

Green Revolution and Industrial Decentralization: Policy Options for Food Security and Promoting Rapid Employment in Ethiopia

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Introduction

In the Ethiopian political arena there is a discussion on the accuracy the figure and statistics of economic growth rate. My opinion is that the discussion should instead focus on the sources of the economic growth. Employment generation and productivity levels play key role in achieving high rates of growth and reduction of poverty. Where are most jobs created: in agriculture, the service and/or manufacturing sector? How fast is employment created in the given sectors? What are the sources of unemployment and under-employment? Do we have the right strategy and policy in expanding employment opportunity for a growing labour force in the country? This article tries to address these challenges very briefly. The data sources used in the study include Central Statistic Authority (CSA) Statistical Abstracts 1969-2007, CSA labor force surveys of 1999 and 2005 and CSA Agricultural Sample Survey of 2006/07 (see references).

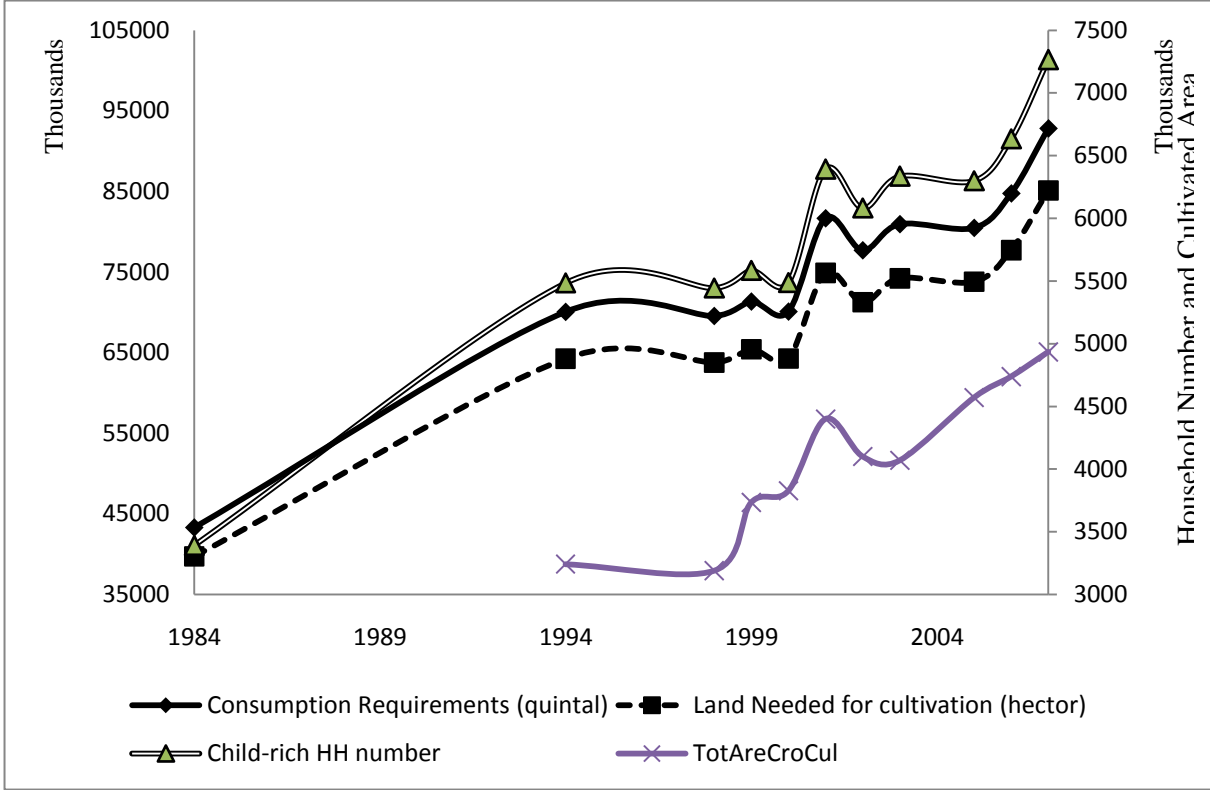
Driving Forces

Avoiding the use of assumptions and measurements belonging to the growth accounting model of the economic literature, I find it pedagogical to start the discussion by reference to the dynamics in rural areas where 84% of the population lives. There are two driving forces in rural Ethiopia which determine the level of consumption, production, employment generation and rate of urbanization in the country. I will try to discuss these forces in numbers in order that you can easily remember them whenever discussing any growth and development issues in Ethiopia.

