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In Quest of Inclusive Growth: Exploring the Nexus between Economic Growth, Employment, and Poverty in Tanzania

Rizwanul Islam and Abel Kinyondo

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- strengthen national and international poverty research networks, and forge linkages between research(ers) and users.

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Special Paper
14/2

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By Rizwanul Islam and Abel Kinyondo

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POLICY RESEARCH
REPOA
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List of Abbreviations

GDP	Gross Domestic Product
ILFS	Integrated Labour Force Survey
MDGs	Millenium Development Goals
NBS	National Bureau of Statistics
PPP	Public Private Pertnership
URT	United Republic of Tanzania

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Abstract

Tanzania's impressive economic growth during the past decade has not resulted in significant poverty reduction. It is in that context that this study seeks to analyze the nexus between economic growth, employment and poverty in a manner that contributes to the understanding of how the rate poverty reduction can be accelerated.

The paper presents a framework for the analysis of the nexus between economic growth, employment and poverty reduction and attempts an application of that framework. The key to the analytical framework is growth of employment in relation to output growth and structural transformation of employment towards sectors and activities with higher productivity so that output growth translates into higher incomes of the poor. Given the limitations of data in Tanzania and the broad scope of the analytical framework mentioned above, its application in the present paper remains limited, partial, and exploratory.

While the change in the structure of employment has been very small, the elasticity of employment with respect to output growth has been rather low. The incidence of poverty is linked to the type and sector of employment: poverty being higher amongst those in agriculture and in self-employment. Amongst the self-employed, those without any additional employee have a higher incidence of poverty compared to those with some employees.

Econometric analyses of factors influencing labour force participation show that variables such as age and marital status have positive impact on participation regardless of gender. Households in rural areas show higher participation in the labour force compared to their urban counterparts. However, contrary to *a priori* expectations, the influence of education is found to be statistically insignificant.

1 Introduction

The stubborn persistence of poverty in many parts of the developing world remains a major challenge for policy makers, development practitioners, and researchers alike. This is the case despite high rates of economic growth[1] attained by many countries, especially before the onset of the global economic crisis of 2008–2009. While some countries suffered setbacks in growth during and after the crisis, many developing countries have achieved sustained economic growth for nearly two decades. A number of countries in sub-Saharan Africa have also joined the ranks of those experiencing decent rates of economic growth, although there are variations in the timing of growth resumption and the rates of and regularity with which growth has been attained. And yet, the fight against poverty is far from being won. In fact, if one goes by the MDGs as yardsticks of progress, one would note that although MDG1 of halving poverty by 2015 (compared to the benchmark of 1990) is going to be achieved at the global level, many countries are not likely to achieve that goal. Tanzania is one such country.[2]

While economic growth is a necessary condition for poverty reduction, it is not sufficient by itself. However, since labour is generally the only or the most important asset that the poor possess, utilisation of and returns to labour constitute a major factor in translating the benefits of growth into incomes for poor households. Yet, the relationship between growth and employment is also variable. The employment intensity of growth may vary from country to country and during different periods within the same country. This can play an important role in strengthening the link between economic growth and poverty reduction. Empirical evidence is now available for substantiating the above arguments (for example, Islam, 2006a, 2006b; Khan, 2007; etc.). Strategies and policies for poverty reduction, therefore, would need to be based on a good understanding of the nexus between growth, employment, and poverty.

Tanzania has attained a GDP growth of almost 7% per annum during the 2000s.[3] But the decline in the incidence of poverty has been rather disappointing.[4] Indeed, the performance on the employment front has not been encouraging. It thus appears that achieving inclusive growth remains a challenge for Tanzania. The purpose of the present paper is to undertake a preliminary exploration[5] of the nexus between economic growth, employment, and poverty in the country, with a view of contributing to the understanding of how the pace of poverty reduction could be accelerated, especially through productive employment and income generation.

The present paper is organised as follows. The second section presents a framework for analysing the nexus of economic growth, employment, and poverty. Section 3 looks at the record of growth

[1] Here, the term high is not used in the same quantitative sense as the one employed in the report from the Growth Commission, where GDP growth of 7% and above is regarded as high growth.

[2] Various reports mention the prospect of Tanzania achieving MDG1 of halving poverty as "unlikely" or "not achievable". See, for example, URT (2011a).

[3] Based on data available in the various economic surveys released by the Ministry of Finance, URT, the average GDP growth during 2000–2010 works out to be 6.96% per annum.

[4] As we shall see later in this paper, data are available only up to 2007. What has happened after that remains a conjecture.

[5] This paper is preliminary for a variety of reasons, including data limitations, especially the non-availability of recent data on the relevant variables. Furthermore, a comprehensive exercise on the linkage between economic growth, employment, and poverty would also involve analysis of the important sectors of the economy, e.g. agriculture, manufacturing, construction, and tourism. Analysis of all those sectors would make the paper too lengthy. The basic purpose of this paper is to present a framework of analysis and provide empirical illustrations of some of the framework's elements. In that sense, the present exercise may be treated as a demonstration of one line of investigation that may be pursued in the area of employment and poverty. In this respect, it is worth mentioning that REPOA is developing a programme of research in the area of employment and labour market, under which further work relating to the nexus of growth, employment, and poverty will be carried out.

and poverty in Tanzania and puts it in the context of the performance of a selection of East Africa countries that are at similar levels of development. Section 4 moves on to provide an overview of the situation regarding unemployment and underemployment in Tanzania. By using elasticity of employment with respect to output, the section presents a preliminary estimate of the employment intensity of growth in Tanzania. In section 5, projections of employment are presented to provide an idea of the quantitative dimension of the employment challenge that Tanzania is likely to face in the medium term. Section 6 goes beyond the quantitative aspect of employment to the qualitative side and looks at issues like structural transformation and the composition of employment. This section also looks at differentials in earnings between sectors and types of employment and uses the data to enter the debate on the labour market in Tanzania. In that context, the important issue of labour market segmentation and its possible impact on poverty are examined. Section 7 provides an analysis of a few variables that have an impact on poverty, like sector and status of employment, sources of cash earnings, the scale of self-employment, and education. Finally, Section 8 presents an econometric analysis of the determinants of labour force participation, while some concluding observations are reserved for Section 9.

2 The Conceptual and Analytical Framework[6]

2.1 The links between growth, productive employment, and poverty reduction

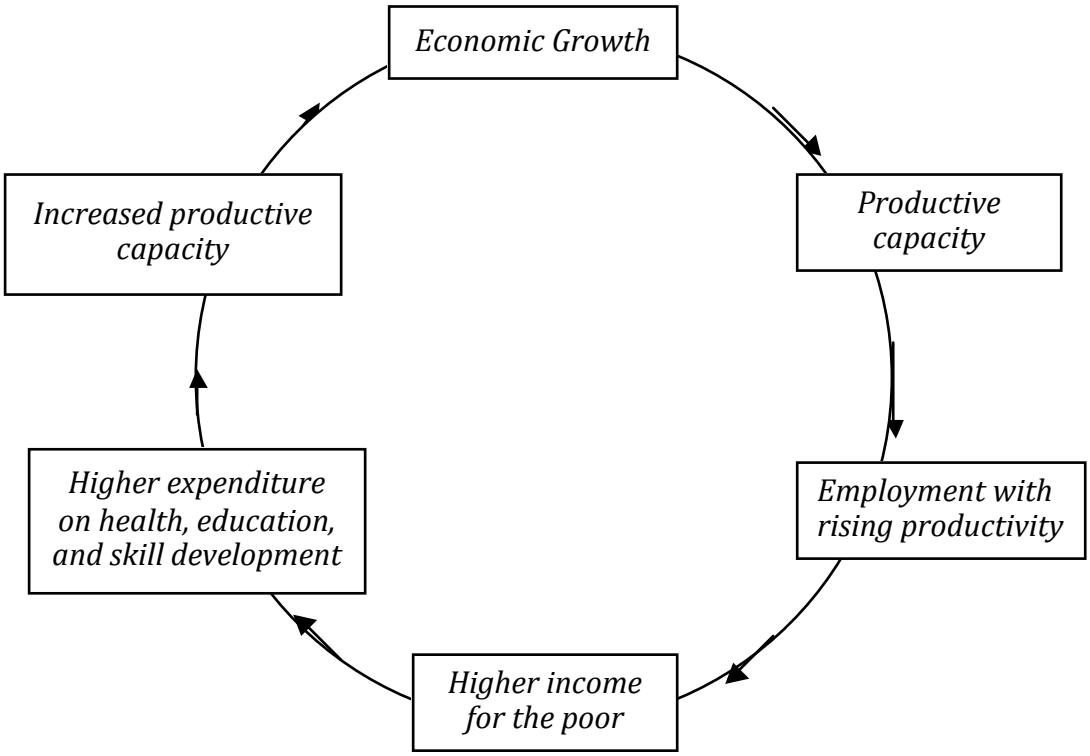
Conceptually, the linkage between output growth, employment, and poverty can be analysed at both macro and micro-levels. At the macro-level, the linkage between the income dimension of poverty and output growth can be conceptualised in terms of the average productivity of the employed workforce which, in turn, is reflected in low levels of real wages and low levels of earnings from self-employment. At the household level, or micro-level, the linkage between poverty and employment operates through the type and productivity of economic activities in which the household's earning members are engaged, the level of human capital of the workforce members, the dependency burden that limits participation in the workforce, and the availability of remunerative employment (the latter, in turn, is associated with the poverty reduction and growth strategy that is pursued by a country).[7]

A low average productivity of the workforce can be due to deficiency of capital relative to labour and the use of out-dated technology. The role of productive employment in transforming economic growth into poverty reduction in that kind of situation can be conceptualised in terms of the following process: When high rates of economic growth lead to sustained increases in productive capacity, productive employment opportunities should be generated. That, in turn, would allow for a progressive absorption and integration of the unemployed and underemployed into expanding economic activities with higher levels of productivity.[8] In the process, the poor would be able to achieve higher labour productivity and increase their incomes in existing occupations or shift to new occupations involving higher levels of productivity, skills, and/or better technology. The results of the process described above could be reflected in (i) improved productivity of various sectors and occupations, (ii) a shift in the structure of employment towards occupations with higher levels of productivity, and (iii) increases in real wages, earnings from self-employment, and earnings from wage employment.

Higher levels of earnings resulting from the process mentioned above would enable workers to spend more on their children's education and skill formation, thus raising the productive capacity of the future workforce and creating the necessary conditions for achieving higher levels of economic growth. The process would thus complete the virtuous circle of economic growth leading to poverty reduction via growth of employment with rising productivity and reduced poverty, creating the possibility of further increases in productivity and higher rates of economic growth (see Figure 1).

[6]This section draws on earlier work by one of the present authors, especially on Islam (2006a, 2010).
[7] The processes described here have their roots in empirical evidence. See, for example, the country studies in Islam (2006a).
[8]The emphasis is placed on *productive* employment and the expansion of economic activities with *higher* levels of productivity because the expansion of any type of employment may not be effective in raising incomes and reducing poverty unless earnings can increase substantially simply through increased quantity of employment.

Figure 1: Virtuous circle of links between growth, employment, and poverty reduction



The conceptual framework outlined above for analysing the linkage between economic growth, employment, and poverty basically follows a demand–supply approach. From the demand side, the variables that are expected to influence incomes of the poor include employment intensity of growth, shifts in the employment structure towards higher productivity sectors, technology, creation of assets for the poor, etc. From the supply side, important factors are the ability of the poor to integrate into the process of economic growth and to access these newly created jobs. Levels of education and skills of the workforce, and access to productive assets and credit, are amongst the key variables that determine the ability of the poor to integrate into and benefit from the growth process.

2.2. Measuring employment intensity of economic growth through employment elasticity

A summary indicator of the employment growth associated with a given output growth is provided by the elasticity of employment with respect to output growth (for overall GDP, measured as the proportionate change in employment divided by the proportionate change in GDP during a given period). This implies that employment elasticity could be taken as a surrogate for employment intensity of growth. But employment elasticity reflects the inverse of labour productivity. While an elasticity higher than unity implies decline in productivity, an elasticity lower than unity means that employment expansion is taking place along with an increase in productivity. A rise in productivity

would lead to a reduction in employment elasticity. Therefore, raising employment elasticity in individual activities cannot be the objective, as that would mean a further lowering of productivity in economies that may already be characterised by widespread low-productivity employment.

