

Is Informality Welfare-Enhancing Structural Transformation?

Evidence from Uganda

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Abstract

While Africa's recent decade of growth and poverty reduction performance has been lauded, concern has been expressed regarding the structure of this growth. In particular, questions have been raised about whether the growth is based on a commodities boom, or whether it is the beginning of a structural transformation that will lift workers from low-productivity jobs into higher-productivity ones. Macro evidence has suggested that the structural transformation has not started. But macro analysis misses the evidence that the process of transformation has started, because this process begins at the household level. Household livelihoods do not move from ones based on subsistence farming and household

level economic activities into livelihoods based on individual wage and salary employment away from the household in one leap—this process takes generations. The intermediate step is the productive informal sector. It is income gains at the household level in this sector that fuel productivity increases, savings, and investment in human capital in this sector. *Ensuring that most households are able to diversify their livelihoods into the non-farm sector through productive informality not only increases growth, but also allows the majority of the population to share in the growth process.* This paper illustrates this point with the case of Uganda which followed this path and experienced two decades of sustained growth and poverty reduction.

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Is Informality Welfare-Enhancing Structural Transformation? *Evidence from Uganda*

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1. Introduction

It is widely agreed that structural transformation of the economy from a fundamentally agrarian, basically subsistence one to an urbanized, integrated, enterprise dominated one is the essence of economic development because that is what sustains growth and improvements in economic welfare. Over the past fifty years, analysis of how this transformation occurs helped to illuminate the essential elements of the process, and also revealed the complexity of the pathways and processes countries need to follow to reach this objective. This country level and cross country analysis has highlighted some key issues namely: path dependency in the transition and the salience of initial conditions, the role of the global economic environment and the development of neighbors and trading partners in supporting or hindering the transformation, and importantly, that the process is not one way, rather there is the possibility of reversals (World Bank, 2000). Nevertheless, the analysis has not disputed this fundamental pathway to sustained growth and poverty reduction.

Nowhere is the need for structural transformation stronger than in Sub-Saharan Africa (SSA), where poverty is the highest. Many analysts are now bullish on SSA, after a decade where per capita income rose 2 percent per year on average, and many countries experienced substantial poverty reduction (World Bank, 2010, 2011a). The empirical analysis of structural transformation should facilitate our understanding of the state of development in SSA and how to use the tools of economic policy to accelerate this continent's structural transformation. But recent analyses suggest that in the case of SSA, despite a decade of strong, broad-based economic growth in a number of countries, the key elements of structural transformation are not emerging. The manufacturing sector is growing slowly if at all,

and most of the labor force seems mired in the swamp of low productivity agriculture, without exit (Headey and Dorosh, 2011). If anything, SSA seems to be on a path of reversal (McMillian and Rodrick, 2011). But then a puzzle emerges. If SSA is not undergoing structural transformation, how could poverty be reducing? How could the income levels of households be rising if nothing has been going on structurally in the economy for fifteen years or more?

In this paper, we analyze this puzzle using the case of Uganda, a country which has experienced both strong and sustained economic growth and poverty reduction. We first review the macro level evidence according to the traditional metrics of structural transformation, and then we look at the evidence according to some alternate benchmarks. Using the alternate benchmarks, we argue that Uganda (and other countries in SSA) is indeed undergoing a structural transformation, but of a more subtle nature, one more suited to their initial conditions and easily missed by macro indicators. We argue that it is this milestone on the transformation –productive informality – which ensures that poor households share in the growth and transformation process. While there is no question that growth in this segment of the economy alone will not be enough to sustain the development process, nor can this sector be sustained without growth and productivity improvements in other sectors, we suggest that unless this subtle transformation is also encouraged through economic policy and development strategies, inequality will widen. This in turn will limit growth prospects through the corrosive effect high inequality has on the development of institutions, and the quality of economic policy and growth.

The paper is organized as follows. In section 2, we do a quick review of the dimensions of structural transformation. In section 3, we review the empirics of

structural transformation, from a microeconomic perspective. In section 4, we provide the basic background on Uganda's economic growth and poverty reduction, looking for the structural transformation. In section 5, we show that according to an alternative way of analyzing and measuring Uganda's structural transformation quite a bit of movement has occurred, and that this type of transformation mattered for poverty reduction. Section 6 discusses the implications for the development strategy in Uganda and other low income SSA countries. We conclude in section 7 with a summary of key findings and policy implications.

2. Structural transformation, economic development and poverty reduction – A brief review

It is no surprise that Sir Arthur Lewis, widely considered the father of development economics, is most famous for his exposition on how structural transformation works in development countries - the now famous model of the movement of "surplus" labor out of low productivity traditional agriculture into high productivity modern industry (Lewis, 1954). Lewis' model belongs to the classical or institutional approach since it involved at least one market not clearing, and in the traditional sector, an institutionally determined rather than market determined wage. It was taken up by both the classical/institutional economists and the neoclassical economists in the 1960s and 70s, (e.g. Rostow, Chenery, etc.) and provided the basis for economic modeling and policy making for several decades (e.g. Chenery and Taylor, 1968; Chenery and Syrquin, 1975; see Meier and Stiglitz, 2001, for review). Agriculture as an engine of the transition was rehabilitated in the 1970s and 1980s by, among others, Mellor (various, including 1976) and Timmer (various, including

1988). Then in the 1990s, the ‘new economic geography’ added the dimension of economic density (agglomeration) to the concept (Krugman, 1991).

Today, it is widely agreed that economic development involves four main transformations (Headey and Dorosh, 2011):

- *Output transformation* (decrease in the share of value added created in the agricultural sector, and increase in the share of value added created in the non-agricultural sector)
- *Employment transformation* (decrease in the share of hours worked of the labor force in agricultural and increase in the share of hours worked of the labor force in non-agriculture)
- *Geographical or density transformation* (increase in the share of the population living in urban, high density areas, and the share of economic activities taking place in these areas); and
- *Demographic transformation* (decrease in fertility and increase in life expectancy leading to decline in population growth rate and reduction in the dependency ratio).

As Timmer and others have pointed out, these transitions are not all expected to take place at the same time. In particular, the output transformation tends to lead the others, and the employment transformation tends to lag (Timmer, 2008). This is partly because of the simple algebra of the transition. If the agricultural sector starts big and the non-agricultural sector starts small, and labor is more productive in the non-agricultural sector because it is agglomerated and combined with more capital and know-how, then absorbing labor into this sector takes more investment per unit than in the traditional sector. So the non-agricultural sector would have to absorb

labor more slowly than the agricultural sector in the initial stages, until the non-agricultural sector grows to be a very large share of the economy (see Timmer, 2008 for a numerical example). Obviously, a more rapid demographic transition, by slowing the growth of the labor force, would reduce the lag time, all other things being equal.