The first force refers to the multiplication of child-rich households (households with four children and above). This type of household dominates the household structure in rural Ethiopia. Of the 11,749,925 households in rural Ethiopia, 56% are child rich households and the rest of them are labor-rich households. The child rich households have higher consumption requirements and lower economic support ratio. As a production and consumption model unit a child-rich household can provide an average of four adult-equivalent labour and needs an average of four hector land to maintain the level of output needed for reproduction (an average of 12,8 quintal per child-rich household per year). Considering the average land productivity, child-rich households at least need 0,92 hector of land to produce the required food (calculated using 1984 value). The total land area reported for the private holdings of child and labour rich households in Ethiopia was estimated at about 15 million hectares in 2007.

The question is what happens to such proportional input output ratio as the number of the child-rich households increases over time. Increase/decrease in the number of child-rich

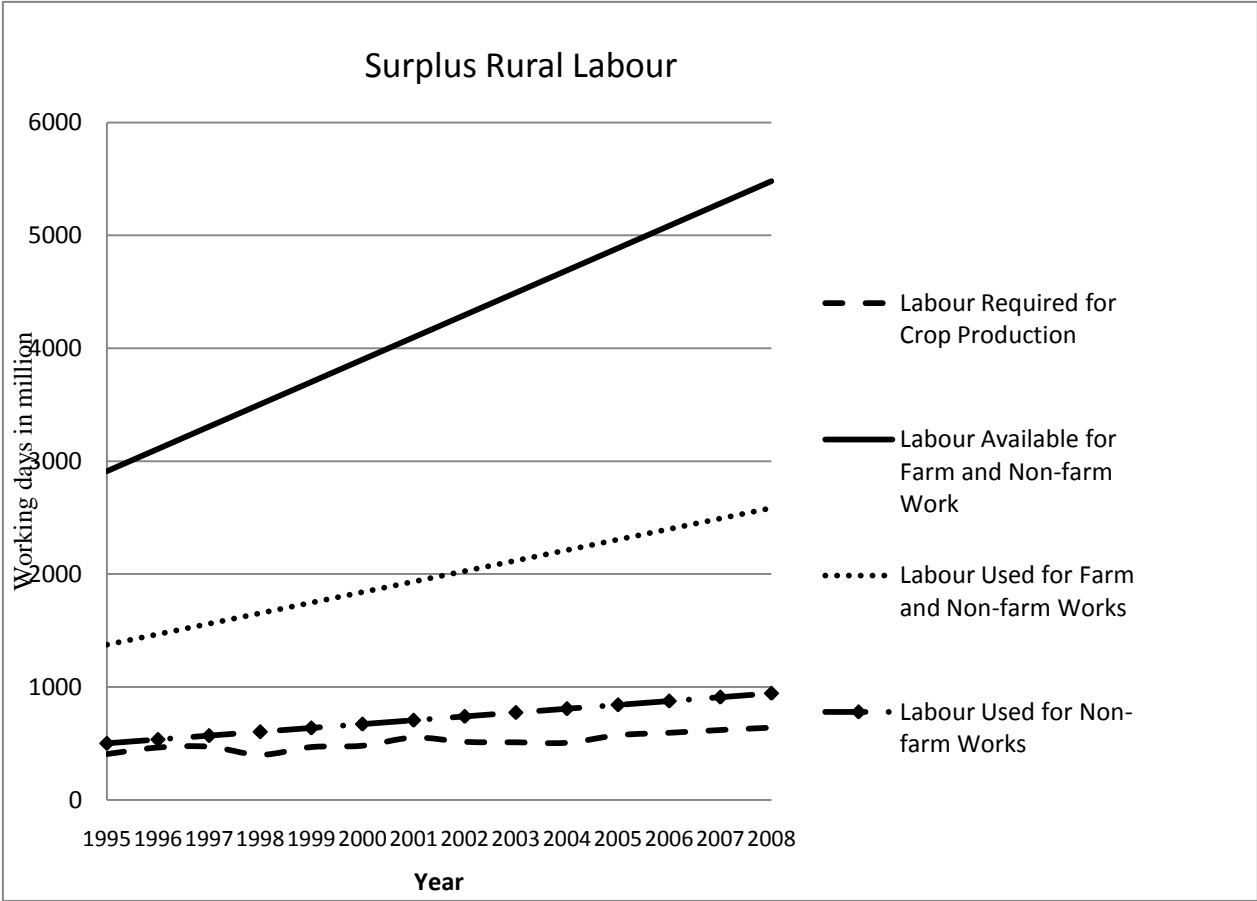
households is affected by changes in the age group 30-45, birth rate per woman (reproductive behaviour of young adults), dissolution rate of large size households (out-movement of adult children and formation of new households) and decline in land-labour ratio. The multiplication of the child-rich households increases the consumption requirements and land demand of the households (see figure below).



