JAD

Journal *of* African Development

Fall 2012 | Volume 14 #2

Editor
Edward Kutsoati
Tufts University

Official publication of the
African Finance & Economics Association

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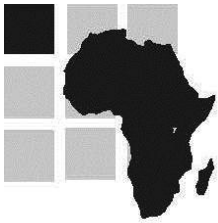

JAD

Journal of African Development
Fall 2012 | Volume 14 #2

TABLE OF CONTENTS

JAD

Journal *of* African Development
Fall 2012 | Volume 14 # 2

Economic Growth without Structural Transformation: The Case of Ethiopia

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ABSTRACT

Ethiopia is a highly agrarian economy, with a long history of substantial food insecurity. In recent years, however, the economy has seen substantial economic transformation, largely in the form of increased agricultural productivity and significant improvements in road infrastructure. But while these investments have contributed to impressive poverty reduction in recent years, structural transformation has been inhibited by the relatively slow development of an industrial sector, and modest rates of urbanization. Future development strategies will therefore need to search for the right balance between pro-poor investments in agriculture and rural development, and potentially more transformative investments in urban infrastructure and industry.

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INTRODUCTION

With the share of urban residents in the total population at just 16 percent[2], Ethiopia remains one of the least urbanized and most agrarian economies in the world. This implies that the rural-urban transformation in Ethiopia is still in its early stages. Countries urbanize at different rates for various reasons, however. Ethiopia's unique geography continues to play a major role in determining the country's economic transformation. This landlocked country includes both fertile and drought-prone highlands where most of the agricultural production activities take place (and where most of the population lives), as well as semi-arid pastoralist lowlands. Relative to most African countries, farms are fragmented with dispersed land holdings (average plot size is just 0.5 hectares[3]), and a high share of farms generate only small surpluses for market sales. Moreover, the complexity and fragility of highland environments (including fragile soils), relatively poor market access, limited potential for irrigation, and rapid population growth continue to challenge poverty reduction strategies and food security (FAO 2002). The jagged topography, vulnerable ecological environments, and limited access to water constrain the form and features of city development, as well as linkages to towns and rural areas. The country has also suffered from conflict and economic mismanagement, particularly under the communist Derg regime (1974-1992), which inhibited both rural and urban economic activities. This country of some 73 million has only one city in excess of a million people.

Despite these constraints, Ethiopia has made considerable progress on a number of economic fronts, all of which may lay the foundation for more rapid economic transformation in the near future. Unlike most African governments, the current Ethiopian government has given considerable emphasis to agricultural development through its Agricultural Development Led Industrialization (ADLI) strategy. While agricultural policies still face many constraints in terms of their effectiveness - particularly in terms of the adoption of improved technologies - the sector has grown rapidly in recent years. Likewise, there has been rapid progress in road infrastructure, and substantial

[2] The percentage share of the urban population derived from the latest population census is 16.2 percent. Source: FDRE Population Census Commission (FDRE Population Census Commission 2008).
[3] EASE 2000-01

progress in electricity supply, communications, and education, all of which can play a transformative role in economic development.

This paper documents Ethiopia's structural transformation along a number of dimensions, and what these findings imply for alternative development strategies. This study is highly pertinent in the Ethiopian context given the ongoing debate in the country about where agricultural investments should be sustained or whether more emphasis should be put on industrial development.

PATTERNS AND TRENDS OF STRUCTURAL TRANSFORMATION

In this section we document Ethiopia's economic transformation on several fronts, including output, employment, and demographic structures, as well as migration patterns.

Shifts in Economic Activity

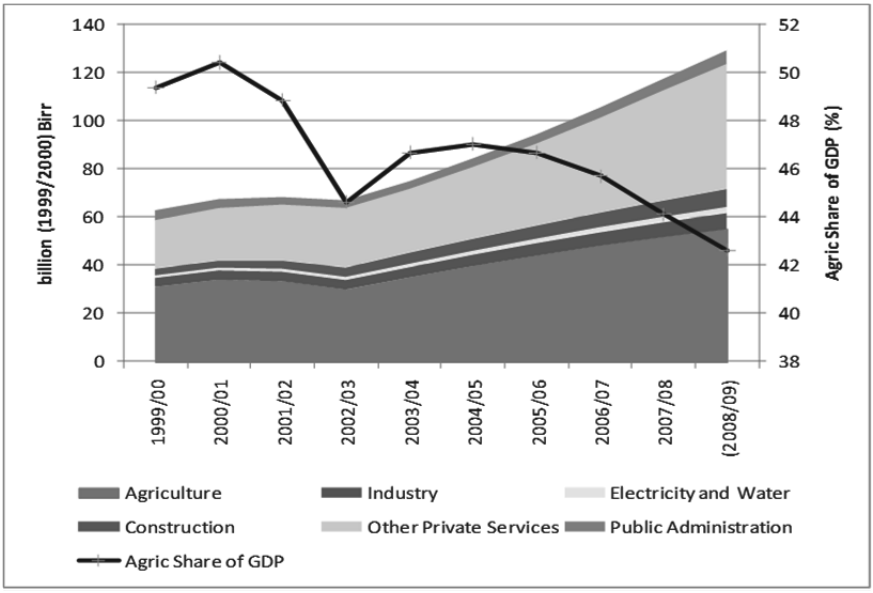
In spite of rapid economic growth in the past decade, Ethiopia remains one of the world's poorest countries with a per capita gross national income of $930 in 2009, 21 percent below the average of low income countries ($1,174) (World Bank, 2010)[4]. Moreover, Ethiopia's share of agriculture in GDP in 2006 (48 percent) was the highest in the world, and more than double the average for low income countries (20 percent).[5] In 1998/99, this share was even higher (51 percent), although it declined steadily from 1998/99 to 2007/08 even though real agricultural GDP growth averaged 6.2 percent over this period (Real GDP growth was even higher, at 7.7 percent per year[6]) (Figure 1). Thus, the structural transformation of Ethiopia's economy has begun, but there remains a striking difference between Ethiopia's overwhelmingly agriculture-dominant economy and the economies of most other developing countries.

[4] GNI figures are reported in Purchasing Power Parity, current international dollars, from the World Bank database

[5] World Bank (2007). [WDR 2008]

[6] These growth rates are estimated using logarithmic trend regressions.