In the modern theory and practice of economic development, one of the key issues in economic thought has been the relationship of structural transformation and poverty reduction. Initially, this question was not even considered, but then Simon Kuznets and others began to analyze the linkages, at first empirically and then theoretically (Kuznets, 1966). Kuznets and others noted that in some countries, the process of structural transformation was accompanied by increasing inequality. In this case, although a transformation was taking place which provided the basis for sustained growth, it was not leading to much poverty reduction because too many of the gains went to the upper quintiles of the income distribution. The analysis of this point in the literature of economic development also has a long history, and it links up the structure of economic growth (output transformation), the distribution of growth (income inequality and inclusive growth) and levels of deprivation (absolute poverty on multiple dimensions). Ultimately, the failure to find strong panel evidence of a Kuznets relationship (especially the downward sloping part of the curve) led economists to move away from viewing an increase in poverty or inequality as in some way a mechanical or automatic consequence of broad-based growth or structural transformation. On the contrary, broad-based, growth and structural transformation came to be seen as necessary for poverty reduction and vice versa (World Bank 1990, 2001, 2005).

But then along came the new economic geography, which provided both a strong theoretical argument for a relationship between structural transformation and rural-urban inequality (economies of scale and agglomeration, see World Bank, 2009 for a discussion as applied to low income countries). While analysis of “Asian tiger” economies showed that absolute poverty can decrease along with structural transformation, the rising inequality which usually accompanies agglomeration and urbanization makes the problem more complex (World Bank, 2009). Measures need to be taken to manage this transition in lagging areas to avoid an unequal growth which excludes large swaths of the population.

At the same time that the new economic geography brought a theoretical and empirical justification to the questions of growth and transformation, and inequality and poverty reduction, another set of analysis showed that too much inequality is actually toxic for growth and structural transformation (World Bank, 2005). While no absolute level has been identified as a maximum, experience from a number of countries indicates that growth problems occur at the high end of the usual income distribution measures. Explanations for this type of growth slowdown include the political difficulty of implementing economic policies which would create broad-based growth when so much of the wealth is held by a small group, and the effect of inequality traps on savings, investment and market institutions.⁴ Timmer, in a recent paper, argues that a process of structural transformation which results in big productivity gaps between the agricultural sector and the non-agricultural sector will

⁴See Acemoglu and Robinson, (2005), and World Bank (2005) for literature reviews.

create a political situation which results in protectionist policies which slow growth and poverty reduction.⁵

While Timmer's discussion focuses on measures to increase agricultural productivity as a way to reduce inequality, a complementary path to reach Timmer's goal of higher rural incomes would be to focus on the rural non-farm economy (RNFE), a subset of the informal sector. The role of the RNFE in supporting development and structural change was recognized as far back as the 1970s (see Anderson and Leiserson, 1978, cited in Haggblade et al, 2010). The work of Haggblade and others have recently highlighted the important role this sector has played in growth, structural change, and sometimes poverty reduction, although the evidence is mixed because of the heterogeneity of the sector and the policy environment in developing countries.

This new thinking and empirical work has not altered the fundamental proposition that structural change is the basis for sustained long term growth and poverty reduction. But it does suggest that the type of structural change matters. And the sustained growth in some SSA countries with limited structural change becomes a paradox, as does the poverty reduction performance – unless the traditional analysis misses aspects of structural transformation in SSA at the micro level, such as the development of rural and urban informal NFE. The next two sections offer insights on how traditional analysis tends to miss the structural transformation in the region (a) by using macro levels measures which fail to measure the growth of informal NFE, and

⁵ Timmer, 2008, does not discuss the case of India but it clearly supports his point. India's recent structural change has resulted in a huge widening of the productivity difference between the agriculture and non-agricultural sectors (McMillian and Rodrick, 2011), and India has a well protection agricultural sector.

(b) by dismissing lower productivity informal NFE instead of recognizing that they are a key transitional mechanism along the way.

3. Is Africa experiencing structural transformation along with growth and poverty reduction? Measurement issues

There is not much doubt that a number of countries in low income SSA experienced a sustained period of economic growth between 1998 and 2008 which was not confined primarily to one dominant sector, and that growth was accompanied by substantial poverty reduction ⁶(World Bank, 2010, 2011a). During the same period, the share of agriculture in value added continued to fall in many of the countries from the pre-independence period high; it now averages around 20-25 percent. However, the share of value added in manufacturing in many of these countries either did not grow or grew very slowly over the same period, leading some to question whether structural transformation in output was taking place (Headey and Dorosh, 2011). Similar numbers for the same period on the employment transition are mostly not available. The share of the population living in urban areas is increasing rapidly, but in most countries the annual growth rate of the population still exceeds 2.5% per annum, owing primarily to high fertility (World Bank, 2010). The question we consider in this section is whether it is possible to reach a conclusion on whether structural transformation is taking place.

The measurement of the four transformations is usually considered fairly straightforward in the empirical literature. *Output* transition is measured by the

⁶ World Bank ,2011 cites 22 countries with a ten-year growth record of 4% per annum or more (meaning 10 years of per capita economic growth at 1% of more), and these countries made up about 40% of Africa's population. Another 30% of the population lives in countries which also experienced strong growth, but this growth was dominated by mineral exports. The rest lived in countries with broad-based, but lower growth.

national accounts; *employment* through labor force statistics on the primary sector of activity of those employed; *agglomeration* through population or firm censuses; and *demographic* through demographic surveys (or population censuses). Each of these suffers from its own measurement problems, but those associated with the first two are most severe in SSA. This is primarily because of the absence of well-structured and monetized goods and labor markets, and also because of weak statistical capacity in low income countries. In the case of the measurement of *output* by sector, it is well known that national accounts data underestimate production (especially agriculture) for home use, and the value added of unincorporated microenterprises and self-employment (often called the “informal sector” or “informal enterprise activity”). These omissions can be substantial. For example, attempts to more accurately account for this type of production in Ghana resulted in a 60 percent increase in GDP for 2006 and subsequent years.⁷ They will also bias estimates of agricultural production downward.

The measurement of *employment* by sector is even more difficult, owing to the fact that most employment in low income SSA takes place through economic activities done outside of a firm (and a labor market), does not take place in the same location every day, and likewise may not occupy a set schedule and may not even involve the same output sector every day or week or hour. For example, at one point in time a member of the household might be involved in running the household RNFE, or selling labor on a casual basis in the construction sector, and at another point harvesting the household crops for sale or consumption. This reality means that the conceptual variable used to measure the employment transformation - “sector of employment” - is

⁷ See World Development Indicators, 2010, for discussion.

more a matter of *degree* at the individual level than the absolute sector choice indicated by the above definition.

Adding to the confusion is that SSA countries tend to use conventional labor force surveys, designed for and well suited to the structured and monetized labor markets of OECD countries. When applied in SSA, these questionnaires can result in both outright omission of large segments of the working age population from the labor force, and underestimation of the extent of economic activity by individuals in a given sector. It can also result in the misclassification of the (primary) sector of economic activity because the sector where someone spends the most hours may not be the sector where the person creates the most value.

