolment in education institutions. In 2009/10 academic year, for example, the percentage of females enrolled in secondary schools increased from 44.3 percent to 44.7 (Ghana Education Service, 2011). Studies (e.g., Basu, 2002) have shown that fertility rate falls with female education. The question then is, to what extent does the Ghanaian demographic transition affect economic growth and when can such a window of opportunity be opened.

The rest of the paper is organized as follows: Section 4 looks at the general methodology and the data types and sources used in the estimation. Sections 5 and 6 present the results of the estimates of the lifecycle accounts and the first demographic dividend respectively for Ghana. Section 7 discusses the results and provides some policy implications. Section 8 concludes the paper.

4. Methodology and Data

4.1. The National Transfer Accounts Framework

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. The idea behind construction of NTA is illustrated by Equation (1). This is a summary expression obtained by rearranging the basic *inflows = outflows* identity:

$$\begin{array}{ccccccc}
\underbrace{C - Y_t}_{\text{Lifecycle deficit}} & = & \underbrace{Y_A - S}_{\text{Asset-based reallocations}} & + & \underbrace{\tau_g^+ - \tau_g^-}_{\text{Net public transfers}} & + & \underbrace{\tau_f^+ - \tau_f^-}_{\text{Net private transfers}} & (1) \\
& & & & \underbrace{\hspace{10em}}_{\text{Net transfers}} & & & \\
& & & & \underbrace{\hspace{15em}}_{\text{Age reallocations}} & & &
\end{array}$$

Equation (1) presents the key variable of interest which is $C - Y_t$ and is defined as the life-cycle deficit (the difference between consumption and labor earnings at each age). In this equation, inflows to individuals of any given age consist of labor income (Y_t), income from assets (Y_A), and transfer inflows from the public sector (τ_g^+) and the private sector (τ_f^+). On the other hand, outflows consist of consumption (C), investment (I) in capital, credit and land, and transfer outflows to the government (τ_g^-) and to the private sector (τ_f^-). To obtain equation (1) by rearranging terms in the basic *Inflows = Outflows* identity we note that saving S is set equal to investment I . Thus, equation(1) 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 *LCD* made up of differences in consumption and labor income allocated by age group as well as public sector inflows and out flows. While the LCD tables -- the LHS of equation (1) -- provide a complete picture of NTA estimates, the details of the financing of the deficit is provided by the estimates of the right hand side variables which is beyond the context of this study.

In order to proceed with the estimation of lifecycle deficit (LCD), we follow the following steps

- Estimation of aggregate control variables (aggregate income and consumption)
- Estimation of age allocation of aggregate control variables
- Estimation of lifecycle deficit (LCD) by age groups and and for overall age groups

For the first step, we obtain the value of the National Income Accounts (NIA) “equivalent” of the NTA components that is important to us. These values that are consistent with the national income account are then regarded as the aggregate control that is used in the

estimates. Table 2 describes the aggregate control values used in the estimation of selected variables for the 2005 LCD.

4.2. Demographic Dividend Methodology

We follow Mason and Lee (2006) and Mason (2007) to formalize the demographic dividends. This is the basis of the NTA approach to the computation of the demographic dividend which emphasizes the profiles of effective number of producers and consumers in the country. The aim is to be able to estimate a consumption consistent economic support ratio. We start by defining the GDP per capita as in Equation (2).

$$\frac{Y(t)}{N(t)} = \frac{L(t)}{N(t)} * \frac{Y(t)}{L(t)} \quad (2)$$

Where $Y(t)$ is the total output, $L(t)$ is effective number of producers, and $N(t)$ is the effective number of consumers.

Equation (2) states that GDP per capita comprises of the product of output per effective consumer as equal to output per effective producer and the support ratio (i.e. effective producers per effective consumers). The equation can be used to decompose economic growth to reveal the relationship of population growth with GDP per capita growth. Demographic dividend is defined as the growth rate of the support ratio; hence we obtain the growth rates of Equation (2) by taking the log of both sides of equation 2 and differentiating it in respect with time. This is presented in Equation (3).

$$\dot{y}_t = \dot{L}_t - \dot{N}_t + \dot{y}_t^l \quad (3)$$

Equation (3) reveals that the growth rate of output is equal to the sum of two components, which are the equivalents to the two demographic dividends. The first dividend corresponds to the growth of the support ratio. The second component is the second dividend which is the rate of growth of productivity. In the NTA approach, the age profiles of consumption and labor income are calculated for each age in the population to give the age profiles of consumption and labor income. In the period of simulation for the demographic transition and dynamics, the

associated support ratio is calculated holding the shape of the age profiles of consumption and labor income fixed. Equation (4) gives the definition of the support ratio.

$$\frac{L(t)}{N(t)} = \frac{\sum_{a=0}^{\omega} \gamma(a)P(a, t)}{\sum_{a=0}^{\omega} \phi(a)P(a, t)} \quad (4)$$

Equation (4) indicates that the support ratio measures the effect of age structure on the capacity of a population to contribute to current production. It should be noted that given labour productivity, 1% increase in support ration leads to 1% increase in per capita growth (Mason 2011).

4.3. Data Sources, Estimation Procedures and Limitations

The *lifecycle deficit* (LCD) is the difference between consumption (C) and production or labor income (y^l). This means that the main variables of interests are the consumption and labor income components. In order to obtain estimates for LCD, estimates must therefore be obtained for the two variables. The main sources of data for the estimation of components of the 2005 Ghana LCD include the following:

Data for the National Income Accounts was obtained from the 2005 Social Accounting Matrix (SAM) For Ghana, published by the Ghana Statistical Services (GSS) and International Food Policy Research Institute (IFPRI) under the Ghana Strategy Support Program (GSSP) October, 2007 (see Breisinger et al., 2007). Other sources include the GDP newsletter from Ghana Statistical Service and the World Bank World Development Indicators. The Population data was obtained from suggested citation: United Nations, Department of Economic and Social Affairs, Population Division (2013).

The age profile allocation was derived using the 2005 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 (September 2005 to September 2006). Detailed information was collected on demographic characteristics of respondents and all aspects of living conditions including health, education, housing, household

income, consumption and expenditure, credit, assets and savings, prices and employment. This study, however, 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. Table 1 provides the main process of data collection.