Two further questions need to be raised regarding levels as well as changes in employment elasticity. As for the level, the desirability of an elasticity of lower than unity has been mentioned above. How much lower than unity it should be (i.e. the right order of magnitude for the elasticity of employment) depends on the level of development and the relative factor endowment of the country concerned. The magnitude would also have a good deal of sectoral variation. The overall elasticity being a weighted average of sectoral elasticities, greater allocation of investment in more labour-intensive sectors and higher growth rates in such sectors could yield a situation where the overall employment elasticity increases (even with declining elasticities in some sectors). And the result could be higher employment growth with given GDP growth or employment-intensive growth.

The above discussion can be summed up as follows. While a high rate of economic growth is the starting point of a process of sustainable poverty reduction, the second factor that needs to accompany growth is a high degree of employment intensity (without of course compromising on increases in productivity in individual sectors/activities). Other important factors are the ability of the poor to integrate themselves into the process of economic growth and to access these newly created jobs (Osmani, 2006). These, in turn, may be influenced by a variety of factors, e.g. The workforce's level of education and skills, the poor's access to capital and other productive assets, labour market institutions and social norms (e.g. segregated labour markets, discrimination), etc.

Even after employment elasticity is estimated, its link to poverty remains to be examined. In a cross-sectional study with data from a reasonable number of countries, it may be possible to examine this linkage. Doing this for a single country would require appropriate time-series data on the incidence of poverty as well as estimates of employment elasticity. When such data are not readily available, one should see if the level and direction of change in employment elasticity is appropriate from the point of view of its level of development, incidence of poverty, and the existence of surplus labour. Such an analysis can be done by referring to the experiences of countries that are regarded to have demonstrated success in achieving employment-intensive, pro-poor growth and in either abolishing poverty altogether or in reducing it substantially.

2.3. Going beyond a quantitative measure of the employment intensity of growth

The analysis of the summary indicator of the employment intensity of economic growth, as suggested above, would need to be supplemented by a more detailed examination of whether and how growth has led to structural changes in an economy, which have (or have not) benefited the poor. In that regard, the first important thing to examine would be the sectors and occupations where the poor are concentrated and what the trends in productivity and earnings in various occupations are like. The second important task would to examine whether there are discernible shifts in the structure of employment towards occupations with higher productivity. The third important element in transmitting the benefits of growth to the poor would be gains in real wages and earnings of wage-paid workers and real earnings of the self-employed. An examination of the linkage between

real wages and productivity would enable one to examine whether the benefits of growth have reached the poor.

The above discussion focused basically on a macro-level analysis of how economic growth could contribute to poverty reduction through increases in employment in higher productivity sectors/occupations and a rise in real wages. A similar analysis could be carried out at the micro-(household) level to examine the impact of employment and labour market-related variables on poverty. Conceptually, it is possible to think of a number of such variables, which could influence the probability of a household being poor in terms of inadequate income. The variables could be asset related (e.g. the possession of income-generating assets), human capital related (e.g. education and skill levels of the working members of a household), or employment related (e.g. the sector and quantity of employment, wages, productivity, etc.). Once necessary data are available for quantifying variables of the kind mentioned above and for identifying whether a particular household belongs to the poor or non-poor category, standard econometric methods (e.g. the estimation of a PROBIT model) can be applied to examine the influence of employment and labour market-related variables on the probability of a household being poor. Although such methods have not been applied in the present paper, some relevant data have been examined from the point of view of the linkage between employment and poverty.

2.4. Possibility of a trade-off between employment-intensive growth and labour productivity

Mention has already been made on the inverse relationship between employment elasticity and labour productivity, which implies the possibility of a trade-off between employment growth and labour productivity. In reality, however, this trade-off does not have to be very serious. One can see this easily if one remembers that in an accounting framework, both the quantity of labour input and labour productivity contribute to output growth. Depending on the policies pursued, a country may be able to achieve a balanced contribution of both these elements towards output growth. This proposition is explained further below.

For an economy as a whole, output is equal to the product of the labour force employed and labour productivity. This can be expressed through the following identity:

$$Y = L \times Y/L, \qquad (1)$$

where Y and L stand for output and employment, respectively.

For small changes, one can write the above as

$$\Delta Y = \Delta L + \Delta Y/L, \qquad (2)$$

where Δ indicates growth rate.

Expression (2) implies that growth in output is the sum of the growth of employed labour force and growth of labour productivity. Thus, both employment in quantitative terms and labour productivity can potentially contribute to output growth. Indeed, if output growth is sufficiently high, there could

be scope for substantial increases in both employment and productivity growth.[9] And that has been the experience of East and South East Asian economies like Republic of Korea, Taiwan, China, Malaysia, and to a lesser extent Indonesia and Thailand (especially before they were hit by the East Asian economic crisis in 1997–1998). Appropriate policies can help avoid the often mentioned possibility of a trade-off between employment and productivity.

2.5. Inclusive growth: A suggested characterisation

Although the term 'inclusive growth' has now been in use in the development community for some years, there is no universally accepted definition or characterisation that is applied or accepted. While some approaches focus more on the process (e.g. participation in the process of economic growth which, in turn, could be through employment), there are approaches that focus more on outcomes like income and its distribution.[10] In order to define the concept in a meaningful way, it would be necessary to go beyond an approach focused only on process and on a concept like participation, which is not amenable to quantification and can be interpreted in a variety of ways. Indeed, in a broad sense, every member of the workforce (except those openly unemployed) participates in the growth process in the sense that (s)he does something that contributes to the economy. Hence, bringing real meaning to the definition would necessitate focusing on both the process and outcome. While the process of inclusion can be captured through measures relating to employment, the outcomes can be assessed in terms of income relative to some benchmark of poverty, inequality, and other dimensions of human development (e.g. education and health). Another important element of inclusiveness is the degree of social protection provided by a society. The following elements would be important from the point of view of making growth inclusive.[11]

- Sustainable economic growth;
- Reduction of poverty and inequality in the distribution of income;
- Opportunities for productive employment;
- Improvement in the access to education and health services; and
- Basic social protection floor for all citizens.

[9] Equation (2) above, which can be used for a decomposition exercise, basically provides an accounting framework and does not imply anything about the existence or absence of an inter-linkage between the two terms on the right-hand side, viz., employment and labour productivity. These two are obviously related; growth in labour productivity may have an employment displacing as well as an employment creating effect, and the net effect will depend on the relative magnitudes of the two effects.

[10] See Islam (2011) for an analytical overview of the various and currently used definitions of the term 'inclusive growth'.

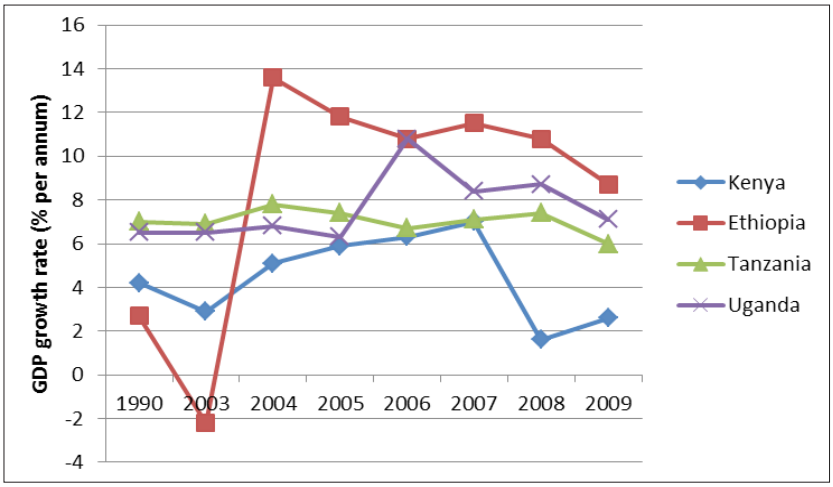
[11] It may be noted in this context that a country might do well in one or more of the indicators listed here but not in others. In such a situation, the issue of how to characterise growth in that country would arise. In order to fully address such a question, it would be useful to have a composite measure of inclusive growth. But then the issue would be one of devising such a measure and quantifying it. At the present state of knowledge on the subject, it is not possible to do so. For further elaboration of the various elements of inclusive growth mentioned here, see Islam (2011).

3 Economic Growth and Poverty in Tanzania: An Overview

3.1. The overall growth performance and a regional perspective[12]

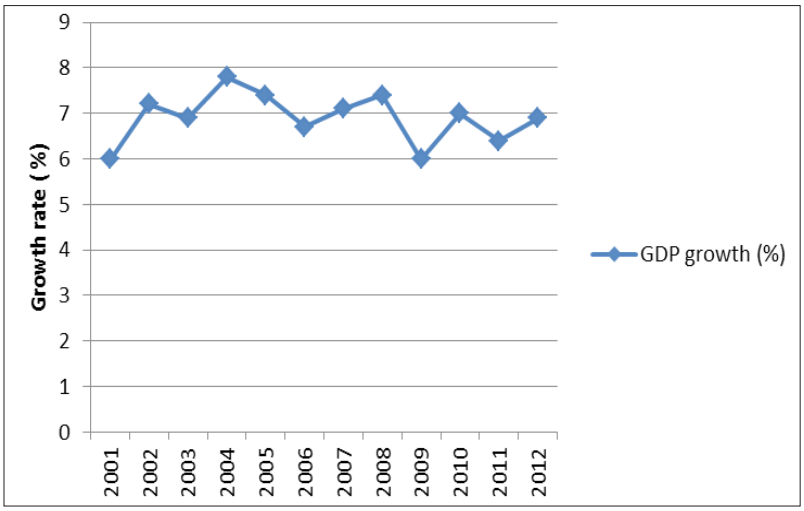
The performance of Tanzania's economy during the 2000s has been quite impressive if overall GDP and per capita income growth are considered. In terms of GDP growth during the 2000s, Tanzania has performed better than Kenya, although Ethiopia and Uganda seem to have done even better (Figure 2). However, Tanzania's growth demonstrates greater stability compared to those of other countries (Figure 3).

Figure 2: GDP Growth Rates in Selected Countries of East Africa



Source: World Bank (2011)

Figure 3: Annual GDP Growth (%) in Tanzania (2001–2011)

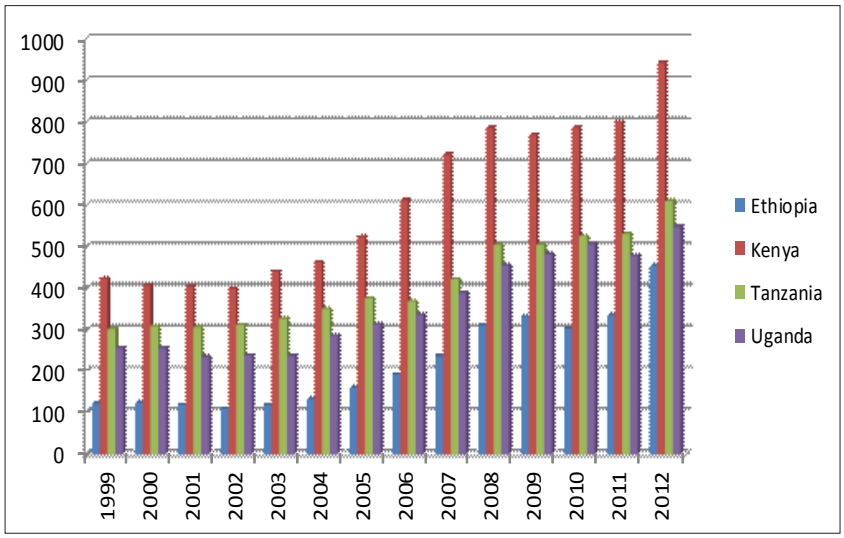


Source: URT, Ministry of Finance: the Economic Survey, various years

[12] For an in-depth analysis of the growth performance of Africa as a whole and sub-Saharan Africa in particular, see (ILO, 2011). That report looks at the growth performance in relation to the broad goal of decent work, including productive employment and social protection, and mentions employment as "the missing dimension in the current growth optimism on Africa" (p. 33).

Meanwhile the per capita income of Tanzania has consistently increased during the past 15 years and only came second to that of Kenya in period indicated in Figure 4. Note, however, that although Tanzania's per capita income has been impressive for over a decade, two alarming facts remain. First, the gap between Kenya and Tanzania has widened during this period. Second, Uganda and especially Ethiopia have succeeded in significantly closing the gap with Tanzania over the same period.