We quantified the extent of this measurement problem in Uganda using the 2005/6 UNHS household survey data, and we found it to be severe (Fox, 2009). First, we checked the importance of seasonality. Using the most commonly used recall period to measure of employment status – did you work in the last 7 days – resulted in a 10 percent smaller labor force than using a more appropriate recall period of 12 months. We found that the sector reported for the primary activity varied by whether the recall period was 7 days or 12 months. We also found that the use of screening questions in the 2005/6 survey dramatically increased the number of females and youth who reported that they were active in the labor force, compared with previous years. Finally, we found that 40% of the labor force had both a primary and a secondary economic activity, and these activities were in different sectors, suggesting that the classification of the employed labor force by primary economic activity would not pick up a major portion of the economic activity going on in Uganda. All of the

above suggests that the measurement of the employment transition will be problematic in SSA for some time.

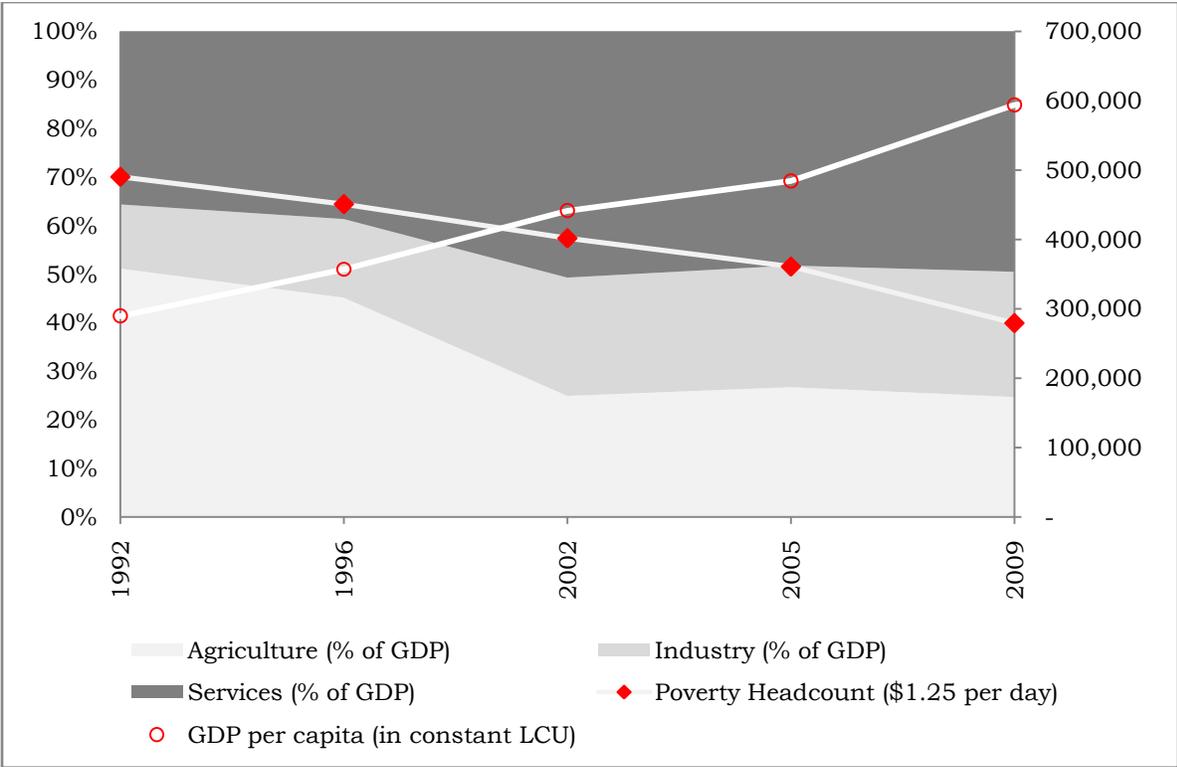
One of the most dominant features of employment in low income SSA countries is actually the lack of labor markets – the fact that some 80-90 percent of the labor force do not work under contract (formal, informal, casual or piecework) for someone outside of their family. Instead, they work in an economic activity which is owned and operated by themselves or their household members – either a farm or firm or both. Often called the “informal sector” or the “informal economy”, it is this mode of employment – where tasks are assigned through a household decision making process, and remuneration (or control over available consumption resources) occurs in cash or in kind, again through some sort of communal arrangement - which dominates the employment structure. While Lewis, and most development economist who followed him, labeled these activities as the “traditional” sector – and thus primarily agriculture based, this is an oversimplification. The activities do not always take place in the agricultural sector or even in rural areas. The level of technology, capital, and productivity can vary widely. It is this phenomenon which most complicates the measurement and analysis of structural transformation. As we will see in the case of Uganda, using traditional measures, the complexity and heterogeneity of this sector is easily missed, as is its role in facilitating the transformation and reducing inequality.

4. Uganda’s growth and poverty record

Since the early 1990s, Uganda has had a strong record of economic growth and poverty reduction. Output (GDP) has grown at an average annual rate of 8 percent per annum since 1992, so that even with a population growth rate over 3%, there has

been solid growth in per capita income. And the growth by sector has followed the expected path of transformation. Growth in value added in agriculture has been slow, while annual growth in industry and services has been double digit. The share of industry in GDP has more than doubled, and is now a respectable 26% while services, including government, account for 50% of GDP (see Figure 1). Within industry, most of the growth did not come from the very capital intensive mining sector, but actually resulted from import-substitution manufacturing and the development of non-traditional exports (World Bank, 2007).

Figure 1: Trends in sectoral share of GDP in Uganda, 1992-2009



Source: World Development Indicators, 2010 and Povcal Net, 2011

Not surprisingly, this growth resulted in substantial poverty reduction. The poverty head count, measured at the international poverty line of \$1.25/day, fell from 70 percent in 1992/93 to 38 percent in 2009/10. Both rural and urban poverty

declined, as did the severity of poverty, as measured by the poverty gap and squared poverty gap.