Table 1: Process of Data Collection

S/N	Variable	Micro data analysis	Macro data needed
1	Lifecycle Deficit	Calculated as difference between No 2 and No 12	Not applicable
2	Consumption	Calculated as addition of No 3 and No 7	Not applicable
3	Public Consumption	Calculated as addition of No 4, No 5 and No. 6	Not applicable
4	Public Consumption, Education	Age profile of student enrolment in government schools	Government financial statistics
5	Public Consumption, Health	age profile of spending in government health facilities	Government financial statistics
6	Public Consumption, Other	Total government expenditure less expenditure on education and health	Government financial statistics
7	Private Consumption	Calculated as addition of No 8, No 9 and No. 10	Government financial statistics
8	Private Consumption, Education	Age profile of spending by individuals on education	Sectoral distribution of GDP
9	Private Consumption, Health	Age profile of spending by individuals on health	Sectoral distribution of GDP
10	Private Consumption, Others	GLSS	Sectoral distribution of GDP
11			
12	Labor Income	Calculated as addition of No 13 and No 14	Not applicable
13	Earnings	Age profile of earnings of employees	Compensation of employees (GDP)
14	Self-employment Labour Income	Age profile of earnings of self-employed persons	Operating Surplus (GDP)
15			
16	Population by age		

Table 2: Aggregate Control for 2005 Lifecycle Deficit for Ghana

	Gh Cedis	Gh Cedis
Lifecycle Deficit		43,670.70
Consumption		93,934.00
Public Consumption		14,901.00
• <i>Education</i>	3,875.74	
• <i>Health</i>	2,272.10	
• <i>Other</i>	8,753.16	
Private Consumption		79,033.00
• <i>Education</i>	2,906.65	
• <i>Health</i>	1,108.52	
• <i>Other</i>	75,017.83	
Labour Income		50,263.30
• <i>Compensation of Employees</i>	35,692.60	
• <i>Self-employed Income</i>	14,570.70	

5. Deriving the NTA Estimates

The age profiles for consumption and labor income are presented and subsequently used them to construct the lifecycle deficits. We first present the profiles for consumption (private and public) as well as the labor income profiles. Finally, the lifecycle deficit and Ghana's first demographic are presented.

5.1. Public Consumption

We present in Figure 1 the public consumption profiles which consist of public consumption on education, health and other. Other public consumption accounts for 58.7 percent of total public consumption whilst public consumption on education and health account for the remaining 41.3

percent. This notwithstanding, the shape of public consumption is influenced by both education and health. Whilst the shape of the public consumption for up to age 20 is influenced by public consumption on education, that after age 20 is influenced by the shape of public consumption on health. Other public consumption category which includes all public expenditures aside those on education and health such as the provision of defense and community amenities among others are assumed to be allocated equally among all age groups. This corresponds to 400,000 Ghana Cedis for all age groups (see Figure 1).

The public consumption profile for education reveals extremely large transfers to the younger population. As evident public consumption on education increases sharply from age 3 peaking at age 12. It then declines sharply initially until age 26 and then gradually until age 40. This result is not surprising as it is consistent with public consumption profile in several other countries like Kenya (Mwabu et al., 2011).

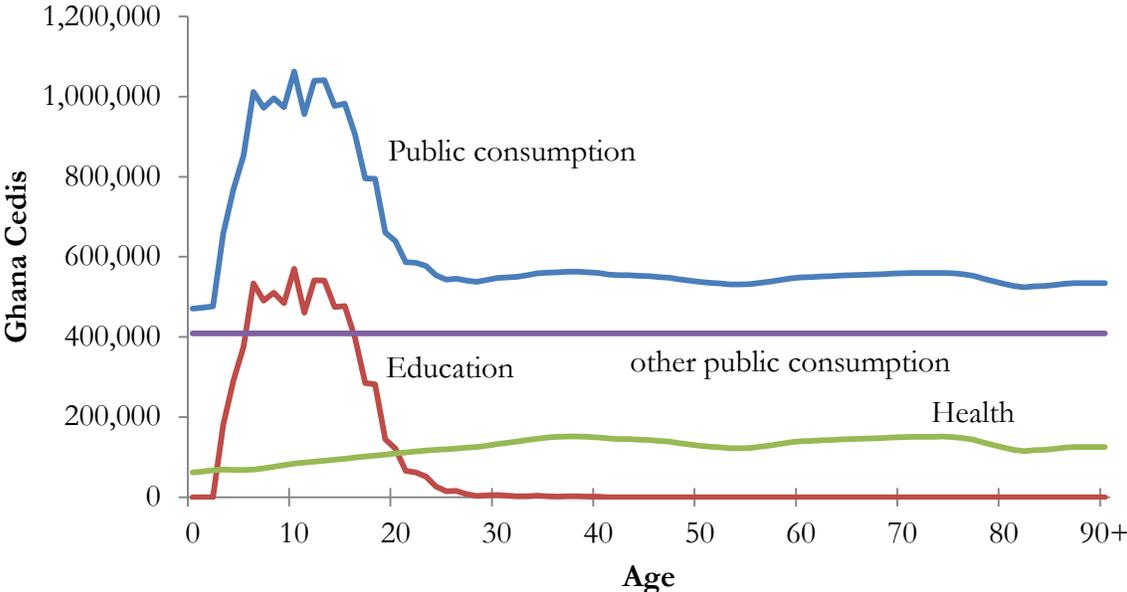


Figure 1: Age profile of per capita Public Consumption Expenditures, Ghana, 2005, current prices