Figure 1: Ethiopia: Real GDP (2000/01 Birr), 1998/98 – 2007/08



Source: Ministry of Finance and Economic Development (MoFED) from CSA website

Ethiopia's share of agriculture in total GDP has been consistently about 10 percentage points above the average for East Africa. Agriculture accounted for 56.5 and 58.4 percent of GDP in Ethiopia in the 1980s and 1990s, respectively, before declining to 35.4 percent in the 2000s. Other countries in East Africa experienced much more rapid decline in the share of agriculture in GDP, particularly fast-growing Uganda, which reduced this share from 57.6 percent in the 1980s to only 26.2 percent in the 2000s.

Industry, including mining, electricity and water, and construction, accounted for only 10.7 percent of GDP in 2008/09 in Ethiopia (Table 1). The construction sector, accounting for 5.0 percent of GDP and nearly half of the industrial sector, grew very rapidly in the 1999/00 to 2008/09 period, as it was spurred by inflows of foreign aid, workers' remittances and private transfers that funded a surge in construction investment in the mid-2000s. Large and medium scale manufacturing (2.7 percent of GDP) also increased rapidly, growing by 8.1 percent over the same period. Much of the manufacturing in Ethiopia is directly linked to agriculture. Milling and food processing account for 43 percent of manufacturing value added. A large share of Ethiopia's industry is also concentrated in and around Addis Ababa, due primarily to the fact that it is the

only large market for industrial products, and provides access to imported inputs through transport links via Dire Dawa-Djibouti and the international airport. Services account for over one-third of GDP, much of this from trade (11 percent of GDP) and transport and communications (6 percent of GDP).

Table 1: Sectoral output and growth in Ethiopia, 1999/00 to 2008/09

	2008/09 (bn Birr)	2008/09 Share of GDP (percent)	Growth Rate 1999/00-08/09 (percent)
Agriculture	160.6	50.3%	7.0%
Industry	34.0	10.7%	9.2%
Mining	1.3	0.4%	4.2%
Large, Medium Scale Manuf	8.6	2.7%	8.1%
Small Scale, Cottage Industries	4.0	1.3%	5.8%
Electricity and Water	4.0	1.3%	7.6%
Construction	16.1	5.0%	12.3%
Other Private Services	114.2	35.8%	11.2%
Public Administration	10.3	3.2%	4.2%
Total	319.2	100.0%	8.6%

Urbanization, Agglomeration and Accessibility

The recent publication of Ethiopia's 2007 census reports urban population figures at the city administration. Schmidt and Kedir (2009) provide an analysis of city growth and expansion using city population, infrastructure networks, and population density in order to provide a standardized comparison of urban growth over the last 3 census periods (1984, 1994 and 2007).

Urban estimates from the 2007 census are similar to those estimated by Schmidt and Kedir (2009) for 2007 using the agglomeration index methodology, yet when comparing urban growth over time, these estimates show a dramatic difference (Table 4). This difference is primarily derived from the definition of an urban area used for the two estimates. The Central Statistical Agency measures urban areas as all administrative capitals of regions, zones, and *woredas*, as well as localities with at least 1,000 people who are primarily engaged in non-agricultural activities, and/or areas where the administrative official declares the locality to be urban. In comparison, the agglomeration index provides a measure of the economic linkages of urban areas rather than a definition of urban based on political status, administrative boundary, or presence of particular urban

services or activities. The agglomeration index uses two criteria whereby locations are categorized as urban if populations have (a) a population density greater than 150 people per km^2; and (b) are located within 1 hour travel time from a city of at least 50,000 people.

Table 3: Agglomeration Index* – Percent of people considered urban by region

Regions	*Total Population (thousand)*	*Percentage Urban*	*Total Population (thousand)*	*Percentage Urban*	*Total Population (thousand)*	*Percentage Urban*
	1984**		1994		2007	
Addis Ababa	1,423	61.2	2,113	85.5	2,738	99.3
Afar	780	-	1,061	-	1,411	-
Amhara	10,686	2.0	13,834	3.7	17,214	7.5
Benishangul – Gumuz	351	-	460	-	671	-
Dire Dawa	158	20.3	252	58.2	343	66.3
Gambella	172	-	182	-	307	-
Harari	82	55.2	131	76.2	183	86.0
Oromia	14,016	1.7	18,733	4.6	27,158	9.2
SNNPR	7,501	-	10,377	2.2	15,043	21.1
Somali	2,006	0.2	3,199	1.6	4,439	1.9
Tigray	2,692	2.0	3,136	3.8	4,314	8.0
Ethiopia	**39,869**	**3.7**	**53,477**	**7.1**	**73,919**	**14.2**

Source: Schmidt and Kedir 2009.

Notes: * Population density per square kilometer (derived by GRUMP and LandScan for the year 2000), a major component in the agglomeration index, was projected using a growth rate of 3% per annum to adjust for different census years .**Population figures for 1984 were approximated due to changes in administrative boundaries after 1984. In order to maintain consistency across all years, we geographically allocated population to the current regional boundaries

Evaluating Ethiopia's urban growth using the agglomeration index methodology shows that urbanization growth rates are much higher (between 8 and 9 percent) than previously calculated by the CSA. Whereas CSA estimated 1984 urbanization at 11.4 percent, the agglomeration index calculated

urbanization at 3.7%. Between 1984 and 1994, and between 1994 and 2007, the percent urban doubled according to the agglomeration index.

Although Ethiopia's agglomeration index suggests significant levels of urban clustering and growth over time, when compared to other countries in the region, Ethiopia remains one of the least urbanized in East Africa. In 2000, agglomeration in Ethiopia was measured at 11.9 percent, while most other East African countries were between 25 and 32 percent. The urban population that resides in the largest city (Addis Ababa) makes up 24.1 percent of urban population and 3.8 percent of total population. Moreover, given that the remaining urban population mostly lives in relatively small cities (including 57.8 percent in cities ranging from 20,000 to 50,000 people) Ethiopia has ample space to expand and grow its primary and secondary cities, especially in areas with higher agricultural potential and population density.[7]

Table 4: Ethiopia: Alternative urbanization estimates

	Official Estimate (percent)	Agglomeration Index (percent)
1984	11.4%	3.7%
1994	13.7%	7.1%
2007	15.9%	14.2%
	(mns people)	(mns people)
1984	4.55	1.48
1994	7.33	3.80
2007	11.72	10.50
	(growth rate)	(growth rate)
1984-1994	4.9%	9.9%
1994-2007	3.7%	8.1%
1984-2007	4.2%	8.9%

[7] Another point of note is that all of the cities with at least 50,000 people are geographically located in the four major regions (Amhara, Tigray, Oromia, and SNNPR), with the exception of Jijiga city in Somali region. Given that growth in the number of cities with at least 50,000 people mainly occurred in the four major regions, increased urbanization rates are primarily confined to these regions.