The second driving force in rural area is the growth in the labour force seeking for non-farm employment. I call this labour as surplus labour and there are two sources for its growth. The first is the under employed labour engaged in the crop production of the child-rich households. Of the 27,989,016 agricultural labour force (in 2005), 45% are self-employed belonging to the child-and labour-rich households, while 44% are farm wage labour employed in “elementary occupation” (manual labour as daily farm wage labour, food for work, quarrying, construction, etc). I wish the CSA makes public the details of this category of rural labour. 5% in traditional manufacturing (carpentry, painting, pottery, basket, textiles and clothing, etc), 0,2% in modern manufacturing (dairy processing, leather work, grain milling, etc.), 4,5% in commerce and the service sector (wholesale and retail trade, repairing of shoes, tools, food sale, tea shops, bars, barberry) and 0,72% in the public sector.

The rural employment structure shows that farm wage labour and the other non-farm workers need non-agriculture productive employment since it is no longer possible to create job through the provision of land. Already the land holdings of the self-employed households are fragmented to the level of “hunger plots”. The self-employed farm labour is also looking for non-farm employment as with the increase in distressing factors. The unemployment and underemployment is further aggravated by the addition of young adults who enter the labour force for the first time, the second factor which increase the surplus labour. Each year there

are new entrants in the labour and we have estimated this to be around four hundred thousand. In addition to the natural increase, the baby boom in rural areas (as consequence of the distribution of national land in the late 1970s), and the start of moderate decline in fertility increases the young adult labour force. The wage labour of the “elementary occupation, the underemployed of the self employed labour and the new young adult entrants are called surplus labour and this number is increasing as we discuss and write (see figure 2 below).



At a given point in time in rural Ethiopia we find the above two driving forces in an overlapping manner. Demographic variables such as natural increase of the age group, survivorship, wave and momentum of the age transition, and fluctuation in cohort sizes are the factors that affect the volume and speed of the respective drivers. These factors keep expanding the supply of the young labour even though there is no shortage of it (supply without demand scenario). They also increase the demand (consumption and input requirements of child-rich households) in a situation where appropriate supply does not exist (on the methods of calculation see Tsegaye and Bo forthcoming).