Even after making adjustments for the inconsistency of Ugandan labor force data over time, we still find an overwhelming majority of the workforce reporting agriculture as their primary economic activity in the most recent household survey (see Table 1).⁸ Indeed, it appears that the Uganda's high rate of non-agricultural economic growth allowed only a very small part of the labor force to move into higher value activities. Are these numbers a true reflection of the employment transition? First, Uganda has added 7 million people (i.e. doubled) into the labor force since 1992, and at least 2.7 million (i.e. 40%) of these eventually found primary employment outside the agricultural sector. So the slow demographic transition hides some of the structural shifts. Second, since the first data were collected in 1992 the Ugandan basic multipurpose household survey instrument (UNHS) has been modified, with the improvements designed in part to sweep more people into the labor force. Many of those left out in 1992 worked primarily in agriculture. But the result of the changes makes it impossible to get a consistent series on employment in Uganda. Our estimates attempt to correct for this, but still show a less than expected net flow out of agriculture as a primary source of employment given the extent of the economic transformation suggested by the sectoral GDP numbers, and the high rate of poverty

⁸ The labor module used in Uganda's National Household Surveys (UNHS) has been changing since 1992 leading to problems of comparability across surveys. Major changes include the introduction of screening for economic participation in 2002/03 (with short screening) and 2005/06 (with detailed screening) and varying recall periods for main and secondary employment statuses. The level of details on employment statuses also change, with the latest survey (UNHS 2009/10) missing secondary employment in the 12 months recall and thus limiting the usefulness of that data for livelihood analysis. Consequently this paper uses the UNHS 2005/06 as the latest survey whenever secondary employment or a complete livelihood analysis is required. Measurement of employment status and economic participation is done only with surveys cases where these variables can be constructed in a comparable way e.g. by building from main employment status questions and household enterprise modules using similar recall periods.

reduction. In particular, if the UNHS data are correct, very little has changed in the last decade.⁹

Table 1: Sectoral composition of primary employment, 1992/93 - 2009/10 show sluggish movement out of agriculture

	Year			
	1992/93	2002/03	2005/06	2009/10
Labor force	100.0	100.0	100.0	100.0
Agriculture	82.6	70.2	74.9	70.0
Industry	4.5	7.2	5.4	8.0
Services	12.9	22.6	19.7	22.0

Source: Authors calculations based on the IHS 1992/93, UNHS 2002/03, UNHS 2005/06 and UNHS 2009/10

5. Uganda’s structural transformation and its impact on poverty

5.1 Nature of the transformation

If the movement of labor from the low productivity sector (agriculture) to the higher productivity sectors was limited, then what were the drivers of the extensive poverty reduction? Our analysis suggests three channels:

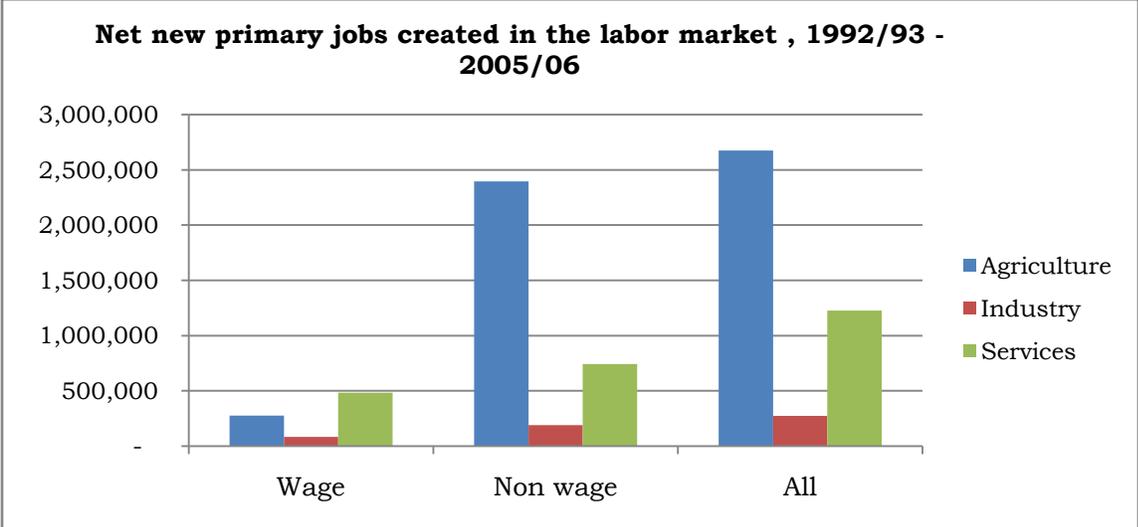
- (i) transformation in the type of employment in each sector;
- (ii) transformation in household livelihood portfolios; and
- (iii) transformation within the agricultural sector, from “traditional subsistence” to new, higher value export crops, the use of livestock, and modern marketing channels.

To see the first transformation, the change in the structure of primary employment by sector is broken down by type of employment within the sector (see Figure 2). While the reported primary sector of employment of those in the labor force

⁹ We found significant inconsistencies in the 2009/10 employment data, and suspect that the 2009/10 questionnaire undercounted non-wage employment, especially secondary employment. We made some adjustments to correct for this, and are reasonably confident about the data on primary employment by sector shown here.

may not have changed very much, the type of employment within sectors did. Wage employment of any type grew much faster than the labor force over the 15 year period and private-non agriculture wage employment increased by around 12 percent per annum between 2002/03 and 2005/06. This recent increase was one of the fastest growth rates in private wage jobs in Africa, second only to Ghana (World Bank, 2010).