Source: CSA population estimates; Schmidt and Kedir (2009).

Table 5: Urban population by city size, 2007

	Population Census (thousands)	Population Census (share of total)	Population Census (share of cities)	Agglom Index[d] (thousands)	Agglom Index (share of total)
Large Cities[a]	3,070	4.0%	42.5%	4,545	6.0%
Small Cities[b]	4,146	5.4%	57.5%	6,136	8.2%
50,000+	2,379	3.1%	33.0%	3,522	4.7%
20,000 - 50,000	1,766	2.3%	24.5%	2,615	3.5%
Other Urban[c]	5,132	6.6%	---	---	---
Total Urban	12,348	16.0%	---	10,681	14.2%
Rural	64,825	84.0%	---	64,536	85.8%
Total Population	77,173	100.0%	---	75,217	100.0%

Source: World Bank Development Report 2009, World Development Indicators.

Note: Average agglomeration for 2000 is calculated using 2005 population weights.

[a] Addis Ababa, Dire Dawa and Harare

[b] Other cities with populations greater than 20,000.

[c] All other urban areas.

[d] Total urban population is agglomeration index for 2007 (14.2%) from Schmidt and Kedir (2009) multiplied by the 2005/06 population (2007 divided by 1.028).

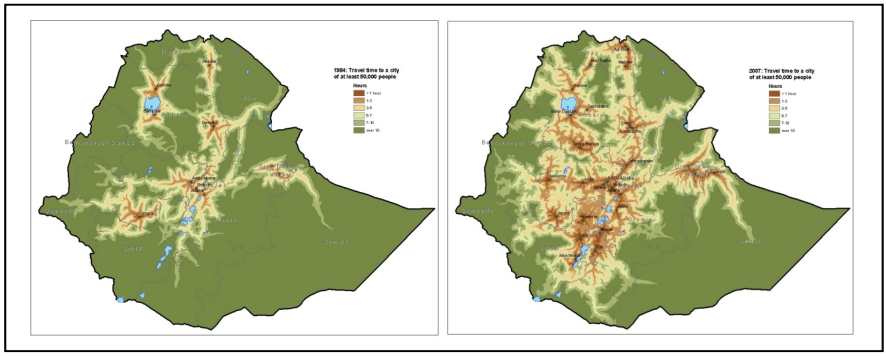
Road Infrastructure and Improving Access to Markets

City creation and growth in Ethiopia is due in large part to improved transportation infrastructure between major cities in the highlands. Upgraded and maintained transportation corridors, as well as increased population density on these corridors, created urban areas that currently resemble networks in comparison to the isolated communities typical of the 1984 urban landscape. In 1984, Addis Ababa was primarily confined to its city administrative boundaries. By 1994, its urban network expanded, creating an urban corridor to the southeast, linking to Adama (previously Nazreth)—another city of 50,000 people in Oromia region. Population growth and improved transportation infrastructure in Shashamene town and Awasa town also facilitated linkages to form an urban network between Oromia and SNNP regions (see Schmidt and Kedir 2009). By 2007, urban linkages are clearly visible throughout Oromia, SNNPR, and Amhara regions. Underlying this growth is the improvement of transportation to market centers.

Given the limited infrastructure during the eighties and early nineties, the Ethiopian government prioritized transportation infrastructure investment in order to enhance linkages between major cities. A 10-year Road Sector Development Program was formulated to improve the quality and size of road infrastructure beginning in 1997. The construction and rehabilitation of roads outlined in the RSDP improved travel time within the country considerably. In 1984, 40 percent of the population was over 10 hours from a city of at least 50,000 and 82 percent were over 5 hours from a large city (Figure 4). Three regions in 1984 (as well as the urban administration areas) had populations that were within 1 hour of a large city, but only 2.5 to 4 percent of the population in these regions fell into this category. By 1994, 31 percent of total population was greater than 10 hours travel time (67 percent greater than 5 hours) from a major city and five of the nine administrative units had populations that could reach a city within an hour.

Since 1994, the Ethiopian government and international donors have continued to invest in key road infrastructure. Currently, only 3.2 percent of the population in Amhara, and 4.5 percent in SNNPR are more than 10 hours from a major city (Table 6 and Figure 4). SNNPR showed the most improvement in travel time, by connecting 45 percent more people to a city within 3 hours travel time. In Tigray and Oromia, 21 percent of the population improved market access from over 10 hours to between 3 and 10 hours travel time to a major city. At present, every region except Gambella has a city of at least 50,000 people, and many of these cities have expanded transportation networks in order to harness the potential of economic corridors between cities. Although urban centers are linking to other large cities through improved infrastructure, only 5 to 13 percent of the population in any region, including the major 4 regions where primary roads stretch between urban centers, are within one hour travel time to a city of at least 50,000.

Figure 4: Travel time 1984 and 2007



Source: Schmidt and Kedir 2009

Table 6: Percent population connected to a city of 50,000 people in 2007

Region	Access < 1 hour	Access 1 - 3 hours	Access 3 - 5 hours	Access 5 - 10 hours	Access > 10 hours
Tigray	10.89	15.36	12.48	53.71	7.57
Afar	-	-	1.77	9.73	88.49
Amhara	5.05	22.72	37.06	31.98	3.20
Oromia	9.03	18.06	36.39	27.84	8.68
Somali	7.99	-	-	13.57	78.44
Benishangul-Gumuz	-	-	-	29.15	70.85
SNNPR	12.55	52.65	12.28	18.05	4.47
Gambella	-	-	-	-	100
Harar	100	-	-	-	-
Addis Ababa	100	-	-	-	-
Dire Dawa	100	-	-	-	-
Ethiopia	12.48	23.56	25.73	26.03	12.20