Recommendation 1: Green Revolution

There is a need for parallel transformation of the subsistence and non-farm based economy in the rural areas. In the case of child-rich households the most important concerns is the security of household food supplies and cash needs (output composition). My suggestion in the case of food security is to design a green revolution program which gradually gets rid-off small holder agriculture in Ethiopia. For a short review of the Ethiopian government

agriculture-led growth strategy, see my earlier posting Tsegaye 2009, (see also Dercon, Hill, and Zeitlin, 2009). My empirical results show that the subsistence sector is a deficit and unproductive sector. There is no need to sustain it through reforms aimed at developing its tillage/cropping systems and efficiency in a way that can be suitable for the soil and climatic conditions. The subsistence sector has to disappear or dissolve into the employment sector and this can happen mainly through the green revolution undertaken in Asian countries. Green revolution leads to a significant increase in agricultural productivity resulting from the introduction of high-yield varieties of grains, the use of pesticides, and improved management techniques. Green revolution requires government investment in infrastructure such as irrigation, land consolidation programme (and/or formalizing land market), and modern input provision with all the infrastructure and packet. To get quick positive effect of this policy measure it is necessary that the package is accompanied by family programming (demography and health programs, see WB 2007). It is only agricultural productivity of green revolution which has the capacity to feed the growing urban population in Ethiopia. Currently the urban population is 12 million, and it increases by a growth rate of 4,7%

Recommendation 2: Industrial Decentralization

Concerning the surplus labour various literatures recommend the promotion of non-farm economy through provision of credit (micro finance), business support services in training and technical assistance, and provision of infrastructure such as electricity and water. As our study on the rural employment structure shows, the non-farm economy is dominated by non-tradable services, i.e., goods produced by all and everywhere. In the case of small trading rural towns, for instance, every one produces and sales similar product (grain and livestock trading) at the same season while there are few who can buy the products at the time. Even if the service sector is less land intensive compared to agriculture, it cannot absorb surplus labor if it is non-tradable. In the case of rural Ethiopia, its growth depends on government budget rather than on sale of services (labor productivity and specialization). If capital for employment is less compared to the growth in the labour surplus, there is unproductive employment in the sector.

What is need is a shift to new occupations involving higher levels of skills and better technology. Higher levels of development require a transformation of the structure of employment in the economy (Lewis, 1954). In other words, increasing labour surplus is absorbed by transforming the structure of the non-farm employment, not by supporting continued diversification.

This brings us to the issue of the need for industrialization, the transforming of the economic structure into higher level of productivity and employment creation. Economic literature underlines the importance of industrialization. In our case the choice for industrialization is not out of abstract theoretical interest or ideological orientation. It is related to the very growth and speed of the labour force and the absorbing capacity of the agricultural and the non-farm service sectors discussed above. I recommend green revolution in the case of rural farm households engaged in subsistence economy. In the case of the labour surplus, the main objective is creation of employment for the unemployed and under

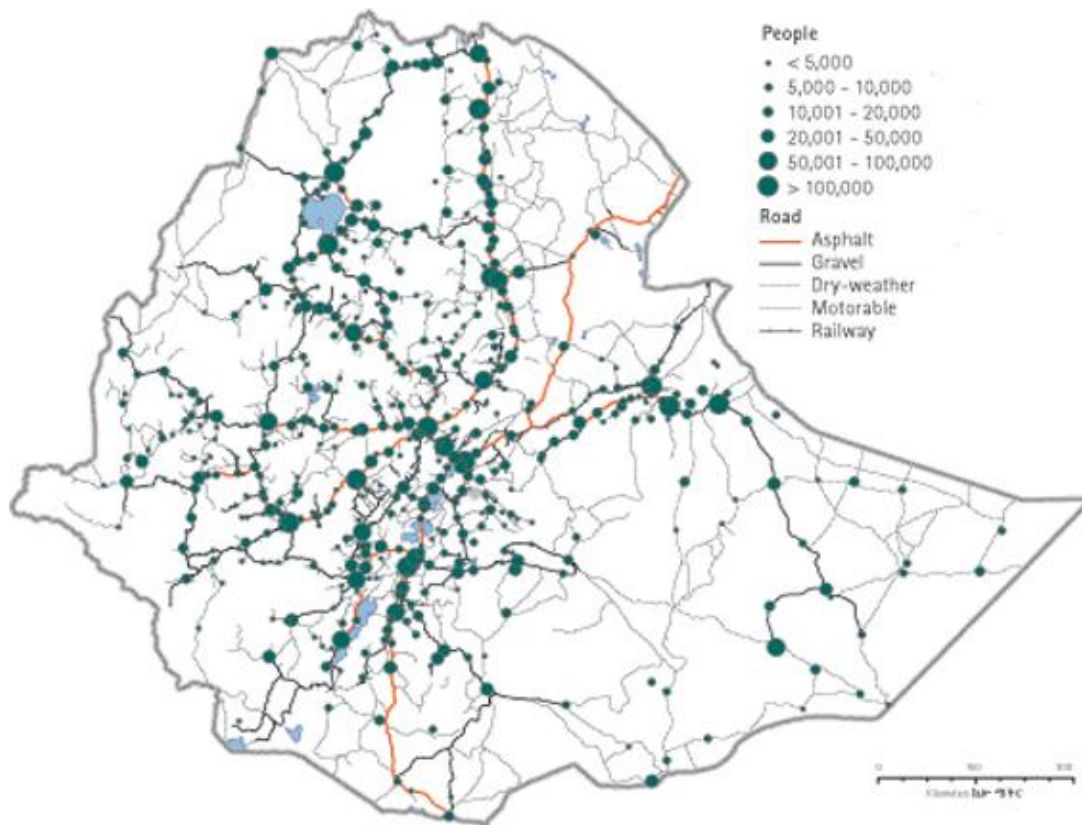
employed (through input growth and final demand) and raising labour productivity (for the employed). The faster the surplus labour grows, the more pressure there is on job creation.