Figure 2: Non-wage employment accounted for most of the employment growth

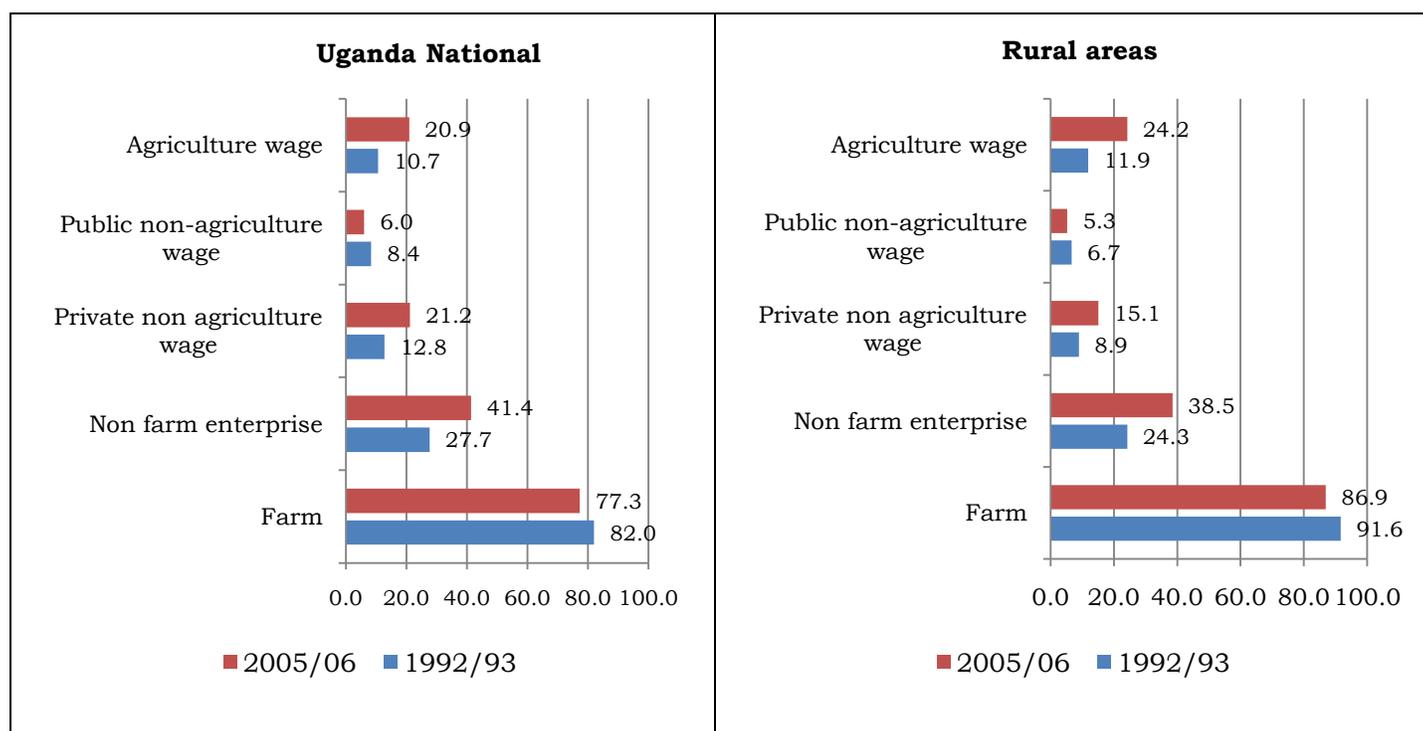


Source: Authors calculations based on the IHS 1992/93 and UNHS 2005/06

Non-wage employment outside the agricultural sector (*self-employment, micro-enterprise owner, or family helper*) grew even faster, dwarfing the increase in wage employment. Employment in a non-farm household enterprise accounted for the majority net primary non-agriculture jobs created between 1992/93 and 2005/06, absorbing many of those who came into the labor force without a primary education certificate and thus lack qualifications needed for most types of wage employment. The traditional employment, family farming, grew the slowest at a rate below the growth of the labor force. This was a transformation, but not at the productivity levels that

would be expected from the GDP numbers, because non-wage jobs tend to be much lower productivity.¹⁰

Figure 3: Incomes sources of households in Uganda, 1992/93-2005/06, showing that share of non-agricultural income sources grew,



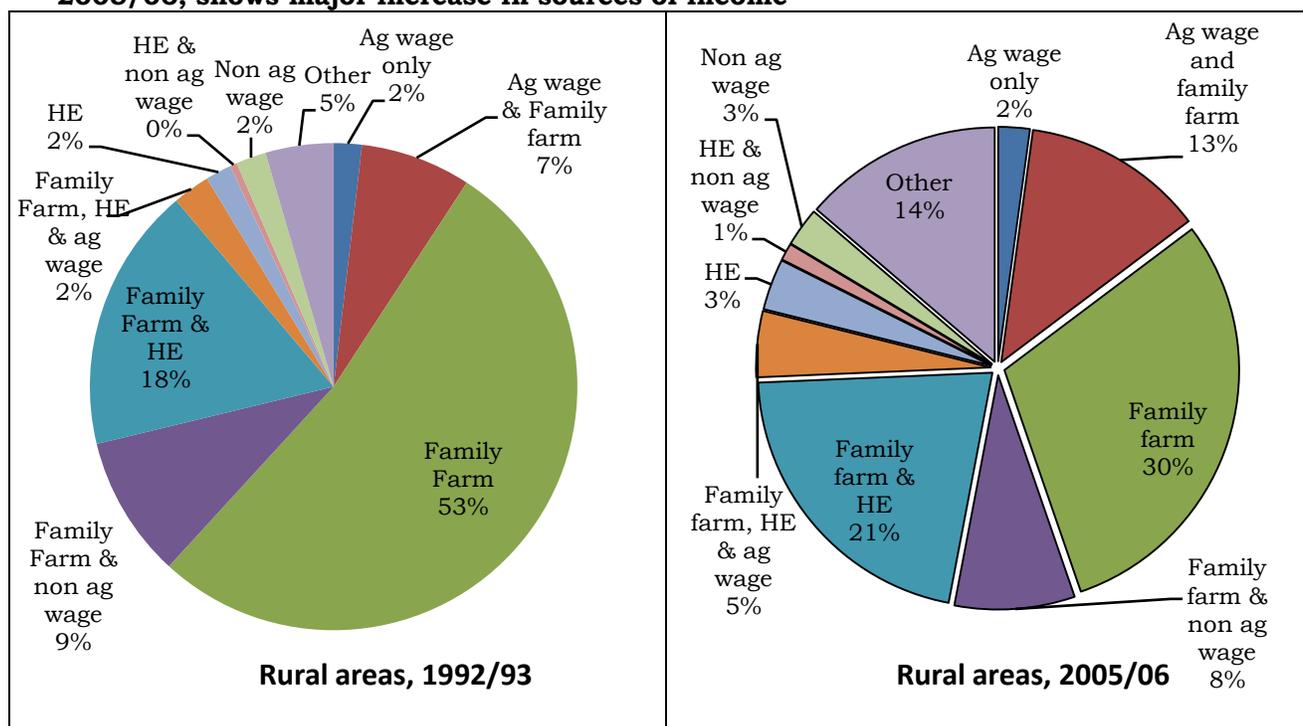
Source: Authors' calculations based on the IHS 1992/93 and UNHS 2005/06

Moving to household livelihoods (which covers all employment, not just primary employment) *we see a clear trend toward income diversification into incomes sources outside-subsistence agriculture as expected.* A comparison of household sources of income in 1992/93 and 2005/06 in Figure 3 shows that the proportion of households with an income from non-farm sources increased dramatically. The proportion of households with a private non-agricultural income almost doubled while that of households with non-farm household enterprise increased by 50 percent. The number of NFEs has been rising at an annual average rate of 6 percent in the past decade. A

¹⁰ We do not have the data to estimate the productivity of wage and non-age jobs by sector. Most analyses find that informal enterprises have lower labor productivity. To the extent that earnings reflect productivity, Uganda is no exception; median earnings are lower in non-wage jobs (see Fox, 2009).

driving factor is that in rural areas, many households had reached their limits to growth in agricultural incomes owing to productive land shortages, as 58% of Ugandan farms were less than one acre in 2005/6 (World Bank, 2011b). By 2009/10, about 40 percent of rural households operated a non-farm household enterprise (HE) compared to 24 percent in 1992/93.

Figure 4: Comparison of rural household livelihood portfolios in Uganda, 1992/93 - 2005/06, shows major increase in sources of income



Source: Authors' calculations based on the IHS 1992/93 and UNHS 2005/06

This diversification was an *addition* to household livelihoods, not a switch, which is why it does not show up in the primary employment data. Figure 4 shows how households combine types of incomes into livelihoods. As a result of the growth in other sources on income, the proportion of households that solely rely only on farm income (both wage and non-wage) declined by a third, from 54 percent in 1992/93 to 36 percent in 2005/06. In rural areas, the proportion of households relying on agriculture income only (usually subsistence) declined by 43 percent during this

period (see Figure 4). Thus while agriculture remains a source of income for 77 percent of households in Uganda and 87 percent of rural households, by 2005/6 the overwhelming majority of households were complementing it with income from other activities which are usually more productive – meaning that they added activities over the period, rather than switching sectors entirely. In urban areas, the expansion of wage employment was an important driver of income diversification, but in rural areas it clearly was NFE.