The result for public consumption on health is, however, surprising as it indicates that government rather cares for the working age population than the younger and the elderly population. It rises gradually for earlier years till age 38 and then declines until age 55. It rises

again and remains almost stable until age 78 and then declines again. The public health consumption profile of Ghana is a bit similar to that of Kenya; the only difference is that the latter has its public health consumption relatively higher for very young children (Mwabu et. al, 2011). The results achieved here are unanticipated but are possible for two reasons: the National Health Insurance Scheme (NHIS) and for increased expenditure on HIV treatment. The NHIS was introduced in Ghana in 2003. And during the period under study, children were only enrolled on the NHIS through their parents. This means that children of enrolled parents were only able to utilize care, covered by the NHIS, in their parents' name. It is therefore possible that treatment cost of such children were recorded under their parents. Government unflinching support in controlling some diseases including HIV/AIDS, in Ghana in recent times must have increased its expenditure on health of categories of population that are highly affected by the disease. For instance, report on HIV prevalence among pregnant women in Ghana in 2005 indicates that the rate among individuals between ages 20 and 49 years constitute about 20.3 (GHS, 2010). In particular, between 45 and 49 years, the prevalence rate was 5.0, the highest amongst the different age intervals. The median prevalence rate in Ghana in 2005 is 2.7% and the peak age group is 35 to 39 years for males and 30 to 34 years for females (GHS, 2007). The treatment of opportunistic infections from AIDS has been found to be expensive and thus places considerable strains on the delivery of health care services in Ghana. These reasons possibly could explain the profile of public health expenditure in Ghana in 2005.

5.2. Private Consumption

The private education profile shown in Figure 2 indicates that there is no private education consumption below ages 3 and after age 42, and thus it is pronounced between ages 3 and 34. The steep profile from age 3 to 6 explains the quality of education in private schools as against the public ones. Private education rises quite steadily, albeit with fluctuations until age 17 where it peaks. More students enroll in government secondary schools and this explains the relatively gentle profile since the public schools at this stage is deemed quality in Ghana. However, beyond age 17, private education consumption fluctuates, albeit with a decreasing trend between the ages of 25 and 42. The reason is that, persons who hitherto do not have the requisite qualifications

found it necessary to upgrade by doing some short courses. However, after age 42, there is no private education consumption.

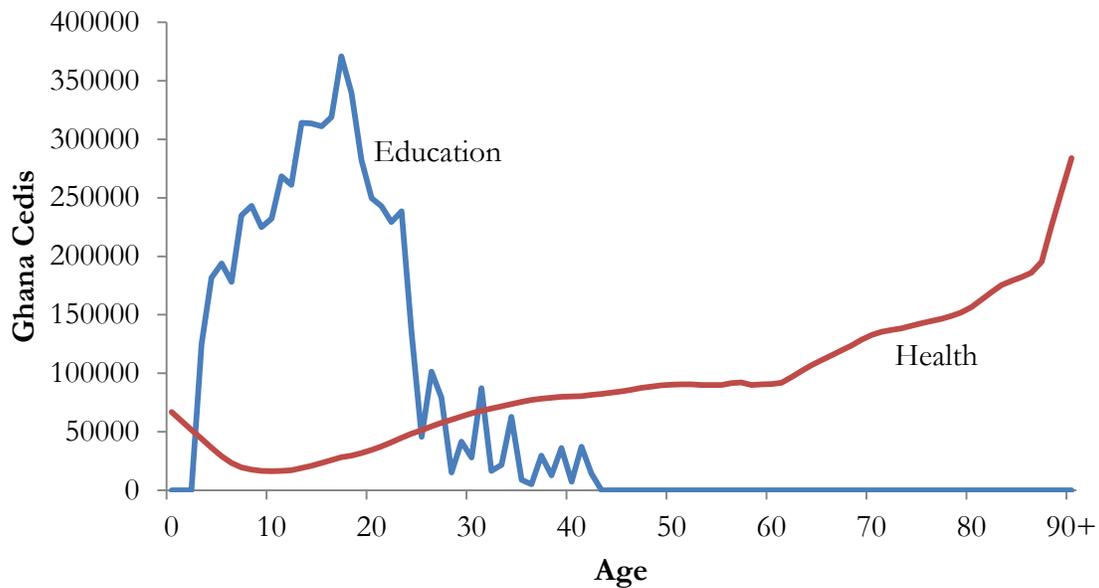


Figure 2: Per capita private education and health consumption: Ghana, 2005

Private health consumption profile also shown in Figure 2 indicates that, private health consumption increases swiftly after age 60. Children below age 10 are more susceptible to diseases and hence consume more health care than older children. Private health consumption starts increasing gently after age 11 until age 60 where the depreciation in health status would have been pronounced, and hence warranted a sharp increase in private health expenditure. The shape of the private health consumption profile is similar the public health consumption profile of Germany which falls steadily till age 5 and then rises sharply at age 80 (Kluge, 2011). The age difference here is a reflection of the much longer life expectancy for Germany relative to Ghana.

Other private consumption, shown in Figure 3, portrays a steady rise in the early stages of the working age peaks at ages between 22 and 36 and stabilizes around age 40. This is however, not surprising because most people find themselves establishing their households and families and hence incur higher social expenditures like marriages around these ages in Ghana.