In 2004, the Ethiopian government announced the Ethiopian Industrial Development Strategy document. This strategy can be path breaking compared to the hitherto rural biased policy followed by the Ethiopian Governments since 1974, with the establishment of the military Derg administration. However, the strategy is not yet fully translated into policies, sector programs and action plans (for a review see Admit Zerihun). Moreover, its core principles is influenced by the agriculture-led development concept: industrialization comes as a result of the rapid development of agriculture (demand-led industrialization approach). It assumes that the country should use resources that are in abundance (labour) and less of its scarce resources. As I have noted elsewhere, the labour force needs 21 million hectares of additional land for employment creation and food self-sufficiency (1.4 times the current cultivated land in Ethiopia). The provision of such land is practically impossible, and that is why the Ethiopian government has adopted a policy of promoting improved technological inputs and commercialization of the small scale farm production system. Again this strategy has its own problem (Tsegaye 2009, Dercon, Hill, and Zeitlin, 2009). To be a demand-led agricultural policy should be based on the idea of green revolution.

Phases of Industrial Decentralization

Industrialization should also be migration-led to create job for the existing surplus labour in the rural areas. Industrialization of rural towns through large scale migration of rural labour has positive impact on development of the employment based economy. To start with rural industrialization it is necessary at first to create the appropriate organization structure and capacity. Industrialization is conceived here as the spread of manufacturing employment, shifting of future industrial growth from cities to secondary urban centres. The enterprise may be privately and/or collectively owned, jointly financed by the state and collective units, or wholly owned by the state but under local management. A planned shifting of manufacturing units away from cities and large size towns to medium and small size towns requires a decentralized organization structure. Currently the decision is central and top-down (Timan Altenburg 2009 and Kenichi Ohno 2009).

Decentralization has two phases. In the first phase the federal and regional governments have to establish manufacturing industries in large and medium size towns. Currently there are 84 towns with a population of 20,000-200,000, and the current migration trend is towards these towns (Tsegaye and Bo work in progress). In these urban centres the federal/and or regional government has to lay the foundation of large-scale chemical and agricultural manufacturing industries, instead of focusing on medium and small scale enterprises (MSEs). In the second phase of decentralization, the focus should be on developing of small scale enterprise in small towns. There are 353 small towns with a population 5000-19999, providing mostly non-tradable services to the hinterlands (see figure on distribution of towns). Development through decentralization and market liberalization involves the interplay of capabilities, incentive and institutions (for my recommendation on the enabling reforms see Tsegaye 2006).