Source: Schmidt and Kedir 2009

It is important to note, however, that population densities and quality/density of transportation infrastructure affect diverse regions in different manners. In Ethiopia, the central and peripheral regions represent two very different economic, geographic and demographic landscapes. In the central regions (Amhara, Oromia, SNNPR, and Tigray), higher population densities and a

more integrated road network is characteristic of the economic landscape, while in the peripheral regions, limited road access and dispersed settlements creates larger challenges for linking remote populations to the benefits of agglomeration economies. Nevertheless, between 1994 and 2007 the government invested in several important gravel and earthen roads that improved access for rural populations on the periphery, although there is still a long way to go in order to improve market access for these more isolated populations.[8]

In addition to roads, massive investments in hydro-electric power have opened up the potential for significant increases in productivity and output. The introduction of hydro-electric power, and especially the large surge in capacity since 2005, has raised electricity generating capacity 834-fold between 1958 and 2011, a 29-fold increase on a per capita basis (Table 7).[9]

Table 7: Electricity generation capacity, 1958 to 2011* in Ethiopia

	Capacity Hydro-electric (megawatts)	Capacity Other (megawatts)	Capacity Total (megawatts)	Capacity Per capita (watts/person)
1959	0.0	2.3	2.3	0.1
1960-69	62.8	2.5	65.4	2.4
1970-79	152.9	3.0	155.9	4.7
1980-89	202.8	4.7	207.5	4.9
1990-99	325.2	9.0	334.2	6.0
2000-04	452.6	25.0	477.6	6.9
2005-09	747.2	50.2	797.4	10.0
2010	1447.5	50.2	1497.7	17.4
2011*	1867.5	50.2	1917.7	21.7

Source: Calculated using CSA Survey of Manufacturing (various years) and Ethiopian Electric Power Corporation data.

Notes: Figures for 2008-10 based on additional capacity from Tekeze I (300 Mw) in 2009; and Tana Beles (460 Mw) in 2010. 2011 figures is 2010 figure plus Gile Gibe II (420 Mw) for which the tunnel collapsed in December, 2009.

[8] The new tarred roads that were built between Harar and smaller towns in Somali region eased access constraints considerably. Earth roads that were rehabilitated also increased access in the far reaches of Somali region. Extended evaluation of the economic benefits of nurturing the nascent corridors in the pastoralist lowlands could be undertaken to understand the tradeoffs of investing in these areas.

[9] The comparison with 1958 is even more striking, as there was essentially no electricity generation in Ethiopia at that time - only 2.3 megawatts of diesel-powered capacity.

Actual electricity use is generally only about 35 to 45 percent of theoretical generating capacity, however, largely because there is insufficient water behind the hydro-electric power dams for full-scale operation through much of the year. Domestic use accounted for 30 percent of total use in 2006/07; commercial and industrial use accounted for 20 and 28 percent, respectively. Overall, electricity use grew at an average rate of 12.5 percent per year from 2002/03 to 2006/07, with the highest growth rate for street lighting (27.1 percent per year). In 2006/07, the average prices of electricity for industrial and commercial use were 61 and 19 percent higher, respectively, than the price for domestic use.

Not only is Ethiopia increasing physical infrastructure such as roads and electricity lines, but communication infrastructure is expanding as well. In 2003, 405,000 fixed telephone lines were in place, and only 50,000 cell phone subscriptions existed throughout the country. By 2008, cell phone subscription catapulted to 3.16 million subscribers and fixed telephone lines more than doubled. Infrastructure plans report that cell phone subscriptions more than doubled by 2009, and reached as many as 9.9 million users by 2010. Fixed line infrastructure was projected to grow as well, but at a slower pace, quadrupling by 2010 from 2008 levels. While communication technology continues to expand at a rapid pace within Ethiopia, Ethiopia's public monopoly falls behind other countries in Sub-Saharan Africa with more competitive service delivery. The share of population within a connected area in Ethiopia is 5.3 percent, in contrast to 32.5 percent of the population in Sub Saharan Africa as a whole.

Trends in Rural and Urban Welfare

Poverty rates in rural areas have been consistently higher than those in urban Ethiopia, though the gap has narrowed. Data from the nationally representative Household Income, Consumption and Expenditure (HICES) survey show that rural poverty fell steadily from 47.5 percent in 1995/96 to just under 30 percent in 2010/11 (Table 8). In the last few years rural poverty has fallen even more than urban poverty such that the rural-urban poverty differential is now just 5 percentage points. This is very low by international standards, and in some non-monetary indicators rural areas still lag well behind urban areas. For example, the most recent Demographic Health Surveys (2010/11) for Ethiopia suggest that malnutrition (e.g. stunting) is approximately 16 percentage points higher in rural areas (47 percent versus 31 percent in

urban areas). Moreover, rural access to education and health services still lags well behind urban areas.

Table 8: Ethiopia poverty rates by rural and urban (in percent)

	1995/96	1999/00	2004/05	2010/11	Change: 1999-2005	Change: 2005-2010
National						
Head count	45.5	44.2	38.7	29.6	-12.4	-23.5
Poverty gap	12.9	11.9	8.3	7.8	-30	-5.5
Poverty index	5.1	4.5	2.7	3.1	-39.8	14.4
Rural						
Head count	47.5	45.4	39.3	30.4	-13.4	-22.7
Poverty gap	13.4	12.2	8.5	8.0	-30.8	-5.5
Poverty index	5.3	4.6	2.7	3.2	-40.6	17
Urban						
Head count	33.2	36.9	35.1	25.7	-4.7	-26.9
Poverty gap	9.9	10.1	7.7	6.9	-23.6	-10.1
Poverty index	4.1	3.9	2.6	2.7	-33.5	5.1

Note: P0 denotes % of population below the poverty line; P1 measures the average depth of poverty; P2 is a measure of the severity of poverty.
Source: Ethiopia Central Statistics Agency, Household Income, Consumption and Expenditure Survey (HICES) data.