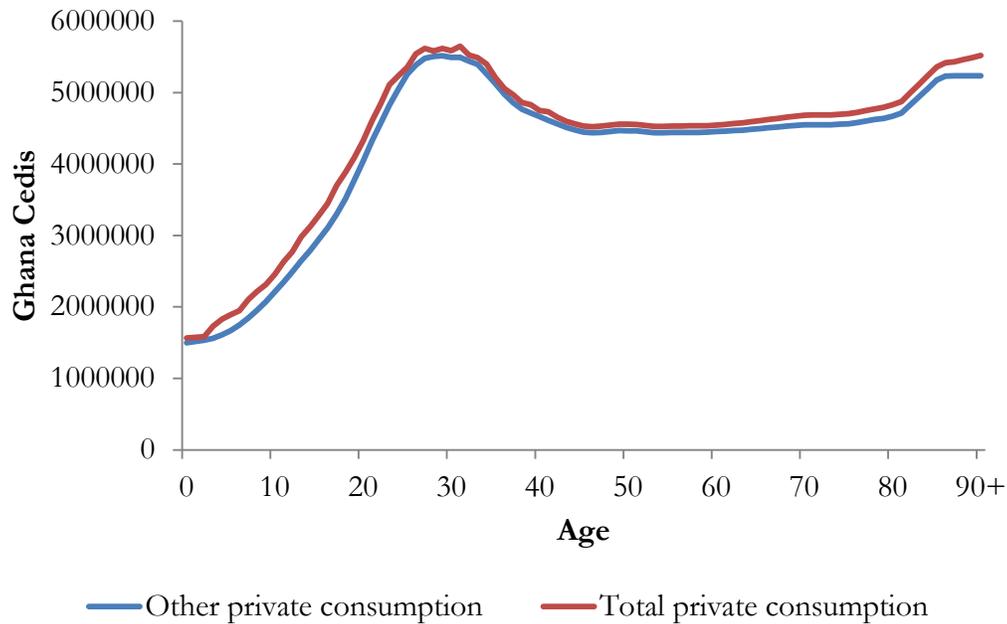


Figure 3: Per capita other and total private consumption: Ghana, 2005

5.3. Labor Income Profiles

Figure 4 shows the income profiles for wage earners and self-employed income earners in Ghana in 2005. The figure indicates that the compensation of employees (earnings) profile starts at age 16 and rises sharply until age 27 and thereafter rises gently and maintains its pace until it peaks at age 50. The rate of decline in the earnings profile is, however, relatively swifter than its rise, as it ends at age 82. This is indicative of the compulsory retirement of formal workers around age 60. Also, some individuals voluntarily retire from the labour force possibly due to health reasons. The result is consistent with the recent life expectancy in Ghana which is 61.04 in 2005 (United Nations, 2013). The self-employment income profile starts at age 6 and rises slowly with age, and peaks at age 57. Self-employment labor income suggests that there is no retirement from work in the informal sector. Also, the younger ages in the labor income profile suggests the prevalence of child labor or a relatively high proportion of economically active children in Ghana. This is not surprising though, since the situation is normal mostly in the rural areas of

Ghana where children are actively engage in agricultural activities. However, in the urban areas, a significant proportion of these children are engaged in some form of petty trading whiles others are engaged in running errands in hotels and restaurants (GLSS, 2005).

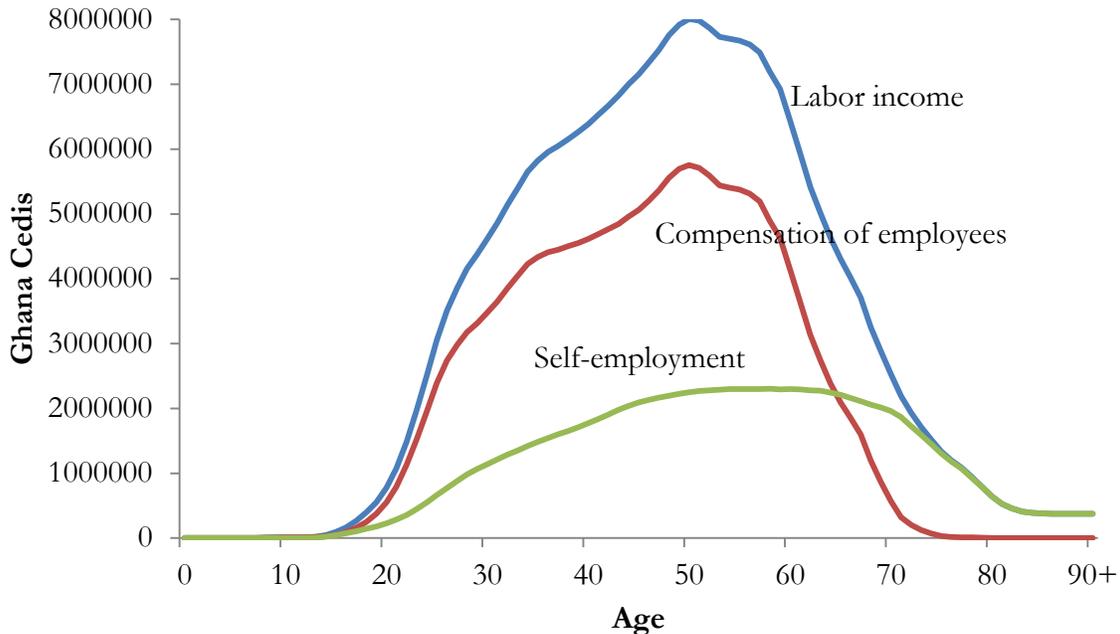


Figure 4: Per Capita Profiles of Labour Income: Ghana, 2005

The earning and self-employment profiles also indicate the high participation rate in the labor force. The GLSS V data actually estimates the labor force participation rate in 2005 to be approximately 70 percent or seven out of every ten Ghanaians were economically active. Thus, the steep profiles at the older ages suggests the comparatively, young adults involvement in the labor force is higher than their older counterparts. This is also in accordance with expectation.

5.4. The Lifecycle Deficit

The lifecycle deficit (Figure 5) is also displayed along with labor income and consumption. Essentially, we obtain a surplus for the working-age adults and a deficit for the dependent age groups – children and the elderly. This is in accordance with theoretical expectation. Comparatively, the lifecycle deficit is smaller among children than among the elderly, which is

expected. However, the deficit for young adults starts to drop quite sharply after age 20 when individuals have started earning income but not sufficient to outweigh their consumption. In Ghana, the lifecycle surplus starts at age 35 and ends at age 62 (i.e., the surplus window lasts for 27 years). Thus, Ghanaians aged between 35 and 62 earn more income than they consume. It also indicates that individuals become self-sufficient at age 35, that is, where consumption is exactly equal to labor income.