The shift appears more dramatic in the household level analysis because most households still rate their enterprises as a secondary activity, (especially in rural areas). So the high growth in non-farm enterprises is not reflected as dramatically in the employment data above, which shows only primary employment. This leads to the perception of the stagnation in the structure of the labor force when structural change is measured in the traditional way, e.g. using primary employment data. Note that as we have four types of activities, we actually have combinations, even though we only show the top nine in the figure. The expansion in the ‘other category refers to these omitted combination, including the households with four types of income.

Uganda’s third structural transformation was within the agricultural sector.¹¹ Since 1992, Ugandan farmers have gained productivity, diversified their crops, and become more commercialized. In 2005/6, household survey data suggests that most Ugandan framers produce four or more crops during the year, including several for the market. Among the top 25% farmers, the average sale to production ratio was 50%. By 2005/6 many farmers depended on either crop sales or non-farm income for their staple foods instead of their own production – roughly 40 percent of all farming

¹¹ See World Bank, 2011b for further discussion of the evolution of Uganda’s agricultural sector.

household get a large share of their staple foods from the market. In 1992, coffee was king among Ugandan commercial crops and exports – by value, it accounted for about 90% of exports. By 2008, even with high prices of that season, Ugandan coffee accounted for about less than one-third of Ugandan merchandise exports by value. On-farm production of livestock and related products has been growing as well – milk, eggs, chickens, pigs, etc. for both domestic and regional consumption. While use of modern seeds remains low, suggesting that Uganda has a way to go in transforming agriculture, this important within-sector transformation is on its way.

Rather than happening independently, our analysis indicates that the trends are related. The diversification increased household incomes, and contributed to the structural transformation within the agricultural sector by providing extra liquidity, thus compensating for the failure of rural credit markets. Evidence from the UNHS 2005/06 shows that agricultural households with other sources of income report higher income from agriculture on average. They are also more likely to buy other fertilizers, seeds and other marketed inputs. This implies that instead of substituting agricultural income, households with a diversified livelihood portfolio use their various income sources to compliment farm incomes by providing working capital for their farms. This raises yields on their farms thus increasing their incomes further. This is not a surprising result, as other studies have found similar relationships between NFE and modernization of farming practices in Asia (Haggblade et al, 2010). Likewise, qualitative evidence shows that increases in farm cash incomes support the growth of the non-farm enterprise sector by increasing demand for these products (Bakeine, 2010).

5.2 Evidence on the role of livelihood transformation and poverty reduction

Without panel data, analysis of the role of Uganda's livelihood transformations in poverty reduction suffers from inherent problems of endogeneity. Nonetheless, the evidence strongly suggests a relationship. Despite the enormous problems of comparing earnings in wage and non-wage sectors, all evidence points to the non-farm sector offering higher earnings than subsistence farming – not only because hours worked over the year tend to be higher but also real earnings per day are on average higher. The diversification of household livelihood portfolios into non-farm sources of income thus increases income and household welfare.

To quantify the role of household livelihood expansion in poverty reduction, we estimate determinants of household welfare. We run the standard OLS regression, but we include type of income source and their interactions as explanatory variables and controlling for other confounders. Household welfare is proxied by the natural log of monthly consumption per adult equivalent. This analysis is based on the UNHS 2005/06, which was chosen ahead of the UNHS 2009/10 due to previously mentioned data problems in the labor module that renders the later survey inadequate for a complete livelihood analysis. The results from the consumption regressions are presented in Table 2 and summary statistics of the explanatory variables used in the regression are presented in Table 3 in the appendix.

Regression results show that households with income from a household *enterprise* have a higher income by at least 14 percent in rural areas and 23 percent in urban areas, while those with non-agriculture *wage income* have higher per capita welfare by at least 12 percent in rural areas and 13 percent in urban areas (columns

1(a) and 2(a)). The specification controls for age and level of education so we can see the important role of the ability of *at least one member of the household to access nonfarm income* in raising household consumption.

Columns 1(b) and 2(b) use the livelihood combinations we identified above, and this specification also shows that households with a non-farm enterprise or wage income have higher levels of welfare than households with family farm income only. Compared to similar households with *only* farm income, those earning an income from household enterprises *only* have a higher welfare by nearly 27 percent and 40 percent in rural and urban areas respectively, while those with a *nonfarm wage income only* respectively have a higher by 36 percent and 32 percent. Households in rural areas with both family farm and non-farm income do better as well, and the coefficients on the combinations are about as high as in column 1(a). But in urban areas, the combinations which include enterprise income clearly stand out as the best relative to only farm income, even controlling for education. Thus the increase of the proportion of households with income from nonfarm enterprises or wage jobs since 1992 appears to be a strong driver of increased income and poverty reduction in Uganda.

Table 2: Regression Results: Determinants of the log of consumption per adult equivalent in Uganda, 2005/6^a

Variable Description	Rural Areas				Urban Areas			
	1(a)		1(b)		2(a)		2(b)	
	Coeff	S.E	Coeff	S.E	Coeff	S.E	Coeff	S.E
Household demographic characteristics								
Household size	-0.113***	0.009	-0.113***	0.009	-0.169***	0.016	-0.169***	0.017
Household size squared	0.004***	0.001	0.004***	0.001	0.007***	0.001	0.007***	0.001
Male headed household	0.019	0.018	0.023	0.018	0.014	0.036	0.018	0.037
Age of household head	0.007**	0.003	0.008**	0.003	0.031***	0.006	0.030***	0.006
Age of household head squared	-0.0001**	0.000	-0.0001**	0.000	-0.000***	0.0001	-0.0001***	0.000
Household education characteristics^b								
Prop. 15+ with some primary education	0.132***	0.025	0.130***	0.025	0.243***	0.068	0.261***	0.07
Prop. 15+ with complete. primary education	0.387***	0.031	0.384***	0.031	0.542***	0.072	0.567***	0.073
Prop. 15+ with some secondary education	0.557***	0.039	0.559***	0.039	0.697***	0.074	0.734***	0.075
Prop. 15+ with complete. secondary or degree	1.088***	0.075	1.089***	0.074	1.378***	0.089	1.421***	0.088
Household sources of income								
Has farm non-wage income	-0.091***	0.027			-0.05	0.037		
Has non-farm enterprise income	0.134***	0.015			0.209***	0.034		
Has agric wage income	-0.124***	0.017			-0.212***	0.059		
Has non-farm wage income	0.113***	0.02			0.123***	0.036		
Receives remittances	0.041**	0.016	0.036**	0.016	0.047	0.033	0.045	0.033
Livelihood category (Base category – Farm non-wage)								
Has nonfarm wage income only			0.308***	0.059			0.277***	0.076
Has farm wage income only			-0.072	0.054			0.088	0.147
Has household enterprise income only			0.236***	0.048			0.334***	0.073
Has farm non wage & farm wage income only			-0.117***	0.023			0.073	0.135
Has farm non wage & household enterprise income only			0.119***	0.02			0.372***	0.081
Has farm non wage & non-farm wage income only			0.054*	0.029			0.170**	0.082
Has farm non wage, non-farm wage & household enterprise income only			0.276***	0.04			0.468***	0.083
Has non-farm wage & household enterprise income only			0.322***	0.069			0.448***	0.081
Other livelihood category			0.014	0.024			0.228**	0.082
Household location								
Resides in an Internally Displaces People's Camp	-0.225***	0.033	-0.216***	0.032	-0.217*	0.113	-0.231*	0.132
Constant	10.516***	0.068	10.410***	0.068	10.202***	0.145	10.052***	0.161
Observations	5536		5574		1575		1602	
Adjusted R -Squared	0.355		0.355		0.437		0.430	