Table 9: Trends in poverty headcount indices and changes in poverty headcount indices (in percent), by region, 1995/96-2004/05

Region	1995/96		1999/2000		2004/05		2010/11	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Tigray	67.5	50.1	51.7	64.7	48.0	41.2	40.2	24.9
Afar	52.1	0.0	63.5	28.9	43.6	33.1	33.9	28.1
Amhara	60.7	34.3	32.3	35.4	39.1	36.1	44.6	28.0
Oromiya	42.7	34.5	36.7	49.1	37.1	35.2	33.3	31.7
Somale	43.2	N.A.	46.9	34.2	43.9	34.6	28.9	17.1
B.G	61.2	27.1	56.2	40.9	45.9	33.4	36.5	26.1
SNNP	52.1	46.3	54.8	54.1	36.9	37.9	25.8	27.1
Gambela	32.9	19.2	61.8	43.3	NA	NA	24.0	30.2
Harari	16.3	28.0	15.5	47.7	18.4	30.8	4.3	4.9
AA	38.7	36.5	35.9	47.8	31.6	32.4	--	26.1
DD	30.8	38.0	25.3	28.5	38.4	32.6	13.7	25.4
Total	51.6	36.5	41.1	46.7	38.5	35.3	34.7	27.9

Source: Woldehanna, T.; J. Hoddinott, S. Dercon (2008)

Levels and trends in poverty rates vary substantially across regions (Table 9). In the mid 1990's the poorest regions were Tigray, Amhara, Afar, and Beninshangul-Gamuz. Although this spatial pattern remains about the same in 2010/11, these regions saw large poverty reductions in the last 15 years (i.e. convergence). Nevertheless, many areas of the country remain drought prone and very poor.

Data from the 15 sites across Ethiopia from the Ethiopian Rural Household Survey (ERHS) of about 1500 households also shed some light on recent poverty trends. Rural households in the sample generally perceived themselves to be better off in 2009 than in 1994. For example, in 1994, 41 percent of households considered themselves to be "destitute" or "poor", compared to only 21 percent in 2004 and 13 percent in 2009 (Hoddinott et al. 2010). Conversely, the percentage of households reporting themselves to be "comfortable", "rich" or "very rich" rose from slightly over one-fourth in 1994 to more than 40 percent in 2009. Similarly the three Ethiopian Demographic Health Surveys (EDHS) of 2000, 2005 and 2010, show socioeconomic improvements on a number of fronts, including important health, nutrition and education indicators. That said, these improvements have often taken place from a very low

base. For example, the massive surge in primary enrollment has still not sufficed for Ethiopia to catch up to levels observed in other East African countries. Moreover, the quality of education remains a significant concern.

Table 10: Comparing nutrition, health and education outcomes from the EDHS to total and food poverty trends, 2000-2010

	2000	2005	2010	Change 2005-10
Total poverty (%)	45.4	39.3	30.4	-22.6%
Food poverty (%)	41.0	38.5	34.7	-9.9%
Child stunting (%),under-5s	58	51	44	-13.7%
Child Underweight (%),under-5s	41	33	29	-12.1%
Child Wasting (%),under-5s	12	12	10	-16.7%
Low body mass, women	26	23.8	27	13.4%
Any anemia among under-5s	N.A.	54	44	-18.5%
Any anemia among mothers	N.A.	27	17	-37.0%
Under-5 mortality (per 1000)	77	50	31	-38.0%
Children with all vaccinations	14	20	24	20.0%
Treatment of diarrhea	13	22	32	45.5%
Women aged 15-19 who are literate (%)	27.1	49.5	63.7	28.7%
Men aged 15-19 who are literate (%)	40.2	60.2	59.4	-1.3%

Source: Various EDHS reports for 2000, 2005 and 2010, and the Interim Report on Poverty 2010/11.

Migration Patterns and Trends

Migration can be a potentially useful avenue for structural transformation, human capital accumulation and poverty reduction.[10] Ethiopia has a complex history of internal migration and population redistribution. In previous decades, migration was shaped by political and economic transitions and instability. Political ideals transformed from the 1970's to current day

[10] The interactions between migration, poverty, and changes in income distribution are relevant to policymakers, and not surprisingly, have been well studied in the past (Lucas, 2000; de Haan, 1999; Stark, Taylor, and Yitzhaki, 1986; Lipton, 1980). Studies have shown that migration can improve human capital formation in several contexts (e.g., Yang, 2008; Acosta, 2006; Mansuri, 2006a; Cox-Edwards and Ureta, 2003; Hanson and Woodruff, 2003).

(socialist to a market-oriented economy), as well as civil war and famine determined flow and direction of internal migration (Mberu 2006; Kiros and White 2004; Berhanu and White 2000; Kibreab 1996; Kloos 1992; Clapham 1991; Kidane 1989). During the Derg regime, the country suffered three major droughts (1977-78, 1987-1988, and 1993-1994) and a national famine in 1984-1985 (Webb and von Braun 1994). In response to these environmental catastrophes, the Derg resettled an estimated 600,000 rural farmers in drought-prone areas in the north to more agriculturally productive areas in the west (Kloos 1990). In addition to resettlement plans, land redistributions were frequent under Derg, with some locales experiencing as many as three rounds over ten to twelve years (Rahmato 2008). This provided incentives, at least initially, for people to stay in the agricultural sector. But over 1988-1991, major urban centers faced a large influx of people due to intensified warfare in the rural areas of the country resulting in severe overcrowding, shortages of housing and water, overtaxed social services and high levels of unemployment (Photius Coutsoukis 2004).

In Ethiopia, around 12.2 million (or 16.6 percent of total population) were migrants during the 2007 census, as defined by being born in a location in which they do not currently reside. Of these total migrants, rural and urban migrants were 6.5 and 5.7 million citizens during the 2007 national census, respectively, indicating that the number of migrants in rural areas was higher than that of the migrants in urban centers during the same census (similar patterns held for the 1994 census). However, the share of migrants in the total rural population of the country was about 10.6 percent during the 2007 national census, where the share of migrants was approximately 48 percent of total urban population during the same period. In Addis nearly 48 percent of its dwellers are migrants, and in some regions like Tigray, Amhara, and Oromia the share of migrants in the total urban population was over 50 percent. Even so, total numbers of migrants in Ethiopia seem relatively low given that a large share of urban population growth relates to intra-urban population growth (urban fertility rates are high by international standards). One explanation could be that urban unemployment in Ethiopia is very high, in addition insecure land tenure rights inhibit motives to migration (see the next section). However, the boom in education attainments in Ethiopia may provide stronger incentives to migrate from rural to urban areas in the near future.