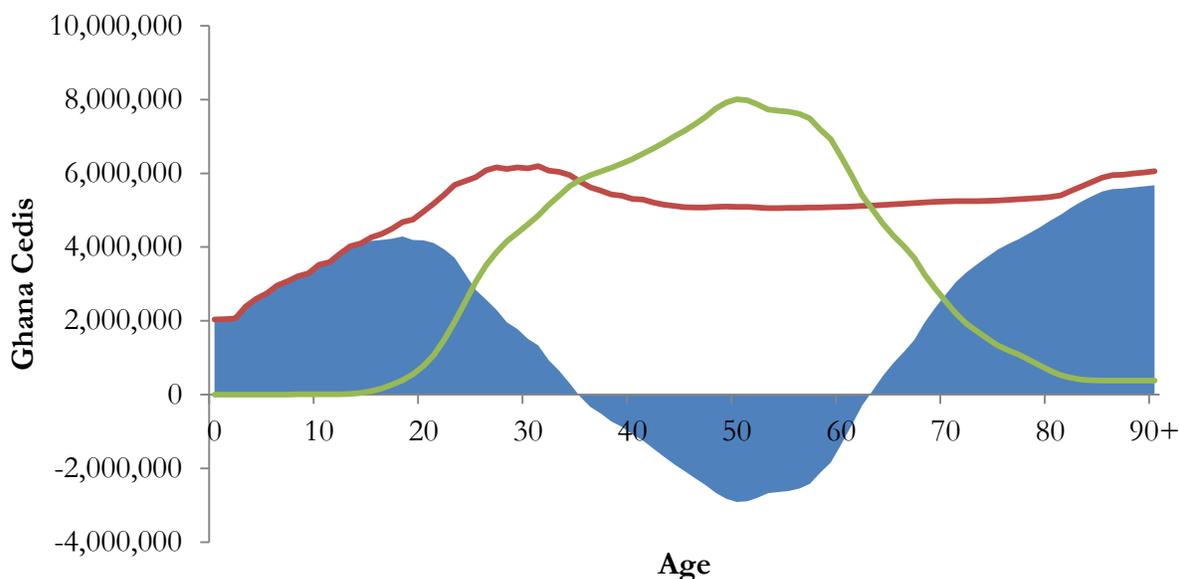


Figure 5: Age Profile of per capita Lifecycle deficit: Ghana, 2005

In other words, the per capita lifecycle profile explains the unemployment situation in Ghana, as it is relatively difficult for the youth to chance on a decent job which consequently would allow them to be self-governing in achieving their consumption needs. Incidentally, our result is similar to the profile of South Africa for which their lifecycle surplus lasts for 27 years (i.e., 33 – 60 years). Again, the lifecycle deficit in Ghana reaches its minimum at age 50. Thus, the difference between the mean consumption and mean labor income is greatest at that age.

Figure 6 also presents the aggregate deficit calculated by multiplying the per capita lifecycle deficit by the population in each age group. The profile indicates a colossal deficit for the young dependent persons in Ghana. This reiterates the importance that needs to be attached to the youth in the Ghanaian population. The GLSS V data shows that more than one third (35.3

percent) of the working population of Ghana falls within the 15 and 24 age bracket; the age cohort internationally recognized as the youth population (GSS, 2008).

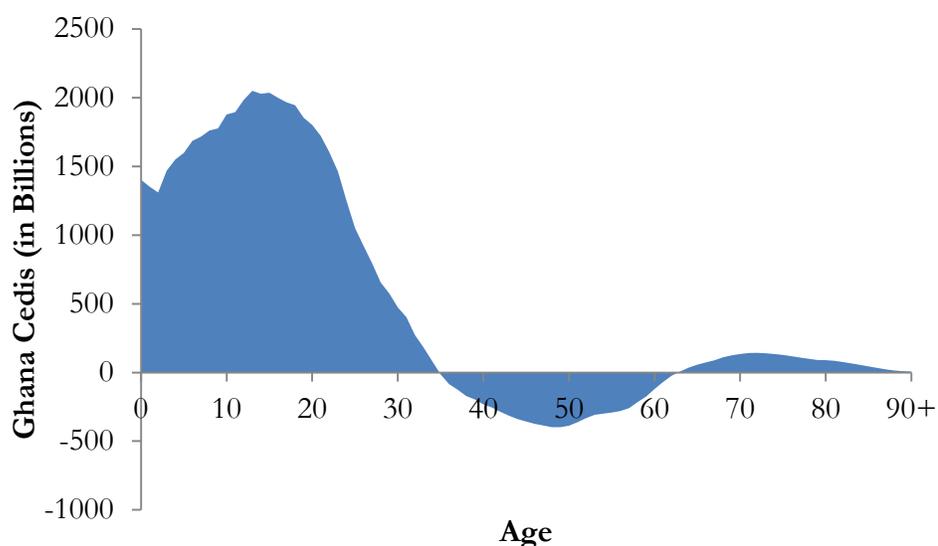


Figure 6: Age Profile of Aggregate Lifecycle deficit: Ghana, 2005

The youth population in Ghana is, however, officially defined to include persons between the ages of 15 and 35 years. According to the GLSS V data, this group constitutes 62 percent of the working population. The large share of the youth in the working age population does not only reflect the youthful nature of Ghana’s population but also the fact that the population growth rate among the youth is in excess of the national population growth rate. The aggregate lifecycle deficit profile suggests the need for policies geared towards making the youth more productive than mere dependents which would eventually inhibits growth.

6. Ghana’s First Demographic Dividend

We have shown in the preceding section the lifecycle deficit which makes it possible for us to estimate the first demographic dividend for Ghana. This is determined by the support ratio. The support ratio is the ratio of the effective number of producers to the effective number of consumers (United Nations, 2013). It is computed as the inverse of the dependency ratio. The support ratio has remained the standard tool for analyzing the economic effect of changes in the population age structure. In other words, it shows how workers have to support non workers. For

example, a support ratio of 0.5 means that each worker is, on average, supporting himself or herself plus one other consumer.