Figure 4: Annual Per Capita Income in Selected Countries of East Africa



Source: World Bank (2013)

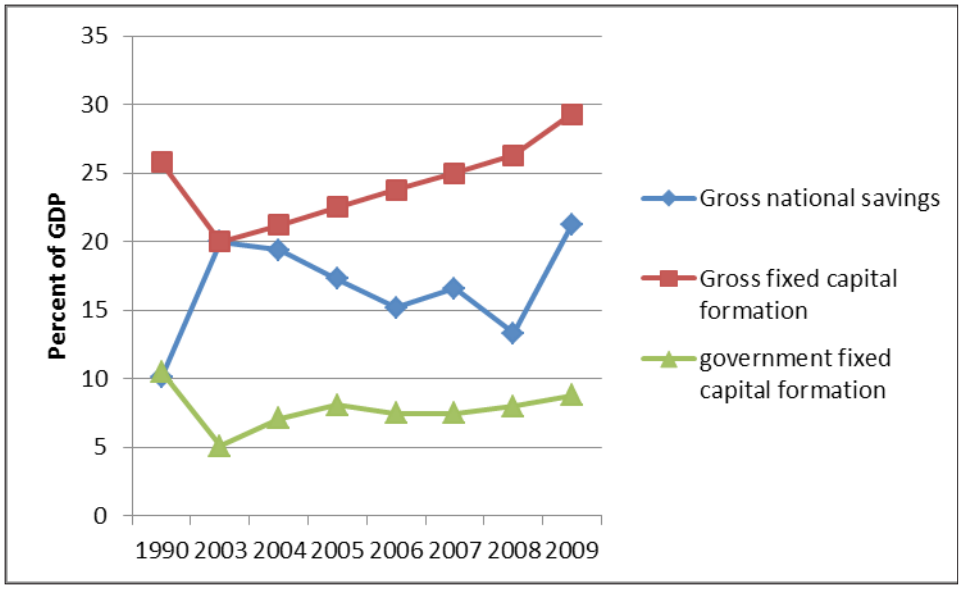
The paradox above, where relative GDP growth does not fully correspond with relative per capita growth, could be explained by population growth trends in the past 15 years in the East African region. This is especially so due to a substantial increase in Tanzania's population compared to the other selected countries (World Bank, 2013). Indeed, while Tanzania's population grew by 20% in the period, Uganda's only grew by 9.7%. Population growth in Kenya was even less, at 3.8% over the past 15 years. Interestingly, in the same period, the population of Ethiopia grew by -9.7%, hence recording the lowest population growth in the region. The discussion on population growth in these countries is crucial since per capital income is obtained by dividing the gross domestic product by the population of a particular year. By implication, the significant increase in the population of Tanzania in the past 15 years has only served to minimise the per capita income value for the country.

3.2. Macroeconomic performance

In line with sustained GDP growth, other macroeconomic variables also demonstrate good performance by the economy of Tanzania, although there are areas of concern. While there has been impressive growth of investment, the same cannot be said about savings (Figure 5). In fact, the latter witnessed a gradual decline during 2003–2008 and reversed its downward trend

after that. Public investment is another area of concern. The share of public investment in GDP declined sharply in the 1990s and has not yet gone back to the 1990 level.[13] This may have serious implications for investment, which is critical for further economic growth. Moreover, public investment in infrastructure, especially in rural roads, irrigation, land development, etc., could also play an important role in employment creation (more on this will be said later in this paper).

Figure 5: Trend of Savings and Investment as a Percentage of GDP, 1990, 2003–2009



Source: World Bank (2011)

The other areas of concern are (i) the increase in the rate of inflation since 2007 and (ii) the persistence of budget deficits without grant at high levels. As for inflation, much of it may be food inflation that began in the wake of the global food price crisis that started in the second half of 2007. But the trend and the persistence of the rate of inflation is a concern and requires further investigation. Likewise, attention must be paid to the creation of fiscal space that may be needed for increasing public investment, extending and broadening the scope of the employment creation programme,[14] and for strengthening services in areas like education and health.

3.3. Poverty and inequality

Based on the international poverty line of PPP $1.25 per day, over two-thirds of the population of Tanzania were poor in 2007 compared to nearly three-fourths in 1992. This represents some progress, but is not very impressive, especially if one compares these statistics to what has been experienced in Ethiopia and Uganda (Table 1).

[13]Decline in public investment is a general concern in the countries of sub-Saharan Africa. See Muqtada (2012).
[14] See Kibria (2008) for a discussion of this programme (which was prepared for implementation during 2007–2010) and budgetary aspects.

Table 1: Percentage of Population below International Poverty Line (PPP $1.25/day)

Country	Year	Percentage in poverty	Year	Percentage in poverty
Ethiopia	1995	60.5	2005	39.0
Kenya	1997	19.6	2005	19.7
Tanzania	1992	72.6	2007	67.9
Uganda	1996	64.4	2009	28.7

Source: World Bank (2011)

The figures based on the national poverty line (presented in Table 2) also paint a disappointing picture of Tanzania's performance in poverty reduction. This observation applies to the figures on extreme poverty (based on the food poverty line) as well as moderate poverty (given by the basic needs poverty line). These results naturally give rise to the question of why, despite impressive economic growth, poverty has not declined at a commensurate rate.

Table 2: Poverty Trends in Tanzania (% below poverty based on national poverty line)

Poverty line	1991/92	2000/01	2007
Basic needs	38.6	35.7	33.6
Food poverty	21.6	18.7	16.6

Source: National Bureau of Statistics: Household Budget Survey (various years)

In the kind of situation mentioned above, one may ask if there has been a rise in inequality that may have blunted the poverty-reducing effect of growth. But in Tanzania, that does not appear to be the case, as there has been no major change in the degree of inequality. Of course, the measure of inequality in Tanzania is based on expenditure distribution rather than income distribution, and it is quite well known that the former usually demonstrates a lower degree of inequality because expenditure reflects income as well as borrowings and dis-savings. In fact, they generally show a lower degree of inequality compared to Gini coefficients based on income distribution.[15] Anyway, Gini coefficients based on expenditure distribution (Table 3) do not show much change in inequality in Tanzania over time.

Table 3: Trend in Inequality (Gini coefficients based on expenditure distribution)

Year	National	Rural	Urban
1991/92	0.34	0.33	0.30
2000/01	0.35	0.33	0.36
2007	0.35	0.33	0.34

Source: National Bureau of Statistics: Household Budget Survey (various years)

[15] This has been found in the case of Bangladesh and India.

4 The Employment Performance of the Economy

4.1. Unemployment and underemployment

As mentioned in Section 2, performance in the area of employment and labour market is an important element in understanding the link between economic growth and poverty reduction. However, in an economy like Tanzania's (or, for that matter, in many developing countries), one does not expect the performance with regard to employment and the labour market situation to be reflected in open unemployment. This is due to a variety of reasons, including the definition of unemployment and the manner in which it is measured. In the case of Tanzania, an open unemployment rate based on the standard definition has been found to be very low (3% in 2006). It is also difficult to gauge the direction of change in open unemployment, because of the different age criterion used in the 2001 survey.[16] However, the report for the 2006 survey provides a table (URT, 2007, Table 8.1, p. 56) with unemployment rates for the population of over 10 years of age for both 2001 and 2006. That data shows a slight increase in unemployment rate from 2.3% in 2001 to 2.8% in 2006.

The LFS of Tanzania also uses a broader definition of unemployment that excludes from employment all those who were temporarily absent from work due to a variety of reasons (see Annex for a full description of the reasons). According to that definition (which is called the "national definition"), the overall rate of unemployment in 2006 was 11%. Compared to the figure of 12.9% for 2001, the figure for 2006 represents a decline in the unemployment rate. In fact, an "estimate" of employment and unemployment for 2011, as presented on a government website, mentions the rate of unemployment as 10.7%, which is a further decline.

The LFS report also provides estimates of underemployment based on a time measure, identifying persons working fewer than 40 hours per week as underemployed. According to this measure and the standard definition, 11.7% of the employed population was underemployed in 2006 compared to 11.2% in 2001. The national definition actually yields lower figures for underemployed: 5.3% and 6.5%, respectively, for 2001 and 2006.

4.2. Employment intensity of growth

It appears from the above figures that measures of unemployment and underemployment in the context of a country like Tanzania are not very helpful in understanding how the labour market is performing and how the link between growth and employment is working. As mentioned in the analytical framework presented in Section 2, employment intensity of growth, measured by elasticity of employment growth with respect to output growth, will be the starting point for such an analysis. The questions to ask in this regard would be as follows: (i) what is the level of overall employment elasticity in the economy as a whole and its key sectors, and (ii) what has been the direction of change in this parameter?.

Unfortunately, data required for estimating employment elasticity and examining its change over time are rather limited. First, the employment figures available from the LFS of different years are not comparable. Second, the data are available only for two years (2001 and 2006), and that does not provide the required data for examining the change that may have taken place over a period

[16]Comparison of results from the 2001 and 2006 surveys is difficult due to the different age cut-offs used in the two surveys. While the 2001 survey used 10 years and over as the age for being counted in the labour force, the 2006 survey used 15 years as the lower age limit. See Annex 1 for a detailed description of the differences in definitions used in the two surveys.

of time, especially if one were to compare what has happened between the 1990s and the 2000s or between the first and second halves of the 2000s. Nevertheless, in order to demonstrate the possible use of the concept and to have some rough idea about the level of employment intensity of growth in Tanzania's economy, estimates of employment elasticity have been made for the economy as a whole and for the manufacturing sector in particular. Given the absence of a reasonably long time series, the methodology of arc elasticity[17] has been applied, where elasticity of employment with respect to output growth is obtained simply by dividing the growth of employment with that of output during a given period of time. The results are presented in Table 4.

Table 4: Elasticity of Employment with Respect to Output

	Growth of output (% per annum)	Growth of employment (% per annum)	Elasticity of employment
Overall (2001–2006)	7.2	1.19	0.17
Overall (2006–2011)	6.8	3.57	0.53
Manufacturing (2006–2011)	8.5	4.98	0.59

Sources: Employment growth figures have been calculated from the LFS reports while output growth rates have been calculated from the Economic Survey (various years). The employment figures for manufacturing are also from the latter.

Note: As mentioned in the text, the results of the 2001 LFS are based on the criterion of 10 years and over, whereas those of 2006 are based on 15 years and over. This perhaps explains the low growth of employment and hence the very low employment elasticity during 2001–2006. The estimate for 2006–2011 looks more plausible because they are based on comparable figures of employment for the two years.

Despite serious data limitations, the estimates presented in Table 4 bring out a few interesting points. First, the very low estimate of overall employment elasticity for 2001–2006 is most likely due to the use of non-comparable employment figures, and hence may be ignored. Second, the overall employment elasticity (0.53) for the period of 2006–2011 appears quite plausible, and it would have been useful to have a credible estimate for the first half of the decade to see what has really happened during the decade. This should be possible if two comparable employment figures for 2001 and 2006 could be obtained.

The estimated employment elasticity for the manufacturing sector for the period 2006–2011 (0.59) appears to be rather low, especially given the economy's stage of development.[18] This is not surprising because the list of industries in the sector does not include many of the typical labour-intensive industries, like ready-made garments, electronics, leather products, etc.

[17] Ideally, elasticity should be estimated by using the regression method so that the measure is not influenced only by the end figures.

[18] For example, the elasticity of employment in the manufacturing sector of Bangladesh during 2000–2006 and 2006–2010 has been estimated as 0.78 and 0.87, respectively. The overall employment elasticity for Bangladesh was found to be 0.59 and 0.55 for these two periods – figures which are not very different from those estimated for Tanzania. The Bangladesh figures are from Islam (2012).