EXPLAINING ETHIOPIA'S STRUCTURAL TRANSFORMATION

In this section we aim to explain some of the facts observed in the previous section. Much of our explanation involves an examination of Ethiopia's unique agricultural sector and rural topography, although we also look at constraints on the nascent manufacturing sector and on rural-to-urban migration.

An Overview of Development Strategies in Ethiopia

Changes in government during the last fifty years have shaped development objectives and outcomes, and in doing so affected the economic and demographic geography of the country. Ethiopia experienced three distinct political regimes during the last half of the 20th century. The monarchic regime (1950-1974) oversaw a complex land tenure system, and the state and church maintained control over a majority of agricultural land. After 1974, the Derg government nationalized rural land, abolished tenancy, took state control of commercial farms, and redistributed lands. After the fall of the Derg regime in 1991, the new government adopted structural adjustment programs, abolished agricultural price controls, and emphasized Agricultural Development Led Industrialization (ADLI) through initiatives such as the Rural Development Policies and Strategies (RDPS), Food Security Strategy, Food Security Program, Productive Safety Net Program, Participatory Demonstration and Training Extension System (PADETES), Sasakawa Global 2000, and the National Extension Intervention Program (NEIP). Although the majority of the population lives in rural areas, the government of Ethiopia has identified the need to not only enhance rural – urban linkages, but also address the overwhelming need for urban planning and infrastructure improvement. The Ministry of Planning and Economic Development of Ethiopia contends that "while the focus of much pro-poor development must inevitably remain rural-based, urban development will play a more central role in the next phase of Ethiopia's development…" (2006). Moreover, national statistics show high rates of poverty in urban areas.[11]

[11] The Ministry of Finance and Economic Development (MoFED) outlined the challenges facing Ethiopia's urban centers. According to MoFED, 70% of the urban population is considered slum dwellers on the basis of quality of housing, overcrowded living spaces, access to and quality of infrastructure, and security of tenure. Poverty levels in large cities are especially acute. Overall, while rural poverty rates have dropped from 48 to 39 percent from 1995 to 2005, urban poverty rates have increased from 33 to 35 percent over the same period (Hoddinott 2010). These figures suggest that although investment in agriculture remains a priority, investments in urban areas may need to be re-evaluated to address underperformance in poverty indicators in the cities.

Overall, the allocation of government spending between rural and urban sectors has reflected the spending priorities of the ADLI policy. Defining rural expenditures as those on agriculture and road construction outside of Addis Ababa, and urban expenditures as those on urban development and all Addis Ababa expenditures, total identifiable urban expenditures in 2007/08 were 7.5 billion birr, amounting to 11.6 percent of total spending (Table 12). Total identifiable rural expenditures were 18.6 billion birr, 28.8 percent. "Other" cross-cutting expenditures, including all other categories of expenditures (e.g. education, health, defense, etc.) accounted for the remaining 60 percent of spending.[12] Over time, government spending has shifted towards investment.[13]

Table 12: Government of Ethiopia expenditures (Rural, Urban and Other), 1999/00 and 2007/08

	1999/00 (bn 07/08 birr)	1999/00 (share)	2007/08 (bn 07/08 birr)	2007/08 (share)	Growth Rate
Recurrent	36.1	79.0%	31.1	48.8%	-7.2%
Urban	1.2	2.7%	1.9	2.9%	22.9%
Rural	1.4	3.1%	3.2	5.0%	49.0%
Other	33.5	73.2%	26.0	40.8%	-11.8%
Capital	9.6	21.0%	32.7	51.2%	84.6%
Urban	1.6	3.5%	5.6	8.7%	86.8%
Rural	3.9	8.5%	15.2	23.8%	97.5%
Other	4.1	9.0%	11.9	18.7%	70.5%
Total	45.7	100.0%	63.7	100.0%	18.1%

Notes: Urban includes urban development and all Addis Ababa expenditures.
Rural includes agriculture and road construction outside of Addis Ababa. 2004/05 to 2008/09 are "pre-actual" figures.

The government's recent strategies are consistent with agricultural productivity growth being a necessary but not sufficient condition for structural transformation, especially in populations dominated by subsistence agriculture. In Ethiopia, 40% of farming households are estimated to produce an agricultural surplus which can be marketed for cash income, and the vast majority of farmers

[12] Further analysis could be undertaken to determine the rural-urban split of some of these categories (particularly education and health).
[13] Capital (investment) expenditures rose rapidly between 1999/00 and 2007/08 for both rural and urban investments, as well as for "other" investments. With recurrent expenditures actually declining in real terms, the share of capital expenditures in the overall budget rose from 21.0 percent to 51.2 percent.

are smallholders. Without productivity gains, it is unlikely that farm households will have the capital needed to invest in: nonfarm enterprises, further agricultural gains, or expenditure on nonfarm goods and services. Moreover, at the aggregate level, insufficient food production would inhibit the growth of urban centers because of the potential for increases in real food prices. This is especially true in Ethiopia because cereal imports are constrained by high transport costs and limited foreign exchange. Moreover, agricultural productivity growth is initially useful in generating employment opportunities in rural areas. For these reasons improving agricultural productivity in Ethiopia is a critical component to a faster structural transformation.

The RDPS, extension and food security programs aim at providing smallholder farmers with agricultural inputs and training in order to promote more intensive production strategies, including: improved seeds and fertilizers; enhanced farm implements and pesticides; expanded extension services; construction of small scale irrigation schemes; minimization of post-harvest losses; development of livestock resources through improved feed base and veterinary services; improved land management and strengthened rural institutions (such as farmer's groups). It is difficult to comprehensively gauge the contributions of these interventions to agricultural growth, but ADLI investments, relatively good weather and peace in most of the country (particularly after the fall of the Derg regime in 1991) seem to have contributed to accelerated growth in cereal production in recent times. Growth in the 1990s was due entirely to increases in the area cultivated (by almost 6 percent per year), as yields declined by 0.5 percent per year. Subsequently, growth in area cultivated slowed to 3.1 percent per year from 1999/2000 to 2008/09. However, yields are estimated to have increased by 3.5 percent per year in the period, so that growth in cereal production accelerated further to 7.0 percent per year.[14] This included rapid growth in teff (8.9 percent), sorghum (8.6 percent) and wheat (8.3 percent). Growth in maize production, 6.8 percent per year in the 1980s and 5.5 percent per year in the 1990s, slowed to 4.2 percent in the 2000s after domestic maize prices slowed and in some cases reversed adoption of hybrid maize technology (Howard et al. 2003).