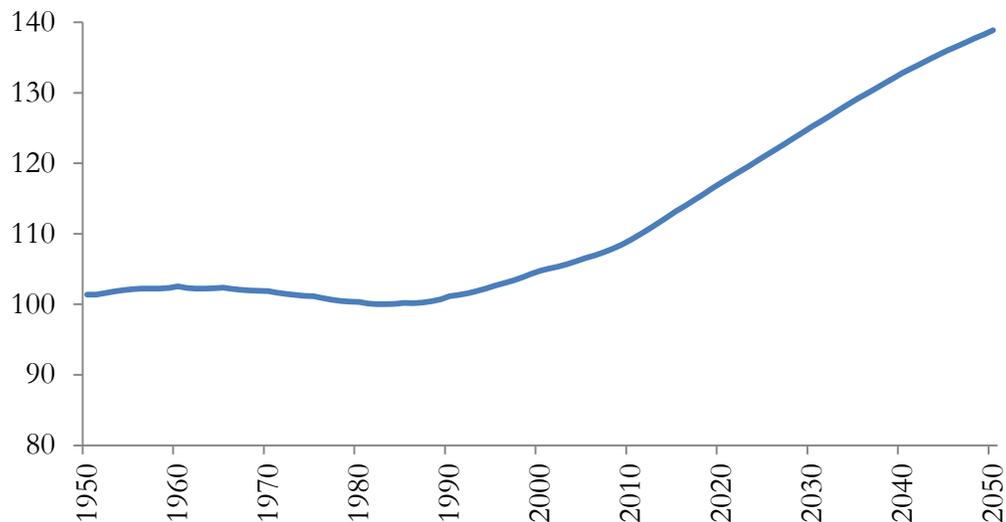


Figure 7: Economic Support Ratio, Ghana 1950 – 2050

Figure 7 shows the support ratio of Ghana from 1950 – 2050. The figure indicates that, between 1950 and 1983, workers had to struggle to support more people. In contrast, beyond 1983, the support ratio saw a tremendous improvement which consequently implies that each effective worker is supporting fewer effective consumers. This potentially frees up resources that can be used to raise per capita consumption, increase saving, or both and hence leading to the enjoyment of the first demographic dividend.

Figure 8 shows the growth rate of effective producers and effective consumers. The figure reveals that, the growth rate of effective producers and effective consumers peaked at 3.60 percent in 1984 and 3.58 percent in 1983 respectively. They both fluctuate until around 2009 and then decline continuously until 2050 at a growth rate of under 3 percent.

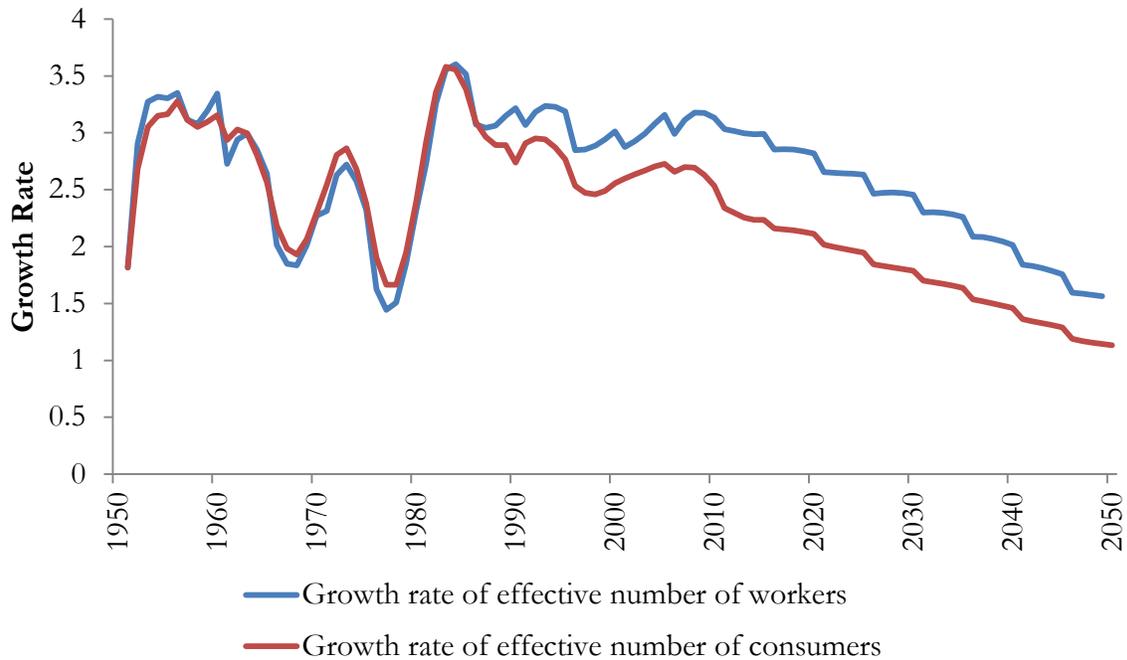


Figure 8: Growth Rates of Effective consumers, effective producers and support ratio, Ghana, 1950-2050

The first demographic dividend in Ghana is shown in Figure 9 which is drawn from the difference between the growth rates of the number of effective producers and effective consumers. As shown in the figure, the country started experiencing the first demographic dividend since 1990 and it is expected to peak in 2031. Our results contradict the findings of some African countries like Nigeria and Senegal whose demographic dividend started periods after the year 2000. This is not surprising since the periods after 1983 in Ghana have seen positive growth rates in per capita GDP which hitherto had a much fluctuating with negative rates. Since 2000, per capita GDP growth rates have steadily increased (World Bank, 2013) and currently Ghana is deemed to have attained a lower middle income status after rebasing of the National Accounts to reference year of 2006 (GSS, 2011). Indeed, the dividend is expected to last beyond the year 2050.