5 The Employment Challenge: A Preliminary Indication of the Quantitative Dimension

In an economy like Tanzania's, where unemployment is low and people somehow manage to eke out a living, the jobs required may not provide a true indicator of the real challenge in the area of employment. In addition to numbers, it would be important to look at the type of employment (in terms of sectors, skill requirements, etc.) that must be created. We attempt to present some numbers as an indicator of the basic quantitative aspect of the employment challenge. But the numbers presented also take into account the possibility of making a dent in unemployment and underemployment. In that sense, the qualitative aspect of employment is also addressed to some extent._

The model used for projections is presented below.[19]

$$E_t = E_0 (1 + r_e)^t, \quad (1)$$

where E_t represents total employment in the terminal year of the projection period, E_0 represents total employment in the base year, and r_e represents the annual rate of growth of employment during the projection period.

$$r_e = \eta r_g, \quad (2)$$

where η represents elasticity of employment with respect to output, and r_g represents growth of output.

$$\eta = r_e \div r_g \quad (3)$$

The model described above uses the overall elasticity of employment for the economy as a whole to make a projection of total employment for the economy. However, depending on the availability of data, a disaggregated model may also be used which would permit projections by sectors, which could be added to arrive at the total. As data for Tanzania is very limited, it is not possible to use the sector model. But the model is presented below so that it may be used when the necessary data are available.

If sectoral disaggregated data on employment elasticity and output growth rates are available for an economy, they may be used to make employment projections at the sectoral level. And the total projected employment may be obtained as the total of the employment of all sectors. The following model may be used:

$$E_{it} = E_{io} (1 + r_{ei})^t,$$

where E_{it} is the target year employment in sector i, E_{io} is the base year employment in sector i, and r_{ei} is the growth of employment in sector i.

$$r_{ei} = g \mu_i \eta_i,$$

where r_{ei} is the annual rate of increase in employment in sector i, g is the annual rate of growth of GDP, μ_i is the sectoral growth elasticity, i.e. elasticity of sector i's output (value added) with respect to GDP, and η_i is the sectoral employment elasticity.

[19] This is an aggregate model and uses the overall elasticity of employment for the economy as a whole to make a projection of total employment for the economy. A model that uses a disaggregated approach is described below.

Projections are made for 2015. First, labour force is projected for 2015 by using the 2011 figure (available from NBS website referred to in URT, 2011b) as the base. The rate of labour force growth used is 3.3% per annum, which is the estimated rate of growth for the period 2006–2011. Second, for the purpose of employment projection, the elasticity of employment with respect to GDP growth is assumed to be 0.53, the same as estimated for the period 2006–2011. GDP growth is also assumed to be 7% per annum, which is the average growth during 2000–2011. Third, in order to examine the implications of higher GDP growth and higher degree of employment intensity of growth, alternative projections have been made by using different combinations of a higher growth of 8% p.a., and higher employment elasticity of 0.6. The results are presented in Table 5.

Table 5: Projections of Employment and Unemployment Rate for 2015

Assumptions regarding employment elasticity and GDP growth	Total employment (million) 2015	Additional employment during 2006–2015 (million)	Additional employment per year	Projected unemployment rate (%)
$\eta = 0.52$, g = 7%	24.75	6.81	756,000	5.35
$\eta = 0.6$, g = 7%	25.98	8.04	893,000	0.48
$\eta = 0.52$, g = 8%	25.89	7.95	883,000	0.83
$\eta = 0.6$, g = 8%	27.36	9.42	1,046,667	Negative

Note: η = employment elasticity and g = GDP growth rate

Source: author's calculations

The results of the projections presented in Table 5 indicate that if GDP growth and employment intensity of growth remain unchanged, as in the recent years, then the rate of unemployment is likely to increase from 3% in 2006 to 5.3% in 2015. This is because, in addition to the current backlog of unemployment, newly unemployed will be added every year, giving rise to the increase in the rate of unemployment. Unemployment can be reduced either through higher GDP growth or by making growth more employment intensive (which would be reflected in higher employment elasticity), or by both. This is shown in the alternative projections presented in Table 5. For example, with GDP growth unchanged at 7% and a higher employment elasticity of 0.6, the unemployment rate can be reduced substantially to 0.48%. Similar results can be achieved through higher GDP growth. And if employment intensity could be increased alongside higher GDP growth, unemployment would no longer exist.

In the above context, it needs to be noted that these projections deal only with the quantitative dimension of the employment challenge; nothing is said about the qualitative dimensions like the productivity of workers and the sector in which they would be employed. That issue would need to be addressed in addition to the quantitative dimension. However, once the problem of open unemployment can be taken care of, and employment growth continues to exceed that of labour force growth, the surplus labour available in the economy will be absorbed by sectors with higher productivity than where labourers are currently employed.

6 Developments in the Labour Market: From Quantity to Quality of Employment

6.1. Composition of employment by sector and employment status

As already mentioned in Section 2, in order to transmit the benefits of economic growth into poverty reduction, it is essential to have structural transformation in the economy, as well as the labour market, towards higher productivity sectors and activities. In an economy like Tanzania's, this would entail a shift in the employment structure towards non-agricultural sectors like manufacturing and services. In an economy based primarily on smallholder agriculture, where self-employment is the predominant mode of employment, it would be important to examine whether there has been a change in that respect, and, if not, what the implications are for accelerating the rate of poverty reduction. Important in this context would be to examine the earnings differentials and mobility between wages and self-employment, within self-employment, and within the broad spectrum of informal sector employment. That, in turn, would call for serious research on the operation of the labour market in Tanzania and its implications for poverty-reduction polices. While the present paper can only bring out a few relevant issues in that context, the concluding section will provide some ideas for future research with relevance to policy formulation.

Since the current section concerns the composition employment, let us first look at the composition of the employed labour force and changes (if any) therein by broad industry groups. Relevant data are presented in Figures 6 and 7. These data indicate very little structural transformation of employment of the kind that is needed to translate growth into poverty reduction to a significant extent.[20] Although employment in agriculture as a share of total employment has declined, this does not tell the entire story. For starters, the decline in this share is much lower than the decline in the sector's share in GDP, indicating a decline in productivity in the sector and perhaps a widening of the gap in productivity between this and the small modern sector. Furthermore, the share of modern sectors like manufacturing and finance remains very small. The share of manufacturing has grown from 2% to 3%. Finance does not even appear as a significant sector. Even a sector like construction, which normally registers fast growth in a growing developing economy, has not seen any increase in its share. In fact, this is potentially a labour-intensive area, and an increase in investment in infrastructure could give a boost to this sector. Moreover, a large part of this sector (especially rural roads, irrigation, etc.) has the potential for using labour-based approaches without compromising on productivity and efficiency. Hence, growth in this sector could help transfer labour from other low-productivity sectors. But this would require a reversal of the declining trend in public investment (as observed in Section 3 above).

[20]ILO (2011) notes that in sub-Saharan Africa as a whole, the recent phase of high growth has not been associated with structural transformation, and there has been a lack of industrialisation.

Figure 6: Percentage Distribution of Employment by Industry, 2000–2001

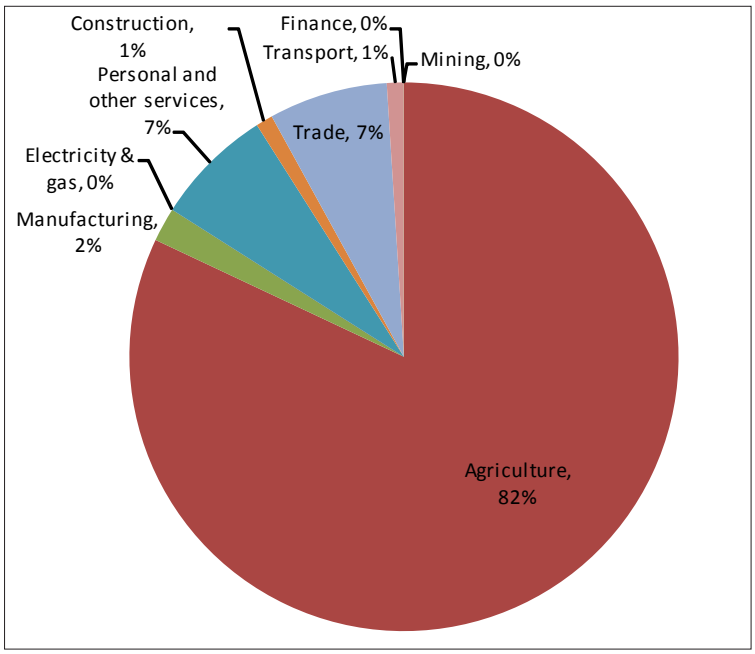
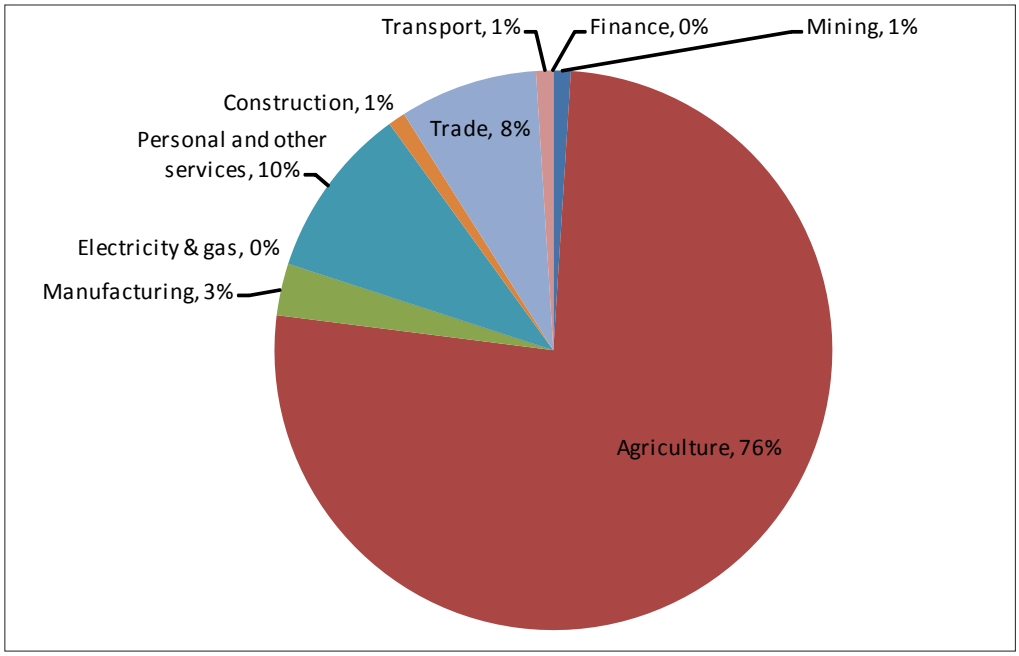


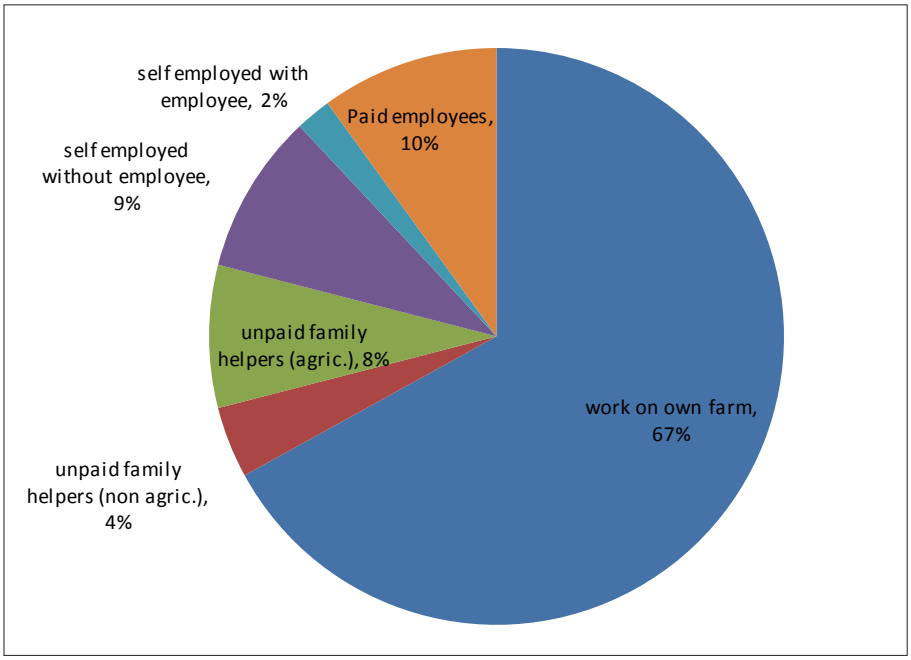
Figure 7: Percentage Distribution of Employment by Industry, 2005–2006



Source: URT (various years)

Data on the distribution of employment by status (Figures 8 and 9) also do not indicate a significant change in the structure of employment. Of course, a comparison of the two figures would appear to indicate a substantial decline in the share of work in one's own farm. But this is somewhat misleading, as a closer look at the data shows that while the 2006 data presented unpaid family helper in agriculture (8%) separately from one's own farm, the 2001 data did not display this separately. So, work on one's own farm would in effect account for 75% of the total in 2006. That also indicates a decline compared to 2001, and it would be interesting to see the direction of change. Some increase has taken place in the shares of paid employees and the self-employed (both with and without employees).