[14] Production and yield growth was particularly rapid from 2004/05 to 2008/09 (10.6 and 5.7 percent, respectively), but the reasons for such a rapid increase in this period are not entirely clear, as econometric analysis of yields at the farm level data show only limited fertilizer responsiveness (Seyoum Taffesse et al. 2010).

Despite this impressive performance, agriculture still faces many constraints. The low use of improved seeds, (and in some cases, relative potential of improved seeds) greatly constrains yields. Current national average yields for cereals and pulses are much lower than yields achieved both in research fields and in farmer test fields (typically 50% of potential), using recently released varieties. Data suggest that the use of commercial seeds as a percentage of stated demand, has a highest use at approximately 50 percent for maize, and the lowest use at less than 10 percent for barley (Table 13). Use of commercial maize seeds is lower in Ethiopia than in other East African countries, such as Zimbabwe, Zambia and Kenya, where commercial maize seed use exceeds 70 percent of total maize seeds. However, there is significant variation within the country, with much higher usage in high-producing areas such as Bako and Adet, particularly as the most popular maize varieties (BH540 and BH660) are well adapted to these areas. At the heart of the problem is poor public management of the seed sector - especially poor logistics and planning - and limited private sector involvement (Alemu et al. 2010).

Table 13: Input use on cereal crops 1997–08 to 2007–08.

Inputs	2007–08	2001–02	1997–98
Fertilizer applied area (% total area cultivated)	39.0	42.8	32.3
Fertilizer application (kg/ha, total cultivated area)	45	30	37
Fertilizer application (kg/ha, fertilizer applied area)	116	100	115
Improved seed coverage (% of crop area)	4.7	3.5	2.4
Pesticide coverage (% of crop area)	20.8	10.8	12.0
Irrigated crop area (% of crop area)	1.1	1.3	0.6
Extension package coverage (% of crop area)	14.5	NA	NA

Source: Dercon and Hill (2009).

Related to the low use of improved seeds is the low use of both organic and inorganic fertilizers. Fertilizer use has been increasing in Ethiopia, but given the high degree of nutrient depletion in the country current levels are grossly insufficient (Table 13). While retail prices of fertilizer were liberalized, the institutional arrangement for delivery is controlled by the regional governments and input enterprises, whereby credit for fertilizer and delivery of fertilizer are usually organized under one transaction (Dercon et al. 2009). Regardless of the size of the harvest (even where there is crop failure), credit has to be repaid and

there is no insurance mechanism or provision for postponement (Getnet 2010). In addition to nutrient losses, there is also a high degree of land degradation related to over-use of fragile soils and deforestation. Some sources list Ethiopia among the most severely erosion-affected countries in the world. Suggested actions include soil and water conservation measures, scale-up best practices (e.g. Tigray conservation program), and link implementation with provision of other inputs or enablers like fertilizer or credit, inter alia (Alemu et al. 2010).

Ethiopia also has relatively low irrigation potential, although there has been some expansion of irrigation use in recent years (perhaps more than is officially documented). Ethiopia has vast cultivable land (30 to 70 million hectares, Mha), but only about a third of that is currently cultivated (approximately 15 Mha), with current irrigation schemes estimated to cover about 0.64 Mha across the country (including 128,000 ha from rainwater harvesting, 383,000 ha from small scale irrigation, and 129,000 ha from medium or large scale irrigation). However, a recent diagnostic study estimates that total irrigable land potential in Ethiopia is 5.3 Mha assuming use of existing technologies, including 1.6 Mha through rain water harvesting and ground water (Taffesse et al. 2012). While there are potential opportunities to vastly increase the amount of irrigated land, some of these irrigation investments may be very costly (for example, because of low water tables).

Finally, while we have noted some major improvements in road infrastructure, it remains the case that Ethiopian agriculture is still constrained by poor and costly market access and limited market size (given low levels of urbanization). As we saw in the previous section, a large proportion of rural Ethiopians are still very isolated from markets, and in addition to roads there is a significant deficiency in vehicle ownership in Ethiopia. The 2005 Demographic Health Survey estimated that less than 1 % of rural households own any type of a vehicle. Moreover, even if access were improved, the sheer size of urban markets in Ethiopia is quite small.[15] In this sense, low agricultural productivity is potentially both a cause and an outcome of low levels of urbanization.

[15] Nonetheless, increases in agricultural productivity do increase farmer incomes directly and generate important multiplier effects, so that demand for most food products increases. Thus, economy-wide model simulations indicate that sustained 6 percent growth in agriculture, accompanied to continue growth of the non-agricultural economy, would lead to only moderate real price declines (Dorosh and Thurlow, 2009).

Land System and Migration Incentives

In addition to agricultural input packages, extension and food security programs, an important policy reform needed in order to assure greater labor mobility and enhanced rural-urban linkages is the land tenure and certification program. In order to address uncertainties of land rights, the government set forth a land registration and certification program in 2004/05. According to Rahmato (2008), over half of rural households have their land registered and possess user certificates. But even with this new system, a work commissioned by USAID in 2004 found that rural landholders do not perceive a strong system for tenure rights and contend that although they have land certification papers, they are not protected from government expropriation and periodic land redistribution. Given continued uncertainty, the land certification program has shown little effect at incentivizing agricultural investment and migration thus far. Although land is now being registered and certified, landholders in Ethiopia are not allowed to sell, exchange, or mortgage land, and failure to meet any of the obligations[16] set forth by Article 40 of the constitution would result in forfeiture of one's land rights. A study completed by Deininger et al. (2006) assessed farmers perception of land rights and found that most farmers would prefer higher levels of land tenure security. They found that a large share of farmers would change their farming practices and undertake more investments if more tenure security was provided (Table 14) (see also Dercon and Ayalew 2007).

[16] Obligations include: 1) landholder in engaged in farming for his/her livelihood; 2) the landholder is resident of the given rural *kebele*; 3) the land is farmed on a regular bases and not left unused; and 4) the holder takes "proper care" of holdings – "proper care" is not defined in the documents.