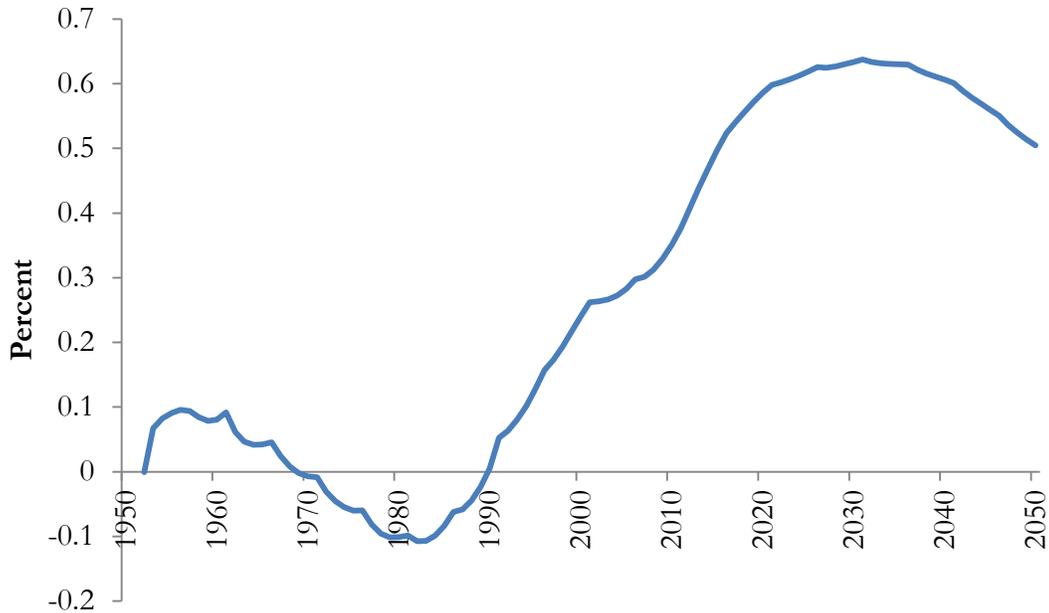


Figure 9: First Demographic Dividend, Ghana, 1950-2050

6. Discussion and Policy Implications

Declining fertility levels imply that the proportion of the working population will rise relative to the population of children who earn little or no labor income. And a growing working-age population relative to the dependent population that requires support is one essential contributor to economic development. The results of this study reveal that, in Ghana individuals do not become autonomous until age 35. Thus, child (young) dependency delays into an unexpected age of 34 in Ghana while on average old-age dependency starts after age 62. Our results support the proposition of collectivist cultures which emphasize family and work group goals above individual needs or desires. Thus, a young employed adult spends much on the extended family which delays his or her ability to become self-sufficient. Thus, the lifecycle surplus in Ghana spans over a relatively short period of 27 years. The implication is that economic development is thwarted despite the potential of the productive working population.

Another implication of our results is that, since the early 1990s, the demographic dividend for Ghana has remained positive and will stay positive till 2050. Similar to the results of Nigeria, the dividend is expected to peak around 2031. However, the difference between our

results and that of Nigeria is the early start of the dividend relative to theirs. A possible explanation could be due to the higher fertility rate in Nigeria relative to that of Ghana. Incidentally, Ghana's first demographic dividend is expected to last for about four decades. It stands to reason therefore that, Ghana is currently almost halfway through the period of positive first demographic dividend.

The fact that life expectancy in Ghana has been quite growing though not quite impressive, suggests that people live longer and healthier. An important outcome is how to maximize the benefits of the demographic dividend, which can be used to increase consumption, raise current living standards, and some be invested in human and physical capital or strengthen institutions that consequently would lead to sustained higher economic growth (Mason and Lee, 2006).

To enjoy the dividend, however, it is important to enlarge the working-age population and providing them with enough job opportunities. However, the main feature of the Ghanaian economy and its labor market is the informality of employment and employment relationships. For instance, in 2008 the Ghana Statistical Service estimated that more than 80 percent of the employed are working in the informal sector (GSS, 2008). Also, according to the Institute of Statistical and Economic Research (ISSER, 2008), an estimated 250,000 young people enter the labor market every year. Out of this number, the formal sector employs just 5000 (i.e., 2 percent). The remaining 98 percent are therefore compelled to seek employment in the informal economy. Thus, in the absence of social safety nets such as unemployment insurance and the continued weakening of the extended family support system, unemployment and underemployment are inevitable especially for young people. This situation may account for the heavy dependence and could potentially drain the dividend achieved.

Again, the weight of the informal sector in Ghana is invariably affecting government revenue since the informal economy is deemed to evade taxes a lot. This could hinder public developments in infrastructure and institutions. Another striking feature of the labor market in Ghana is the income inequality. The Ghana Living Standards Survey (2005) showed that income inequality, as measured by the Gini Coefficient is 0.39. This figure was an improvement over the antecedent survey estimate. Thus, the World Bank estimates that the growth in the income inequality during the last decade reduced the poverty reduction impact of growth in Ghana by

almost 3 percentage points. Nonetheless, poverty among the working class is still quite high despite the general decline in the incidence of poverty in the country. At the same time, Ghana achieved a sustained increase in economic performance (World Bank, 2006). The growth path in the country appears to have therefore impacted negatively on the performance of the Ghanaian labour market. This could be due to the mismatch between the skills of the labor suppliers and the needs of the labor demanders. Growth in the industry and service sectors of Ghana in recent times means that the demand for high-skilled labor has become apparently important. At the same time, the quality of these high-skilled laborers seems relatively missing. Thus, investments in physical infrastructure and effective human capital are needed at the universities and schools in general to train and improve the quality of workers and to prepare them to meet the needs of firms.

Another issue worth emphasizing is the growth of the working population in Ghana. In addition to the unemployment situation, focusing on the highly skilled labor alone in the medium term could have a pernicious effect. Thus, a policy which focuses on unemployed young people seems appropriate. Currently, the government of Ghana in collaboration with some private institutions has instituted an intervention program (Ghana Youth Employment and Entrepreneurial Development Agency) to help the unemployed youth develop some skills in the area of ICT, environment and sanitation and security and also to provide them with some earnings for a living. This policy is aimed at providing the youth with some productively entrepreneurial skills which would in the long term help them generate incomes for themselves and other dependents.

To harness the dividend, recent governments have focused also on some key economic policies which are intended to drive growth. Between 1990 and 2011, the average growth rate in Ghana has been 5.4 percent. However, the average growth of the country between 2005 and 2011 was 7.7 percent (World Bank, 2013). This reveals that the prospects of the first demographic dividend are much synchronized with the observed economic growth patterns in Ghana. In 2011, Ghana was dubbed the fastest growing economy in the world and such an achievement could be linked to the dividend Ghana is experiencing and it is expected to even increase further for almost the next two decades. Therefore, prudent monetary policies, educational policies, fiscal

policies inter alia, are essential in sustaining the benefits accruing from the first demographic dividend and subsequently the second demographic dividend.