Figure 8: Percentage Distribution of Employment by Status, 2006



Source: URT (various sources)

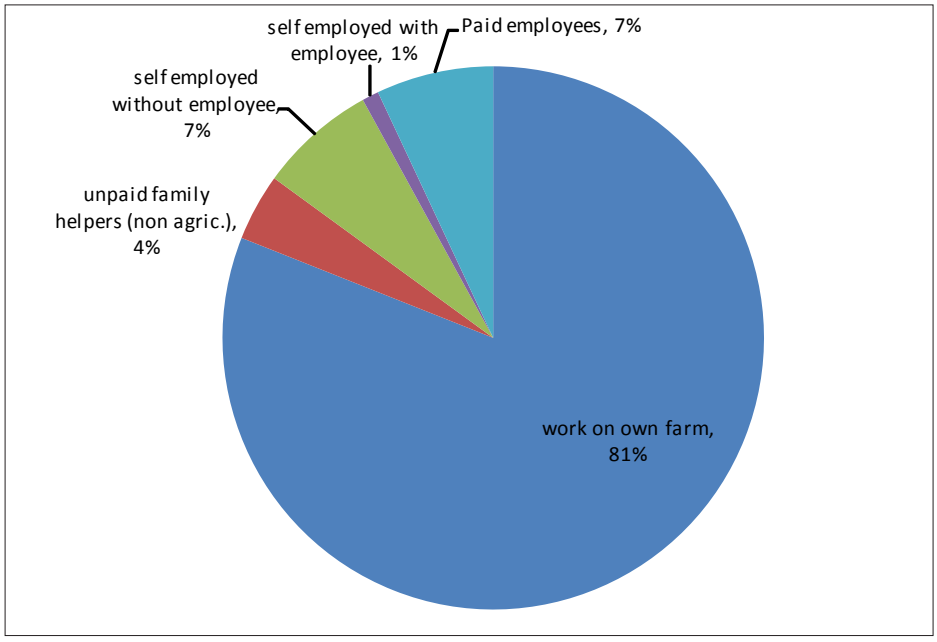
6.2. Earnings and mobility: Is the labour market in Tanzania segmented?

The above discussion brings up an important debate concerning the characteristics and functioning of labour markets in Tanzania (and low-income countries of sub-Saharan Africa in general). An important question about the labour market in sub-Saharan Africa in general, which would be relevant for Tanzania as well, is whether the labour market is segmented and whether there are barriers to mobility between informal and formal sectors.[21] This debate would be relevant in the context of poverty reduction because incomes in the informal sector are thought to be lower than in the formal sector. In the context of Tanzania, the above debate should be extended to look at the difference between self-employment and paid employment because the former is the major mode

[21]This debate started from the work on urban unemployment and migration, by Harris and Todaro (1970), and its extension by Fields (1975).

of employment, and yet, incomes of the self-employed are found to be lower than those in paid employment (as will be seen below).

Figure 9: Percentage Distribution of Employment by Status, 2001



Source: URT (various sources)

From the perspective of poverty reduction, the following points are highly interesting: (i) the differential in earnings between work on one's own farm on the one hand and the paid employees and self employed on the other, (ii) factors that influence such earnings differential, and (iii) the factors that influence mobility of workers between these various segments of the labour market.

Table 6: Adjusted Real Mean and Median Income (in 2001 Tshs) of Paid Employees and Self-employed 10+ years, 2000–2001 and 2006

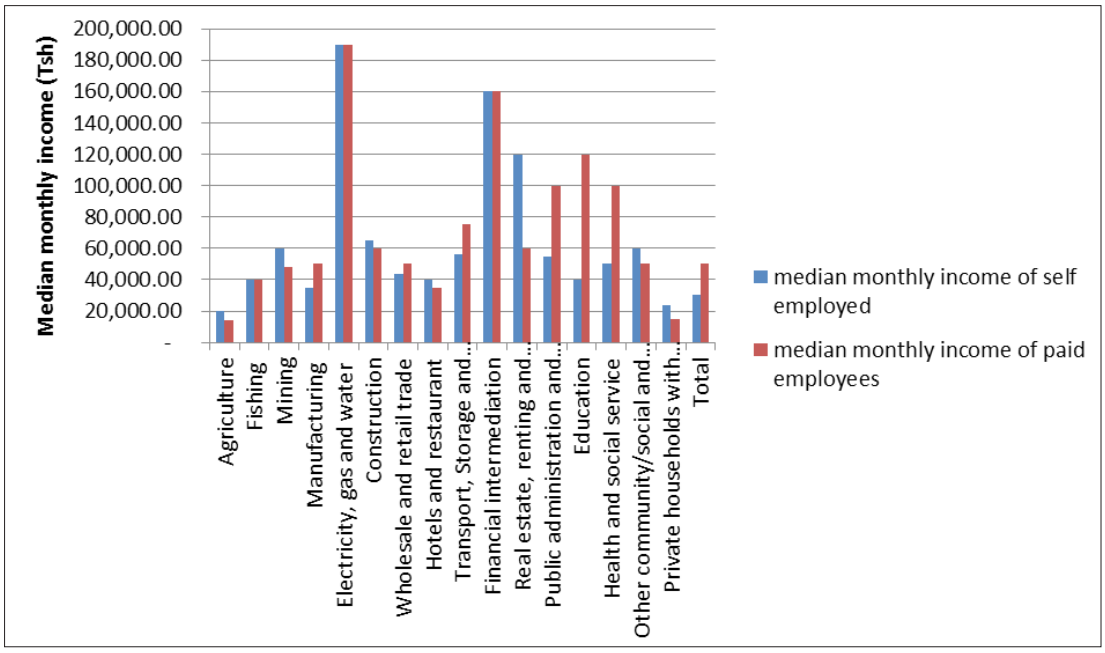
Type of employment	2000/2001	2006	Increase during 2001–2006 (%)
Mean income			
Paid employees	49,954	75,083	50.30
Self-employment	36,005	57,840	60.64
Median income			
Paid employees	30,000	38,580	28.60
Self-employment	17,143	23,148	35.03

Source: NBS: LFS 2006, referred to as URT (2007a).

Data presented in Table 6 bring out a couple of interesting points. First, whether one goes by mean or median income, earnings of paid employees are much higher than those of the self-employed. Second, the earnings differential between the two categories narrowed down in the short span of five years. From being nearly 39% higher in 2000–2001, the earnings by paid employees were about 30% higher in 2006 if mean income is used. If one uses median income as the comparator, the differential declined from 75% to about 67%. Thus, despite some convergence, earnings in paid employment remain much higher than in self-employment. Hence, a move away from the latter would open up possibilities of an increase in income.

It must be noted, however, that neither paid employment nor self-employment are homogeneous categories, and the range in earnings is quite large (Figure 10). In the case of paid employment, median income ranged from as low as Tshs 14,000 per month in agriculture to Tshs 190,000 in electricity, gas, and water, and Tshs 160,000 in finance. Likewise, in self-employment, the range was from 20,000 in agriculture to 190,000 in electricity, gas, and water, and 160,000 in finance. It is interesting to note that self-employment in manufacturing yields much lower incomes than in sectors like fishing, construction, hotel and restaurants, transport, and various services (except household services). The above figures imply that from the point of view of accelerating poverty reduction, it would be important to understand the factors that influence these differences in earnings as well as the ability of people to move between sectors in both paid and self-employment.

Figure 10: Median Monthly Income (Tshs) in Paid and Self-employment, 2006



Source: URT (2007a)

An important element in the context of employment and earnings structure in Tanzania (and developing countries in general) is the proportion of employment in the informal sector. The LFS

of 2006 mentions this as 10.1% of total employment. However, if the informal sector outside agriculture is compared to the total non-agricultural employment, the share works out to be nearly 41%. Given the importance of the sector as a source of employment, earnings in the sector would have important implications for poverty reduction. It would be incorrect to think that the informal sector is a homogeneous and residual category where all employment is marginal and yields low returns and income. A comparison of the median income in the sector with that of other sectors shows that for both paid employees and the self-employed, the sector provides higher income compared to agriculture. It may not be unrealistic to think that within the informal sector there is a range of activities yielding different levels of earnings. If that is the case, the key issues to address would be to identify those sub-sectors within this broad category that yield decent earnings with the capability of lifting people out of poverty, and, within that sector, to identify those factors that influence mobility by raising productivity and earnings.

Given the earnings differentials between self-employment and paid employment and between various sectors, it would be useful to understand the factors that cause such differences and also the factors that may influence mobility between the various segments. Although not much work appears to have been done in Tanzania on the segmentation of labour markets, one recent study (Kerr, 2011) throws some light on the issues mentioned above. Using the Tanzanian Urban Panel Surveys of 2004 and 2005, that study points out the following: (i) there is movement between formal and informal sectors, and hence the issue of segmentation between informal and formal sectors may not be relevant, (ii) there is movement between different categories of self-employment, and (iii) there is very little movement between self-employment and wage employment. Based on the last finding, Kerr (2011) argues that there is segmentation between wage and self-employment. A few questions remain unanswered in the context of these issues. They are listed below in the hope that future research may devote attention to them.

- What are the factors responsible for the lack of mobility between wage and self-employment?
- What are the earnings differentials between different categories of self-employment – both in terms of size and type of activity? And what causes such differentials?
- What are the factors that influence mobility between different categories of self-employment with differential incomes?
- Are there earnings differentials within the informal sector and, if so, what causes such differentials?
- Is there mobility within the spectrum of the informal sector, and if so, what factors influence such mobility?

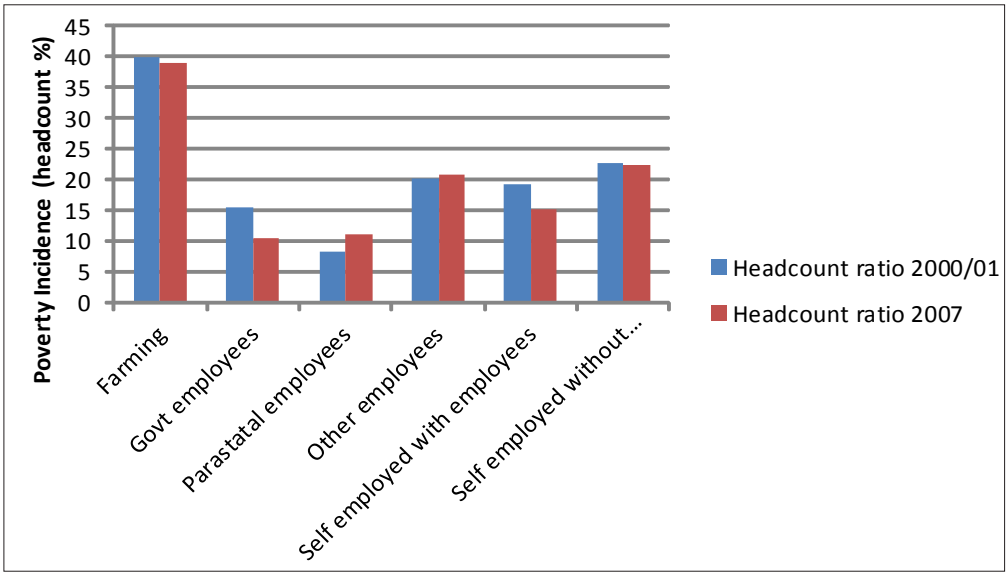
7 Factors Influencing the Incidence of Poverty

A full-fledged analysis of the factors that can explain why a household/individual is either poor or not poor would require a quantitative/econometric analysis which, in turn, demands full information on the relevant characteristics of households and individuals. However, some analysis of the importance of a few variables can be carried out on the basis of the published results of the 2001 and 2007 Household Budget Surveys (HBS) (URT, 2009). The analysis of earnings and mobility presented in Section 6 already pointed out the importance of a few variables like sector and type of work (i.e. whether self-employment or paid employment) in influencing one's earnings. In continuation of that analysis, the following analysis focuses on (i) the head of household's sector of work, (ii) source of cash income, (iii) number of employees in self-employment, and (iv) the head of household's education. These four variables are found to have some relationship with the incidence of poverty.