Industrial decentralization plays a significance role in the creation of employment for the growing rural surplus labour and for the unemployed labour force in urban centres. Because of the saturation in the agricultural sector and the limited scope of the non-farm service sector, the decentralization and development of the industrial sector is the only remedy. The future of Ethiopia is on green revolution and industrial decentralization. I wish all Ethiopian political forces focus on the creation of employment opportunity and guarantee of food security. The children and the youth in Ethiopia deserve a better life.

Selected References:

1. Admit Zerihun, (2008), “Industrialisation Policy and Industrial Development Strategy of Ethiopia”, in Taye Assefa, ed., Digest of Ethiopia’s National Policies, Strategies and Programs. Addis Ababa.
2. Altenburg, T. (2009), “Industrial Policy in Ethiopia”, Workshop, Industrial Policy in Developing countries”, DIE (German Development Institute). Bonn.
3. CSA (1999) The 1994 Population and Housing Census Vol II Analytical Report. Addis Ababa.
4. CSA (1999). Statistical Report on the 1999 National Labour Force Survey. Addis Ababa.
5. CSA (2005), 1999 National Labour Force Survey Analytical Report. Addis Ababa.
6. CSA (2005), Report on the 2005 National Labour Force Survey. Addis Ababa.

7. CSA (2006), Ethiopia Demographic and Health Survey 2005. Preliminary Report. Addis Ababa.
8. CSA (2007), Agricultural Sample Survey 2006 / 2007 (1999 E.C.). (September – December 2006). Volume I. Report on Area and Production of Crops (Private Peasant Holdings, Meher Season). Statistical Bulletin. 388. Addis Ababa.
9. CSA (2007), Agricultural Sample Survey 2006 / 2007 (1999 E.C.). (September – December 2006). Volume IV. Report on Land Utilization (Private Peasant holdings, Meher Season). Statistical Bulletin. 388. Addis Ababa.
10. Demeke, M., Mekonnen, A., Admassie, A and Aredo, D., eds. (2003). Technological Progress in Ethiopian Agriculture. Addis Ababa.
11. Dercon, S., Hill, R.V. and Zeitlin, A. (2009), In search for a strategy: Revisiting Agricultural-led Growth in Ethiopia. University of Oxford.
12. Lewis, W. Arthur (1954). “Economic Development with Unlimited Supplies of Labor,”. Manchester School of Economic and Social Studies, Vol. 22.
13. Malmberg, B and Tegenu, T. (2007), Population pressure and dynamics of household livelihoods in an Ethiopian Village: an elaboration of the Boserup-Chayanovian framework, in Population and Environment. Retrieve from www.springerlink.com/index/u9uk234661788215.pdf
14. Ohno, K. (2009), Ethiopia: Political Regime and Development Policies.
15. Tsegaye Tegenu (2006), Evaluation of the Operation and Performance of Ethnic Decentralization System in Ethiopia. The Case of the Gurage People, 1992-2000. Addis Ababa University Press. (365 pages)
16. Tsegaye Tegenu (2009), Labour Force Growth and its Effects on Ethiopian Rural Economy: A Study of Growth Policy Options. Retrieve from http://www.aigaforum.com/articles/Labour_Force_Growth.pdf
17. Tsegaye Tegenu (September 2008), *Labor Force Growth, Employment Characteristics and Mobility Conditions in Rural Ethiopia*. Paper submitted to the Expert Group Meeting on Age Structural Transition and Development Policy and Planning. Vienna (25 pages).
18. Tsegaye Tegenu and Bo Malmberg (forthcoming), Explaining Drivers and Consequences of Population Pressure in Rural Ethiopia: A Study on Economic Performance, Conditions of Structural Transformation and Policy Options. Department of Human Geography, Stockholm University.
19. Tsegaye Tegenu and Bo Malmberg (work on progress), Urban Growth and Urbanization in Ethiopia: Emerging Pattern, Driving Forces and Policy Options
20. WB 2007, Ethiopia Capturing the Demographic Bonus in Ethiopia: Gender, Development, and Demographic Actions. Report No. 36434-ET.