7. Concluding Remarks

This study is a contribution to the recent estimation of demographic dividends for countries particularly in the developing world. As it was argued in the late twentieth century that, countries in Sub-Saharan Africa are unlikely to earn the demographic dividend, the paper has sought to estimate the demographic dividend of Ghana using the National Transfers Accounts approach in 2005. This is the first attempt to estimate the demographic dividend for Ghana using this approach. At the same time, the paper provides estimates of the lifecycle deficit for Ghana in 2005 which reveal several intriguing results.

The estimates reveal that Ghana's population is predominantly youthful and that those under age 35 and those over age 62 are effectively dependents. That is, they consume more than they produce in the labor market, thus general lifecycle deficits. Also, individual autonomy begins at age 35 and runs for 27 years before they become reliant again. The labor income profile suggests the high labor force participation rate. Though, participation rate in the labor market is high, incomes generated by workers are quite low relative to their consumption levels thus leading to huge deficits.

References

- African Economic Outlook, (2013). *Real GDP Growth Rates, 2004-14*,
<http://www.africaneconomicoutlook.org/en/data-statistics/table-2-real-gdp-growth-rates-2003-2013/>
- Bank of Ghana [online] Available at
http://www.bog.gov.gh/privatecontent/Publications/Annual_Reports/annrep%202011%20chpt%203a.pdf
- Basu, A. M. (2002). 'Why does Education Lead to Lower Fertility? A Critical Review of Some of the Possibilities' *World Development*, 30(10) 1779-1790.

- Bloom, D., Canning, D., and Sevilla, J. (2003). The Demographic Dividend: A New Perspective on the Economic Consequences of Population Change. *Population Matters*, RAND Corporation. www.rand.org/pubs/monograph_reports/2007/MR1274.pdf
- Breisinger, C., Thurlow, J. and Duncan, M. (2007). “A 2005 Social Accounting Matrix (SAM) for Ghana, available at <http://www.gtap.agecon.purdue.edu/resources/download/4257.pdf>
- Gaisie, S. (2006), Fertility Trend in Ghana, *African Population Studies*, Vol. 20. No. 2: [online] Available at www.bioline.org.br/pdf?ep05009
- Ghana Education Service, (2011). *Education Sector Performance Report – 2010*, <http://www.idpfoundation.org/Ghana%20MoE%20Ed%20Performance%20Report%202010.pdf>
- Ghana Health Service (2010), The Health Sector in Ghana: Facts and Figures, 2010, available at <http://www.moh-ghana.org/UploadFiles/Publications/GHS%20Facts%20Figures%2010APR2012.pdf>
- Ghana Health Service (2007), http://www.ghanahealthservice.org/documents/Main%20Text_Technical%20%20Policy%20Guidelines%20TB%20HIV%2031%20Jan%2007.pdf
- Ghana Statistical Service (2008, 2011), <http://www.statsghana.gov.gh/>
- Gribble, J. and Bremner, J. (2012). The Challenge of Attaining the Demographic Dividend, *Population Reference Bureau*. September 2012.
- Institute of Statistical, Social and Economic Research (2008). The State of the Ghanaian Economy in 2007. Legon: Institute of Statistical, Social and Economic Research (ISSER), University of Ghana.
- Kluge, F. A. (2011), “Labor Income and Consumption Profiles: the Case of Germany”, in R. Lee and A. Mason, “*Population Aging and the Generational Economy: A Global Perspective*”, Cheltenham, UK, pp 327 – 339.
- Kyereboah-Coleman, A. and Agyire-Tettey K. F. (2008). Impact of Macroeconomic Indicators on Stock Market Performance: The Case of the Ghana Stock Exchange. *The Journal of Risk Finance*, Vol.9 No 4, pp 365-378
- Lee, R. and Mason, A. (2006). What is Demographic Dividend? *Finance and Development (IMF)*, 43(3), <http://www.imf.org/external/pubs/ft/fandd/2006/09/basics.htm>

- Lee, R. and Mason, A. (2011). Population Aging and the Generational Economy: Key Findings, *Population Aging and the Generational Economy*, Editors: Lee R and Mason A, 3-31.
- Lee, R., Lee, S.-H., and Mason, A. (2008). “Charting the Economic Lifecycle”, in A. Prskawetz, D. E. Bloom and W. Lutz (eds), *Populating Aging, Human Capital Accumulation, and Productivity Growth*, supplement to *Population and Development Review*, 34, pp. 208 – 237
- Martin, K. A. (2012), “The Demographic Dividend in Bangladesh: An Illustrative Study”, Available at <http://bea-bd.org/site/images/pdf/40.pdf>
- Ministry of Finance and Economic Planning (2011), Joint Review of Public Expenditure and Financial Management, Accra.
- Ministry of Health, (2013). *Holistic Assessment of the Health Sector Programme of Work 2012, Ghana*, [www.moh-ghana.org/UploadFiles/Publications/2012 Holistic Assessment Report of 130715062103.pdf](http://www.moh-ghana.org/UploadFiles/Publications/2012%20Holistic%20Assessment%20Report%20of%20130715062103.pdf)
- Mwabu, G., Muriithi, M. K. and Mutegi, R. G. (2011), “National Transfer Accounts for Kenya: the Economic Lifecycle in 1994” in R. Lee & A. Mason (eds), “*Population Aging and the Generational Economy: A Global Perspective*”, Cheltenham, UK, pp 367 – 378
- NTA (2010). National Transfer Accounts, <http://www.flickr.com/people/nationaltransferaccounts/>
- Singh, T. (2012), “Demographic Dividend in China: The Challenge Ahead”, Institute of Peace and Conflict Studies (IPCS) Special Report No. 121, New Delhi. Available at http://www.ipcs.org/pdf_file/issue/SR121-CRP-DemographicDividendinChina.pdf
- UN [United Nations] Population Division (2011), *World Population Prospects: 2010 Revision*, New York: Department of Economics and Social Affairs, United Nations.
- United Nations, Department of Economic and Social Affairs, Population Division (2013). *World Population Prospects: The 2012 Revision*, CD-ROM
- World Bank, World Development Indicators [online] Available at <http://data.worldbank.org/>
- World Bank, (2013). Ghana Overview, <http://www.worldbank.org/en/country/ghana/overview>