Figure 11 illustrates that the incidence of poverty is by far the highest for those who are in farming. Moreover, there has been no improvement for them between 2001 and 2007. At the other end are those in government and parastatal employment, where government employees have witnessed some decline in the incidence of poverty. Another group that has attained some decline in the incidence of poverty is the self-employed with employees. But the self-employed without employees not only has a higher incidence of poverty, this group has not been able to attain any reduction in poverty. The latter implies that amongst the self-employed, those who have been able to expand the size of their operation have been able to improve their situation.

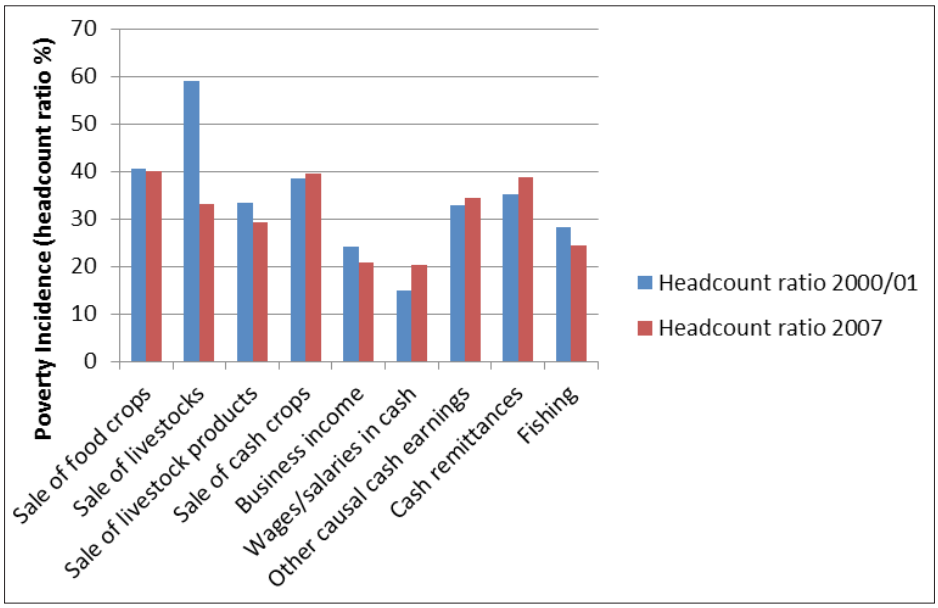
Persistence of poverty among the farming group is corroborated by Figure 12, which shows that the incidence of poverty among this group did not decline at all. The group that was able to improve their situation considerably is the one selling livestock and livestock products. However, it is not clear whether this was made possible by one-off sales of livestock or by a sustainable source of livelihood that could bring households out of poverty permanently.

Figure 11: Incidence of Poverty (headcount %) by Main Activity of Head of Household, 2000–2001, 2007



Source: URT (2009)

Figure 12: Incidence of Poverty (headcount %) by Main Source of Cash Income, 2000–2001, 2007

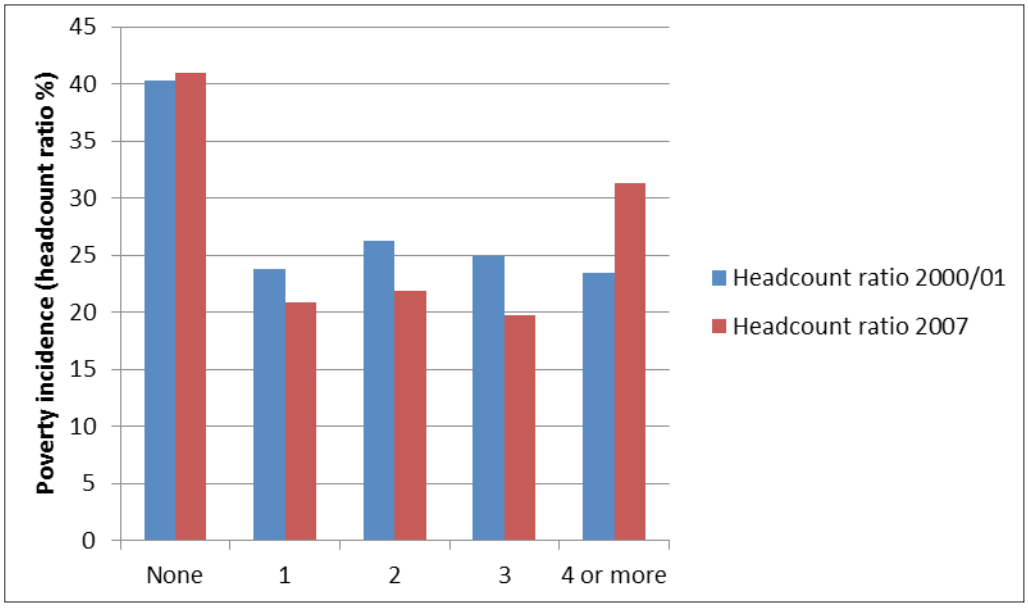


Source: URT (2009)

It was demonstrated earlier (Figure 10) that the earnings of the self-employed vary considerably between different sectors. Hence, it should not be surprising if some of the self-employed do better in getting out of poverty. Figure 13 shows that the size of the enterprise of the self-employed is an important factor in this regard. The incidence of poverty in this group is the highest for those who operate on their own without any additional employees. Those who have one employee performed much better. What is surprising, however, is that for those with four or more employees the incidence of poverty increased during 2001–2007. What caused this is a matter for further investigation.

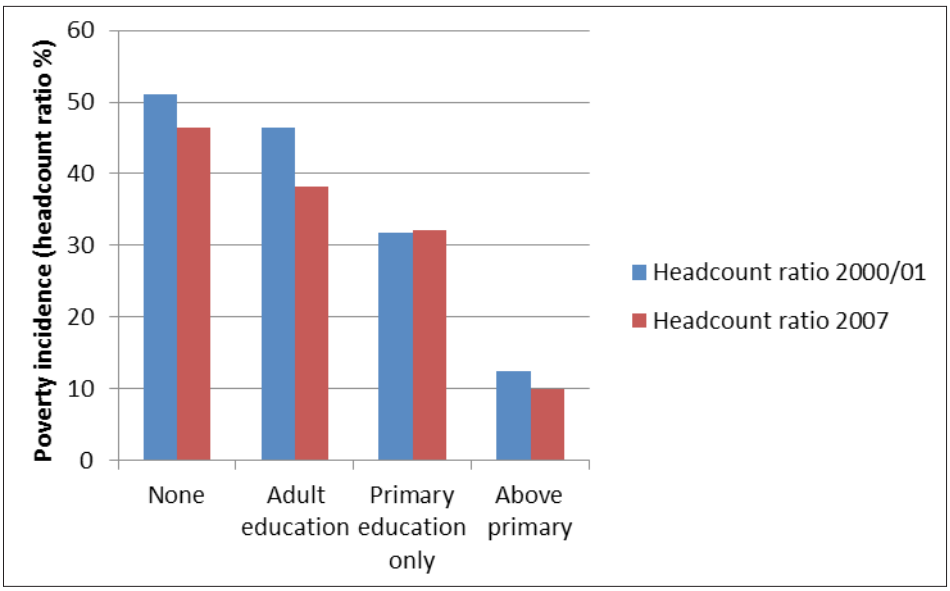
The importance of education as a variable influencing one's ability to get out pf poverty is shown by Figure 14. Even those with some adult education have performed better than those with no education at all. Moreover, the importance of education beyond the primary level is also clear: The incidence of poverty for those with higher than primary education is much lower than those with only primary education.

Figure 13: Incidence of Poverty (headcount %) of the Self-Employed by Number of Employees, 2000–2001, 2007



Source: URT (2009)

Figure 14: Incidence of Poverty (headcount %) by Education of Head of Household, 2000–2001, 2007



Source: URT (2009).

8 Factors Influencing Labour Force Participation

8.1. The scope of the exercise

According to the standard neo-classical theory, labour supply decisions and labour force participation depend on the choice between work and leisure. This theory uses the microeconomic relationship of quantity supplied (labour) as a function of its price (wage). In the basic model, the choice is derived from a utility function consisting of leisure and goods (and thus income). The basic predictions of neo-classical labour–leisure choice theory is that as wages rise, labour supply rises due to the operation of two forces: (i) An income effect will work if leisure is a normal good; its demand will fall and labour supply will rise with a rise in wages. (ii) By increasing the opportunity cost of leisure, a substitution effect will work as wages rise, thus leading individuals to increase the supply of labour. A person who just enters the labour force will only be affected by the substitution effect, and wage increases will raise the chance of participation. There may, however, be a situation in which an increase in incomes leads to an increase in the demand for leisure, and a further increase in wages may lead to a decline in the supply of labour. In such a situation, the net impact of wage increases on the labour supply may be indeterminate.

However, the theory mentioned above does not take into account various factors other than price that may influence the decision of individuals to participate in the labour force and be ready to supply labour. Such factors may range from the characteristics of the individual (e.g. age, marital status, and level of education) and the household to which (s)he belongs (e.g. the number of earners) to economic factors like the availability of complementary inputs in the form of assets, credit, etc.

An empirical investigation into the effect of wages on labour force participation requires the availability of time-series data on both variables. In Tanzania, labour force data are collected only occasionally, as the scarcity of labour force surveys indicate. Wage data are also not available. In these circumstances, it is not possible to analyse of the effect of wage rates on labour force participation. However, the effect of other variables mentioned above can be analysed by using cross-sectional data available from the labour force surveys. That is what has been attempted in the present paper, by using the primary data of the ILFS of 2006.

8.2. Analytical framework, choice of variables, methodology applied, and data

Although the standard neo-classical theory of the supply of labour and participation in the labour force may not apply fully in an economy like Tanzania's, it may still be useful to start by looking at the factors that may operate from the demand and supply sides. It is of course important to recognise that such variables may operate differently for men and women. Let's start by looking at the variables.

On the supply side, the important individual characteristics include age, marital status, and education and skill training. As for age, the impact is expected to be positive, at least up to a certain level. But the relationship may not be linear, and allowance would need to be made for that possibility. Marital status may be relevant for both men and women, albeit in a different manner. For women, marriage may have a negative effect if demand on her time for household activities prevents her from participating in the labour force. For men, on the other hand, the effect may be positive if men are expected to be the household's main breadwinner.

Some household characteristics may influence labour supply decisions of individuals. For women, the number of small children may have a negative effect, especially if facilities for child care are inadequate. On the other hand, the number of earners in the family may exert a negative effect through the substitution effect. For men, the number of small children, by adding to the burden of dependency, may actually have a positive effect on labour force participation. The number of earners in the family in such a case may not have any significant effect.

Demand side variables may also influence the rate of participation in the labour force because the decision to participate may depend, at least in part, on the availability of opportunities in the labour market. In a predominantly agrarian economy like Tanzania, availability of land would be a major determinant of the demand for labour and participation of members of a household in the labour force. For hired labour, the marginal productivity of labour, which is expected to be reflected in wage rates, would be an important variable. As for non-farm activities, the availability of non-agricultural assets would be an important factor contributing to the participation of household members in the labour force. Availability of credit as a complementary input may also influence participation rates.[22] While this variable may be relevant for both agriculture and non-farm activities, it may be particularly so for the latter.

The possibility of the relevant variables influencing the decision of men and women to participate in the labour force differently has already been noted above. There is, in fact, a body of literature on female participation in the labour force that suggests a U-shaped relationship between economic growth and women's participation – that is, the rate declines at the initial stages of development and then rises (see Bosereup, 1970, 1990; Psacharopoulos and Tzannatos, 1989, 1991; Schultz, 1990, for example). The basic argument behind this is that at an early stage of development, women participate in the labour force in large numbers, but that declines due to a variety of factors when economic growth starts, such as the negative income effect outweighing the positive substitution effect (leisure–income substitution), dislike for and difficulty in getting into jobs in industries, enrolment in education, etc. At a higher level of development, as women receive more education and the economy generates employment that is more suited to women, their participation in the labour force increases again, thus completing the rising part of the U-shaped curve.