Notes: (a) ; * p<.1; ** p<.05; *** p<.001, S.E – robust standard errors. Results based on unweighted regressions and includes regional fixed effects (not shown).(b) Education variables are based on the proportion of household members aged 15 and above who are not currently in school.

The relationship between sector and type of economic activity among household members, and household welfare in Uganda has been found in other analyses as well. Consumption regressions based on data from previous UNHS also show that type of employment is a significant independent predictor of household welfare, with employment in non-farm sectors having a greater effect on welfare (World Bank, 2006). Although correlations between the growth of non-farm income opportunities and lower poverty, either over time in Uganda or at the household level in repeated cross sections do not necessarily imply causality, they do suggest *that the expansion of the non-farm enterprises in the informal sector was indeed good structural transformation for Uganda as it seeks to alleviate poverty.*

6. Discussion

Despite the importance of non-farm household enterprise incomes in increasing household welfare, it has to be recognized that most economic activities in non-farm enterprises use low capital and rudimentary technology. They are usually services, or the production of low quality goods. Therefore, labor productivity growth in this sector has limits and the risk of failure is also high. Although some hire external labor, many depend only on family labor input. Nearly 80 percent did not have a hired worker in 2005/06 while only 6 percent had three or more workers. When HEs are started as a secondary source of income, employment was not always full time. Around 44 percent of HEs (in operation for at least one year) reported operating for less than 12 months in a year, with 21 percent operating for less than six months in 2005/06 for example. In rural areas, it is common for households with non-farm enterprises to devote some weeks entirely to agriculture. About half of household enterprises seem to fail within

three years of operation owing to risks and various challenges faced by the informal sector.

So how can increasing the volume of informal activity, which lowers overall productivity in the non-agricultural sectors, be good for development and poverty reduction? Squaring these two can be difficult. It seems that this type of structural transformation can give off contradictory signals. This type of *non-agricultural labor productivity-lowering transformation is important for poverty reduction* because even while lowering average labor productivity in the non-agricultural sectors, the gap between marginal labor productivity in these sectors versus agriculture remains high so those who move into the non-farm sectors gain.

This brings up three issues, however. First, Uganda did grow pretty rapidly. It is hard to do better than 8 percent per annum for 18 years. A strategy which included informal enterprises delivered strong growth because it was broad based, and included growth and innovation in the agricultural sector, modest growth in industry and growth in the informal enterprise sector. We don't know how much growth came from informal enterprises as the national accounts are not disaggregated in this way, but the sector clearly contributed, otherwise incomes would not have grown. Second, similar to other countries in Africa, Uganda is experiencing very high labor supply growth (nearly 3 per cent per year) owing to past high fertility. An average of one hundred thousand non-agriculture wage jobs were created per year between 2002/03 and 2005/06, but an average of four hundred thousand people entered the labor market each year – outnumbering the net private wage jobs created by a factor of four. Absorbing these in non-agriculture wage jobs would have required more than doubling non-agriculture wage jobs in three years (i.e. requiring an astronomical non-agriculture wage employment growth rate of 31 per annum). And still the majority of

the labor force (i.e. those already in the labor force) would have been outside the wage and salary sector. Thus given Uganda's population dynamics, a structural transformation to a labor market dominated by private wage employment will take several decades at least. Many labor market entrants will continue to be absorbed in self-employment in agriculture and household enterprise in the medium to long term even with continued high growth in non-agriculture wage employment.

But as important, a strategy focused only on creating "formal sector jobs" and destroying or discouraging informal sector non-farm jobs, would have resulted in less inclusive, less poverty reducing growth. In simple arithmetic, keeping average productivity in the non-agricultural sectors high would mean that the same growth would create fewer income earning opportunities in the non-agricultural sectors. This would force the vast majority of the labor force to stay in agriculture as their only sector of employment – resulting in lower incomes and more poverty. Of course, growth processes are more complicated than simple arithmetic, but illustrates the point. If SSA growth and private sector development strategies only focus on encouraging larger better organized enterprises that create wage and salary jobs, and do not also focus on transition mechanisms out of agriculture for the rest of the labor force, especially the labor force in smaller cities and towns, the result will be slower growth, widening income inequality and slower poverty reduction.¹² Slower growth will arise not only because the productivity of the majority of household livelihoods will rise more slowly, but also because widening income inequality itself can be expected to have growth-lowering effects, based on the experience of other countries.

¹² Timmer, (2008) makes this point about average productivity and income inequality with a more sophisticated example generated from a simple CGE model. He argues that the strength of the East Asian miracle in poverty reduction was that the ratio of labor productivity in non-agriculture vs. agriculture was kept low, in part because of investments in agricultural productivity. But the growth of the NFE sector also was important.

Would growth and poverty reduction have been higher if more high productivity jobs in the non-agricultural sector had been created, through the creation of even more large firms? Of course, and this is an argument of McMillan and Rodrick (2011), when they document the declining productivity in non-agricultural sectors in low income SSA. But we argue that a decline in average labor productivity in the non-farm sectors was *inevitable* at the start of the transformation unless the growth in large enterprises is at the expense of growth in small, low productivity informal enterprises. The type of growth in manufacturing jobs which occurred in the 1960s and 1970s in many SSA countries was indeed at the expense of other sectors, as it depressed agriculture. In the end, it was not sustainable. What SSA needs is *growth strategies which create new private sector wage and salary jobs, and grow agricultural productivity, and create and strengthen new NFEs*. That is the growth Uganda achieved.

The sector unfortunately continues to receive inadequate support in SSA countries owing to misconceptions and myths about its legality, and contribution to government revenue generation and local economic development. Yet as the analysis above showed, the expansion of this sector contributed to poverty reduction in Uganda. Furthermore, other studies in Uganda also show that household enterprises in the informal sector pay for license, user fees and/or permit fees to the local government, contributing close to two thirds of local governments' locally generated revenues (Bakiene, 2010). The perception that household enterprises in the informal sector do not contribute to local government revenues is therefore not supported by evidence. Instead, HEs play an important role in local economic development (yet more evidence on their contribution to growth).