However, empirical studies on developing countries (for example, the study on Bangladesh by Rahman and Islam, 2013) do not always lend support to the hypothesis of a U-shaped relationship between economic growth and female labour force participation. While the present exercise is not intended to go into this aspect in detail,[23] the empirical exercise has been undertaken separately for women and men so that it is possible to get an idea about how some of the independent variables operate differently.

In order to examine the effect of the variables mentioned above, the limited dependent variable method of regression has been applied, with the dependent variable defined as a binary variable with a value of 1 for those who participated in the labour force and 0 for those who did not.

[22] In Bangladesh, for example, growth of microcredit has contributed substantially to an increase in the participation of women in the labour force. On this, see Rahman and Islam (2013).

[23] This is also not possible in view of the absence of time-series data. The two data points that are available cover only six years. When a new labour force survey is done (which is expected in 2014), it may be worthwhile to examine what has happened to the female labour force over the period of 2001–2014.

The logistic regression method has been applied separately for men and women and for men and women combined. The results are reported in Tables 7 and 8.

Before presenting the results, some words may be in order about the relevant literature on Tanzania and the variables used in the present exercise. As for the literature, employment and the labour market in general appear to be under-researched areas for Tanzania. Only a few studies could be found on the determinants of labour force participation. One study on the determinants of rural labour market participation (Mduma and Wobst, 2005) uses data from the Household Budget Survey of 2000–2001 and focuses solely on rural wage labour. Thus, it covered only a small segment of the labour market. However, the exercise was able to cover individual and household characteristics as well as variables relating to the local labour market conditions, e.g. access to economic centres, availability of land, and access to credit. The study found that the level of education of the individual, availability of land, access to economic centres, and access to credit have a statistically significant effect on labour force participation.

The present exercise uses data from the ILFS of 2006, and hence the variables included for analysis are limited to those available from that survey. As a result, an important variable like access to credit could not be included. However, the other variables mentioned above have been included.

8.3. Empirical results and their implications

The results of the logistic regressions that have been carried out are presented in Tables 8, 9, and 10. Before looking at the results and interpreting them, some points may be worth noting. First, some variables that may be relevant from a theoretical point of view (as mentioned above) do not appear in the results; they have been automatically dropped from the estimation because of collinearity with other variables. An example is age-squared, which could capture the non-linear effect of the variable.

Second, the independent variables under consideration in the present exercise (as described above) may have differing effect on wage and self-employment and agricultural and non-agricultural employment. But given the exploratory nature of the exercise, the analysis has not been performed at such a disaggregated level.

On to the results, all variables except education and possession of non-agricultural assets emerge as statistically significant for male labour force participation. Apparently, there are some similarities in the direction of effects for males and females. For instance, the impact of age is positive for both males and females. This is to be expected as the older one gets the higher the probability that one will participate in the labour force. Ironically though, marital status does not seem to affect male and female participation in the labour force, with the larger magnitude associated with married individuals perhaps due to family responsibilities. Of more interest though is the indication that divorce has a positive influence on labour force participation for both males and female. This could be explained by the possible increased financial and related responsibilities shouldered by divorcees, which could have been shared under a marriage arrangement.

Table 7: Results of Logistic Regression of Labour Force Participation (Male), 2006

Logistic regression					Number of observations = 12333	
					LR chi2(11) = 3792.70	
					Probability > chi2 = 0.0000	
Log likelihood = -4219.8158					Pseudo R2 = 0.3101	
LFPRAMale1	Odds Ratio	Std. Err.	z	P>|z|	[95% Confidence Interval]	
Age	1.024467	0.0026114	9.48	0.000	1.019361	1.029598
Education level	1.014732	0.0128018	1.16	0.246	.9899489	1.040136
Number of earners	1.537813	0.1064827	6.22	0.000	1.342653	1.76134
Number of children under 5	0.8025466	0.016617	-10.62	0.000	0.77063	0.8357852
Single, otherwise zero	2.650191	0.2461362	10.49	0.000	2.209133	3.179306
Married otherwise, zero	22.14281	1.807885	37.94	0.000	18.8684	25.98546
Widowed, otherwise zero	0.3609509	0.0402985	-9.13	0.000	0.2900117	0.4492425
Agricultural assets, otherwise zero	0.3494909	0.0507825	-7.24	0.000	0.2628771	0.4646427
Non-agricultural assets, otherwise zero	0.5634522	0.2615001	-1.24	0.216	0.226888	1.399273
Both agricultural and non-agricultural assets	0.5801596	0.0747053	-4.23	0.000	0.4507554	0.7467136
Rural = 1, otherwise zero	0.654958	0.0454063	-6.10	0.000	0.5717446	0.7502824

Table 8: Results of Logistic Regression of Labour Force Participation (Female), 2006

Logistic regression					Number of observations = 12333	
					LR chi2(11) = 3792.70	
					Probability > chi2 = 0.0000	
Log likelihood = -4219.8158					Pseudo R2 = 0.3101	
LFPRAFemale1	Odds Ratio	Std. Err.	z	P>|z|	[95% Confidence Interval]	
Age	0.9761177	0.0024882	-9.48	0.000	0.9712531	0.9810067
Education level	0.9854816	0.0124328	-1.16	0.246	0.9614127	1.010153
Number of earners	0.6502743	0.0450269	-6.22	0.000	0.5677496	0.7447942
Number of children under 5	1.246034	0.0257995	10.62	0.000	1.19648	1.29764
Single, otherwise zero	0.3773313	0.0350446	-10.49	0.000	0.314534	0.4526663
Married, otherwise zero	0.0451614	0.0036873	-37.94	0.000	0.0384831	0.0529987
Widowed, otherwise zero	2.77046	0.3093087	9.13	0.000	2.225969	3.448136

Agricultural assets, otherwise zero	2.861305	0.4157597	7.24	0.000	2.152192	3.80406
Non-agricultural assets, otherwise zero	1.774773	.8236783	1.24	0.216	0.7146566	4.40746
Both agricultural and non-agricultural assets	1.723664	0.2219508	4.23	0.000	1.339201	2.218498
Rural = 1, otherwise zero	1.526815	.1058497	6.10	0.000	1.332831	1.749033

Table 9: Results of Logistic Regression of Labour Force Participation (Joint Model), 2006

Logistic regression				Number of observations = 12323		
				LR chi2(12) = 1592.92		
				Probability > chi2 = 0.0000		
Log likelihood = -4025.4693				Pseudo R2 = 0.1652		
LFPRA	Odds Ratio	Std. Err.	z	P>|z|	[95% Confidence Interval]	
Age	0.9786467	0.002068	-10.21	0.000	0.9746018	0.9827083
Education level	1.021266	0.0135116	1.59	0.112	0.9951242	1.048095
Number of earners	11.72617	0.9615909	30.02	0.000	9.985143	13.77076
Gender (1 if female, 0 otherwise)	1.241321	0.1061361	2.53	0.011	1.049794	1.46779
Number of children under 5	0.978698	0.0192824	-1.09	0.274	0.9416256	1.01723
Single, otherwise zero	1.285525	0.1421339	2.27	0.023	1.035065	1.59659
Married, otherwise zero	1.012763	0.1456432	0.09	0.930	0.764009	1.342509
Widowed, otherwise zero	1.517585	0.2197793	2.88	0.004	1.142564	2.015699
Agricultural assets, otherwise zero	1.200722	0.1433712	1.53	0.126	0.9501793	1.517328
Non-agricultural assets, otherwise zero	0.9250617	0.3093242	-0.23	0.816	0.4803348	1.781547
Both agricultural and non-agricultural assets	1.224387	0.1205406	2.06	0.040	1.009527	1.484976
Rural = 1, otherwise zero	0.3019868	0.0231055	-15.65	0.000	0.2599329	0.3508445

The direction of the impact of the number of children under the age of five in the family appears to be positive for both males and females. As explained earlier, this is a direct result of the obligation of providing for family needs. In addition, the number of earners in the household has a positive and significant impact on labour force participation. This could be explained by the need to maintain higher living standards when the household's population is larger.

The impact of education appears to be ambiguous. This is because while the sign is positive (as expected) for both males and females, the variable turns out to be insignificant and thereby runs counter to expectations. These results led us to examine the education variable in more detail.

The effect of education, as mentioned above, appears to be somewhat inconsistent with the tabulated data from the 2006 ILFS, where higher levels of education are associated with higher levels of unemployment (see Table 9). However, data from this table must be looked at carefully because the figures for Dar es Salaam and rural areas differ considerably from those of "other urban" and total. For Dar es Salaam, the relationship between unemployment and level of education is clearly inverse for males as well as females. In the case of rural areas, the relationship is inverse for males. For rural females, however, the relationship is direct – that is, higher education is associated with higher unemployment. Only in the case of other urban areas is the relationship between unemployment and education unambiguously inverse. This may imply that labour markets are different in nature in Dar es Salaam and rural areas compared to other urban areas. In other words, the labour market may have evolved to a level where job seekers with higher education are able to find jobs more easily in the commercial capital city than in other urban areas. This may be the case in rural areas for different reasons: there may be less competition for those with some education.

Table 10: Rate of Unemployment (in %, for 15 years and above) by Level of Education, 2006

Levels of education	Dar es Salaam	Other Urban	Rural	Total
Both sexes				
Never attended	38.1	14.2	6.9	9.0
Primary	32.4	16.7	7.5	12.0
Secondary & above	26.6	17.8	8.2	17.3
Male				
Never attended	27.0	10.8	8.5	9.2
Primary	23.4	13.5	8.0	10.6
Secondary & above	21.2	15.1	6.8	14.1
Female				
Never attended	42.9	15.7	6.9	8.9
Primary	…	19.6	7.0	13.5
Secondary & above	34.9	21.3	10.4	22.1

Source: URT (2007a).

Table 10 below adds to the explanation by dissecting the education level of respondents in question. It can easily been seen that the majority of respondents (90%) had a primary education. This suggests negligible randomness of the variable amongst respondents, which leaves little room for analysing the impact of marginal increases in education level. Indeed, while there is no significant difference in education levels among males and females, almost all respondents (99.5%) possess

the maximum of secondary school qualifications. This simply suggests that education level plays a very minimal role in determining participation of respondents in the labour force. This, however, reveals more of a sampling flaw than reality on the ground, and thus a better sampled population would have probably provided different results.

Table 11: Education Level by Gender

Gender	Primary	Secondary	Tertiary non-degree	Tertiary degree	Total
Females	12,350	1,076	17	21	13,464
Males	12,463	1,540	28	60	14,091
Total	**24,813**	**2,616**	**45**	**81**	**27,555**

In any case, the regression results reported above and the tables prepared from the LFS data indicate that the relationship between unemployment and education in Tanzania is not simply a matter of being positive or inverse. One may have to look at the situations separately for different locations as well as for different types of education. For instance, results show that the probability of respondents (both male and female) to participate in the labour force is higher if they reside in rural areas than in urban areas. Indeed, Table 11 below reveals that labour force participation is much higher in rural areas (80%) than in urban areas (69%). It thus suggests that availability of low-skilled jobs, such as smallholder farming, rather than education level, could be key to unlocking what causes labour force participation in Tanzania.

Table 12: Labour Force Participation (LFPRA) by Location

Location	Participating	Not Participating	Total
Rural	19,573	4,840	24,413
Urban	10,035	4,661	14,696
Total	**29,608**	**9,501**	**39,109**

All in all, this clearly is an area where more in-depth research is called for. This is particularly so because education (and skills training) is often regarded as an important means of raising the chances of being employed.

The impact of assets, particularly agricultural-related ones, seems consistent with *a priori* expectations. To be sure, the signs associated with these kinds of assets are positive for both males and females. It could be argued that assets are indicative of the level of household income, and higher income could be a result of one's participation in the labour force. However, results show no statistically significant impact of non-agricultural assets on labour force participation. Once again, this could be explained by the fact that most respondents seem to be employed in agricultural-related sectors, and thus non-agricultural assets may not always be within the reach of the respondents.

Regression results from the joint model (see Table 9 above) provide one interesting result which concerns the gender variable. Results indicate that females are more likely to participate in the labour force than males. This is further illustrated in Table 12 below, which shows 80% labour participation for females against 69% for males. Given that the majority of respondents are from rural areas, one can deduce that women, versus men, are more involved in farming activities, which is to be expected in a male-dominated society.

Table 13: Labour Force Participation (LFPRA) by Gender

LFPRA	Male	Female	Total
Participating	15,160	14,448	29,608
Not Participating	4,664	2,914	7,578
Total	**19,824**	**17,362**	**37,186**

A few conclusions, albeit tentative ones, may be drawn from the empirical analysis of labour force participation. First, the impact of the age variable needs to be explored more carefully. The issue of the impact's non-linearity could not be addressed in the present exercise, although there may be important differences between men and women in terms of age and labour force participation. The key question is whether the positive effect of age on both males and females holds in a linear manner or whether the rate of increase in participation with age declines at some stage, as *a priori* expectations would suggest.

Second, there seems to be no substitution effect of multiple earners. This implies that households probably use multiple incomes as a strategy to maximise incomes and to overcome poverty in cases where it is critical to ensure a minimum living standard.

Third, agricultural-related assets seem to play an important role in labour force participation for both males and females. This implies that much of their employment is self-employment where some assets, mostly agricultural, can be useful.

Fourth, for men, participation rates in urban areas are lower compared to rural areas, implying that it may be more difficult to enter the labour force in the former. That, in turn, may be due to a variety of factors, like the shortage of wage employment, lack of assets needed for self-employment, etc. Access to land in rural areas perhaps provides one with some opportunity to engage in an economic activity, whatever the levels of productivity and returns are. In urban areas, such opportunities may be in short supply.

The real nature of the effect of education needs to be understood better. While education and training are critical for wage employment, for self-employment a combination of education and training and access to land and other productive assets to credit and to markets can be helpful. With the present state of the availability of data, such detailed analysis is not possible. A more focused and purposive study on the relevance and impact of education and skills training on employment must be carried out.

9 Concluding Observations

While the record of Tanzania's economy during the 2000s has been quite impressive in terms economic growth, the performance in the areas of poverty reduction and productive employment as a means towards that goal has been rather disappointing. Data on the incidence of poverty show very little progress in reducing poverty. On employment, it is more difficult to arrive at a straightforward conclusion, because of the conceptual difficulties and data limitations. For reasons explained in the paper (and well known by now), figures on open unemployment and underemployment are not of much help in understanding what has been happening on that front. It is important to look at employment growth in relation to output growth, productivity, and returns, especially in low productivity sectors like smallholder agriculture and in self-employment in non-farm activities. Also important is to look at whether there has been a significant structural transformation with workers moving away from low-productivity activities towards those with higher productivity and earnings. On all these criteria, the performance of Tanzania's economy during the 2000s has been rather disappointing.

Although the data available for estimating employment elasticity is weak, the observed employment intensity of growth of the economy appears to be low, especially in manufacturing. There has been very little structural transformation of employment in terms of the sources of people's livelihoods, where employment is smallholder agriculture and self-employment remain predominant. Manufacturing industries account for a very small proportion of the employed labour force. No new labour-intensive industry has taken root in the country, and the sector has not witnessed much growth in employment except in recent years.

Based on the data and analysis presented in Sections 3, 4, 5, 6, and 7, a few observations may be made on possible linkages between economic growth, employment, and poverty reduction. The fact that a sustained and high rate of economic growth for over a decade has not been associated with reduction of poverty is consistent with the performance of the economy in the area of employment. In quantitative terms, the elasticity of employment with respect to output growth has been low for the economy as a whole as well as for the manufacturing sector. The latter is especially important from the point of view of transforming the structure of employment that is needed for translating the benefits of growth into poverty reduction. As pointed out in the conceptual framework presented in Section 2, the qualitative aspect of employment, viz., productivity and earnings of workers, is very important if economic growth is to reduce poverty. Issues relating to that aspect, especially the sector composition of employment, earnings, and mobility of workers, are dealt with in Section 6, and it was seen that the performance of Tanzania's economy in terms of the qualitative aspects of employment also has been disappointing. Moreover, the data and analysis presented in Section 7 demonstrated that the incidence of poverty is associated with the type of employment (in terms of sector) as well as the level of operation of economic activities when self-employment is concerned. Thus, the empirical evidence and analysis presented in this paper lend support to the analytical framework of the linkage between economic growth, employment, and poverty reduction, as presented in Section 2.

A preliminary analysis of earnings and the determinants of poverty indicate that in order to get out of poverty, it is important to move from self-employment to paid employment and away from agriculture. An important concern then is the diversification of the economy in a direction that would help generate productive employment and reduce poverty at a faster rate. In this regard, the received proposition is that transformation of economies at the early stage of development should

involve high growth of industries and an increase in the sector's share in employment. This is natural considering the fact that employment intensity in manufacturing is usually higher than in agriculture, and hence high growth of the former would also mean high growth of employment. But the issue in this regard is whether a country like Tanzania can hope to achieve structural transformation through the route of industrialisation or whether there are feasible alternatives. This question has already been raised in the context of sub-Saharan Africa in recent discussions on the topic, and one opinion is that the growth of the service sector could be an alternative (Velde, 2008, for example). However, before drawing any firm conclusion on the issue, one has to bear in mind that the service sector can be heterogeneous, with activities ranging from those with very low productivity and earnings to those that yield decent earnings. The question in the context of Tanzania should be whether there is sufficient potential for the latter kind of service sector to grow and act as the engine of growth. In any case, in the quest for structural transformation, the case for industrialisation should not be completely given up. In general, the pattern of growth is important in this context,[24] and further analysis and research on the issue is warranted.

Within the broad service sector, an important sub-sector that may have good growth and employment potential is tourism. Although its share in total GDP and employment is not known, its importance as a source of foreign exchange earnings is known. If any sector is targeted for boosting further growth and employment, this could be one. However, it would be useful to examine how the sector's linkage with the domestic economy could be strengthened[25] and policies adopted accordingly.

Another sector that has the potential for growth as well as employment is infrastructure. The poor state of infrastructure in Tanzania is well documented.[26] It is also known that the quantity and quality of infrastructure are critical for promoting further investment and growth of the economy. Linking producers in rural areas with markets requires road infrastructure. Likewise, irrigation can boost productivity and output in agriculture. Moreover, this is one sector that has the potential for application of labour-based approaches and job creation. However, at the present state of development of the economy, this sector cannot perhaps expect private investment to come in. That is where public investment has to play a role.[27]

While the quest for structural transformation and diversification of the economy continues, it must be remembered that three-fourths of total employment is still accounted for by agriculture, most of which consists of smallholders. This is the segment of the economy where productivity and earnings are low and the incidence of poverty remains low and undiminished. A major dent in poverty requires an immediate action plan for raising productivity in this sector and putting in place policies and infrastructure to ensure that the poor benefit from possible growth[28] in this sector. Perhaps measures that raise crop yield (e.g. irrigation, high yielding varieties) can also augment absorption of labour in a productive manner.

[24]The National Employment Policy (URT, 2008) mentions making growth more employment intensive as a strategy for achieving the employment goal set out in the policy. The pattern of growth can be important in making growth more employment intensive.

[25]This would entail, for example, promoting the use of domestically produced goods in tourism-related establishments like hotels and restaurants (a typical case would be for substituting Irish/Danish butter and Dutch/Swiss cheese with domestically produced ones – without of course compromising on quality).

[26]See, for example, URT (2012).

[27]The National Employment Creation Programme of 2007 also included this as an element. See URT (2007b).

[28] An example would be the benefit of price increases of commercial crops like coffee, tobacco, etc.

Likewise, crop diversification with a move towards labour-intensive crops like fruits and vegetables may also be useful for raising incomes as well as increasing employment. Further research is needed in these areas.

Another finding that may be of significance in the context of using the employment route to poverty reduction is that the self-employed with employees have done better than those without. Does this imply that too minuscule an operation does not have much scope for moving individuals up the productivity and earnings ladder? If so, what would be the mechanism for facilitating greater mobility between the two types of self-employment? Also, are there variations between self-employment in different sectors of the economy? Answers to these questions would require further and more in depth analysis, which could form part of a future research agenda.

It also must be remembered that the macroeconomic policy environment of the country and policies for the respective sectors would have important bearing on many of the above mentioned policy ideas. A good deal would depend on whether the country's macroeconomic policy will be designed only to fight inflation and maintain budgetary balance or will be sensitive to issues relating to employment and poverty reduction. For example, the relative price of capital and labour can influence the choice of products that would be produced as well as the technology that would be employed. Likewise, the adoption of programmes for employment generation, education and health services, and social safety nets for the poor would have fiscal implications. Hence, research and policy making on employment and poverty would also need to look carefully at macroeconomic and sectoral policies.[29]

Finally, the analysis of factors that influence participation in the labour force shows that variables like age and marital status have a similar impact on men's and women's participation rates in the labour force. Indeed, regardless of their marital status, older people are more likely to be in the labour force. Likewise, ownership of agricultural-related assets seems to spur people to participate in the labour force, possibly indicating that most of respondents are more likely to be self-employed. The impact of education varies between regions, as demonstrated by Dar es Salaam where the labour market perhaps is more developed and demands more educated workers. However, the fact that the education variable came out as insignificant could be explained by sampling issues, in which case the majority of respondents had low education qualifications, thereby inhibiting the likelihood that one could assess the impact of a marginal increase of education level on labour force participation. Better sampling techniques could throw some light on how the two variables relate to each other in reality. The need to remain at a higher living standard seems to invigorate households with more earners to participate in the labour force. In terms of location, the probability of participating in the labour force is much higher in rural areas than it is in urban areas, suggesting that low-skilled agricultural activities, which are predominant in rural areas, are more accommodating than more sophisticated jobs in urban areas. Besides, a greater participation of women in the labour force implies that women, versus men, involve themselves much more in agricultural activities.

[29] In this context, it may be mentioned that work at the ILO on macroeconomic policies, especially ILO (2011), has made a persuasive case for employment-sensitive macroeconomic policies in developing countries. See, also, Muqtada (2012).

Annex 1

Available data on employment

Tanzania has some data that are required for analysing the nexus between economic growth, employment, and poverty. However, while using the available data for the purposes of preparing the present paper, some gaps have been found and difficulties encountered. The purpose of this annex is to provide a list of such gaps and difficulties so that the agencies and researchers collecting and publishing statistical data may take them into account in their future work.

Integrated Labour Force Surveys

Data from these surveys are very useful. However, several difficulties have been encountered while working with these data. First, while working with the data for 2001 and 2006, it was found that the 2001 survey uses 10 years as the cut-off age for defining an economically active population (or labour force) while the 2006 survey used 15 years as the cut-off, which is standard. Of course the analytical report of the 2006 survey provides a few basic tables with 10+ years' data, but not for all. So, it was difficult to compare and work out growth rates of the employed population between 2001 and 2006. Two suggestions may be made in this regard:

- Use 15 years as the age limit for defining labour force in all future surveys.
- For researchers who may want to use the 2001 data and work out various parameters comparing that data with those for subsequent years, the NBS may wish to consider providing a set of tables with 15+ population.

A further complication arises from the use of a definition of unemployment which is different from the standard definition and is called the "national definition". Of course, data based on the standard definition has also been collected and presented in the published report. However, with tables based separately on two definitions, readers/users may sometimes get lost. One way around this difficulty would be to present future reports based on the standard definition with one chapter devoted to key findings based on the national definition.

Another suggestion with regard to ILFS in general is to increase the frequency of the surveys and work gradually towards annual surveys. At the very least, efforts could be made to shorten the lead time for publishing the survey data (this suggestion applies to all surveys).

Annual Survey of Industries

The latest year for which a report of this survey is available (in October 2012) is 2008. One therefore wonders whether surveys were carried out after 2008 or were discontinued. However, the economic surveys brought out by the Ministry of Finance provide some tables on manufacturing, including employment. It is not clear whether those data are from the survey of industries. If so, and if surveys are being carried out annually, efforts may be made to release the data. This survey is very useful and should be continued.

Wage Rates for Unskilled and Skilled Workers

Data for wages of unskilled workers, e.g. in agriculture, manufacturing, construction, etc., are not available. Such data, along with data on employment, are essential for an analysis of poverty as well as for monitoring the labour market situation for various categories of workers. If wage data could be collected at a disaggregated level and at frequent intervals (at least once a year), they could be

used to monitor the direction of movement in the demand for labour of various types. This could be done without relying on labour force surveys, which are currently conducted only once in many years. In this connection, mention may be made of the Employment and Earnings Survey. The last year for which data from that survey are available is 2002. So, one wonders whether that survey has been discontinued. Anyway, that survey covers only the formal sector. Wage data are needed for both formal and informal sectors.

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