Supporting the enterprise growth implies a different type of development strategy – one that focuses not on wiping out the informal sector but rather on raising

the productivity of these activities. This requires a focus on local economic development and the local economic environment for these businesses, including access to good locations for workplaces for small scale manufacturing and for markets and pedestrian zones for retail sales, including hawkers, and on household access to financial services – for savings and credit. It also means supporting associations and linkages. Traditional development approaches – which have ignored the informal sector - assume that household enterprises have no direct linkages to defined markets and other value chain actors, and that linkages through sub-contracting arrangements are cannot be created in the household enterprise landscape. This negative approach contributes to the perpetuation of irregular and erratic financial inflows.

New research shows the potential role of HEs in value chains if producer associations can be created and markets are structured to include them. Recent analysis by the Monitor Group (Monitor, 2011) has highlighted how imaginative new “Bottom of the Pyramid” business models in low income SSA have been able to forge these linkages with HEs so that more established companies can profit from using informal sector petty including trading activities in their distribution chains. These companies are using simple distribution or aggregation methods to gain from the wide market outlet channels that petty trading provides to their products or services. These new strategies actually build on models established by multinational companies such as the mobile phone companies or Coca Cola distributors. A recent study showed that the proliferation of trading in mobile phone credits by hawkers for MTN, Vodafone and other telecommunication giants in Ghana is providing above-average income to these HEs while benefitting the companies (Kottoh, 2008). This microeconomic research supports the proposition that this type of economic development in SSA can be

developed through appropriate policy responses which recognize the importance of the sector for growth and poverty reduction.

7. Conclusions

The theory and empirics of structural transformation as a development concept have thus far mostly focused on the growth of firms, especially medium sized and above “formal sector firms”. This is not unexpected. As a number of economic historians have pointed out, the firm is one of the most efficient economic institutions in the world, and aside from mineral-dominated economies such as Saudi Arabia, the path to sustainable middle income status in the last 100 years, especially for small countries, has involved the growth of large, efficient, export-oriented firms. Normally these firms aggregate in large cities to increase economic density.

Perhaps because of their lower population density – which limits the economies of aggregation - as well as their initial low levels of education and know-how – which has constrained the level of technology in the economy and therefore the competitiveness of the manufacturing sector compared with the East Asian tigers - the development of SSA countries who have achieved sustained high levels of broad-based growth and poverty reduction has followed a different path so far. In countries such as Uganda, without a major mineral export to create income growth, structural transformation has involved significant growth of value added and employment in formal firms, but from a low base so this still accounts for a small share of total employment. At the same time, Uganda has seen a massive growth of informal firms, especially household enterprises. While most development economists, especially those who focus on the development of the modern private sector, consider the growth

of these “informal” firms to be *a symptom of a lack of transformation*, we have argued here that they are actually an important milestone on the transformation path and a critical part of the transformation, which needs to be supported.

The development of the household enterprise sector is also a milestone which is often misunderstood. Because average and marginal productivity of labor and capital are much lower in household enterprises than in large firms (in either manufacturing or services), the growth of the household enterprise sector can be seen as a drag on average productivity in the non-agricultural sectors. But this view ignores the fact that the same trend will be raising average and marginal productivity in the economy as a whole. And since the labor in the household enterprise sector is usually not educated enough for the wage employment opportunities in the formal sector, the only way to raise the productivity and income of this segment of the labor supply once they have exited the education system and entered the world of work is to support changes in household livelihood patterns toward the non-agricultural sector. This means supporting the growth in income and productivity of the household enterprise sector - along with the growth of smallholder agriculture. While the concept of the rural non-farm sector as a key element of growth, transformation and poverty reduction is not a new idea in economic development, the practice in SSAA has been particularly weak, owing to the focus on classical industrial transformation trajectories.

In addition to emphasizing the role of *livelihood* (as opposed to employment) transformation in overall structural transformation, the paper draws two other conclusions from these findings. First is that the expansion of the non-farm informal sector is positive development rather than a scourge. The phenomenal growth of farm household enterprises in the informal sector drove household livelihood transformation and ownership of a non-farm enterprise is a significant predictor of

welfare. Second is that any analysis that uses primary employment at the individual level, looking for Lewisian transformation, misses livelihood transformations. This transformation of the traditional household sector is rather subtle and will not be immediately mirrored in large changes in the structure of primary economic activities for the labor force. Household's livelihoods in Uganda are best understood by looking beyond the main employment activities and taking the approach that household incomes come from a portfolio of several economic activities. Tracking the role of the HE sector in transforming the economy and in poverty reduction requires collecting and analyzing economic and employment data through the livelihood lens, not the lens of a labor market where one person sells labor and another buys the labor services. This is a different approach than orthodox labor economics. It requires analyzing the production decisions of households over the year, as social and economic units, and how these are transformed in response to opportunities and challenges presented.

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Table 3: Means of explanatory variables used in the regressions

Variable	Rural	Urban	All
Household demographic characteristics			
Household size	5.32	4.57	5.19
Household size squared	36.90	29.11	35.54
Male headed household	0.74	0.71	0.73
Age of household head	43.02	37.97	42.14
Age of household head squared	2107.42	1627.32	2023.71
Household education characteristics			
Prop. 15+ with no formal education	0.24	0.09	0.21
Prop. 15+ with some primary education	0.45	0.29	0.43
Prop. 15+ with complete. primary education	0.19	0.25	0.20
Prop. 15+ with some secondary education	0.09	0.22	0.11
Prop. 15+ with complete. secondary or degree	0.03	0.13	0.05
Household sources of income			
Has farm non-wage income	0.87	0.30	0.77
Has non-farm enterprise income	0.39	0.55	0.41
Has agric wage income	0.24	0.05	0.21
Has non-farm wage income	0.20	0.57	0.26
Receives remittances	0.44	0.43	0.44
Livelihood category			
Has farm non wage income only	0.28	0.04	0.24
Has nonfarm wage income only	0.04	0.27	0.08
Has farm wage income only	0.05	0.01	0.04
Has household enterprise income only	0.05	0.24	0.09
Has farm non wage & farm wage income only	0.10	0.01	0.08
Has farm non wage & household enterprise income only	0.20	0.06	0.17
Has farm non wage & non-farm wage income only	0.07	0.04	0.07
Has farm non wage, non-farm wage & household enterprise income only	0.04	0.06	0.04
Has non-farm wage & household enterprise income only	0.02	0.16	0.04
Other livelihood category	0.15	0.11	0.15
Household location			
Resides in an Internally Displaces People's Camp	0.07	0.01	0.06
Central region	26.09	59.23	31.87
Eastern region	25.42	12.91	23.24
Northern region	20.81	14.68	19.74
Western region	27.68	13.17	25.15