Table 14: Subjective land rights, tenure security, and investment (in percent of respondents)

	Region					
	National	Tigray	Amhara	Oromia	SNNPR	Others
Land tenure security						
Woreda had redistribution since 1990	9	14	18	6	4	4
Affected by redistribution since 1990	8	17	20	4	2	4
Expects redistribution next 5 years	9	10	10	10	6	12
Expects no redistribution	27	42	26	23	30	37
Has land conflict with authorities	23	23	23	26	14	22
Perceives right to rent/sharecrop	91	98	89	92	85	95
Perceives right to mortgage/inherit	23	18	32	18	26	35
Perceives right to sell	4	1	1	4	3	12
Land tenure preferences						
Prefers higher tenure security	48	61	43	51	41	48
Prefers private ownership	31	22	38	31	30	26
Prefers redistribution	4	10	4	3	5	4
Would invest if land privatized	47	29	47	49	44	68
• build terraces	38	24	41	39	35	56
• plant trees	13	12	19	14	7	8
• adopt other improvements	11	6	10	12	15	11
Actual investment since 1999						
Built or maintained terraces	47	81	88	34	31	20
Planted trees	39	50	43	41	36	8

Source: Deininger et al. (2006) and EEA/EEPRI (2001)

Slow urban growth rates may be in part due to lack of land tenure laws and non-transparent rural land rights. De Brauw and Mueller (2010) examined effects of land transfer rights on household labor decisions, including migration. Empirical estimates suggest that improvements in land transfer rights will increase migration behavior. Not only the lack of land transfer rights and clear land certification/ownership may be inhibiting rural–urban migration, but migrants also face unclear and restrictive policies in urban areas once they have migrated. A migrant is required to live 6 months in the urban area prior to registering their new address and requesting a new identification card that reflects his/her residence. Many public services are tied to this registration and identification, so the migrant must forego these services for 6 months while establishing permanent living status in the city. After the migrant has completed 6 months of

residence, it is possible that he/she will still be unable to apply for an identification card because applicants are restricted to individuals that own a property in the urban area (and have a current address).[17]

In addition to land transfer rights, links between migration and household welfare in Ethiopia have been recently studied by Mberu (2006). Using survey data from the major four regions of the country, Mberu examined the association between permanent versus temporary migration and underlying household living conditions. The study found that permanent migrants tended to migrate to non-agricultural sector work. Similarly, temporary migrants (migrants that periodically move back and forth between origin and destination) sought off-farm income, but were also more inclined to work as teachers in higher education institutions. Education levels of permanent migrants were quite low (26 percent had a primary education and 36 percent had received no formal education) in comparison to temporary migrants (70 percent had at least a secondary education), but both sets of migrants identified a diversified income outside of the agricultural sector as a key component to improved living conditions.

Constraints in the Urban Economy

While the main national development strategy has primarily consisted of the components of ADLI, the Government of Ethiopia also drafted the National Urban Development Policy (NUDP) which became operational in 2005. Two principal packages make up this policy; the Urban Development Package and the Urban Good Governance Package. A set of initiatives and targeted programs were also outlined under the NUDP which include: strengthening of urban-rural and urban-urban linkages for sustainable development: expanding growth opportunities through balanced development of urban centers; reducing urban poverty and unemployment; increasing participation of the community in different aspects of urban development; constructing strong partnerships with

[17] Several conflicting factors are at stake here. First, if a household is renting a room to a migrant that they do not have previous social ties (familial or friendship), they are not inclined to report that they are renting a room in their own house because this action may have tax implications for the house owner. Meanwhile, the migrant is unable to petition for him/herself because the majority migrants are unable to buy a property within the first 6 months of migrating. Thus social networks are exceedingly important in this context because the migrant, prior to migrating, would need to assure that they could obtain a residency / identification card via a social tie (that owned a property) within the city that could request identification on behalf of the migrant.

the private sector; and creating more decentralized urban governance. The NUDP highlights the need for expansion of small and micro enterprises in urban areas; construction of low cost houses; improved access to land for private sector investments and urban residents including the poor; and expansion of social services (MoWUD 2006). In addition to the NUDP, the PASDEP also outlines an urban development strategy with four main pillars: reducing urban unemployment to less than 20%, developing integrated housing in order to reduce slums in Ethiopia's main cities by 50%, improving access to urban land infrastructure and services, and promoting urban-rural and urban-urban linkages. As a strategy to promote rural-urban linkages, the PASDEP outlined small town development as a key instrument to enhance forward and backward linkages. The target included developing 600 small towns (towns with less than 20,000 people) between 2005/06 and 2009/10.

These goals are certainly important. Urban unemployment remains extremely high, and urban poverty levels are high, particularly in Addis Ababa. Moreover, the government's current 5 year plan (the Growth and Transformation Plan, GTP), envisages a 20% per annum growth in the industrial sector from 2010-2015. Achieving this goal will require particularly rapid growth in manufacturing, which is widely seen as a critical element of successful economic transformation. Low-skilled manufacturing can be labor-intensive (job-creating), but can also induce strong learning spillovers that allow countries to eventually produce more sophisticated goods. Certainly this appears to be the experience of successful Asian economies (The World Bank 1993).

Using firm level census data from Ethiopian manufacturing, Shiferaw (2010) examined the structure of the industrial sector. Table 15 reveals the range of four-digit ISIC industries and five digit products in the Ethiopian manufacturing sector excluding the printing and paper, and wood and furniture sectors. There are about 41 four-digit ISIC industries with 138 different products produced by about 1008 firms, the average size of which was about 104 workers in 2007. The food and beverage sector is large, although textiles, garments, leather and footwear also make heavy use of agricultural inputs. Moreover, the food and beverage industry is dominated by just four products (sugar, beer, wheat flour and soft drinks) which account for about 75 percent of total sales,[18]

[18] The remaining 25 percent of total sales is comprised of 40 different products. Next in importance are macaroni and pasta, edible oil, mineral water and biscuits which collectively account for about 11 percent total sales during the sample period.

with a similar pattern observed in the textile and garments sectors, the leather and footwear industry and the chemical industry (tire, soap, polyethylene, and paints). The non-metal industry is dominated by cement (83% of sales) and the metal and light machinery by production of iron-sheets (60% of total sales).

Table 15: Structure of Ethiopian manufacturing

Two Digit ISIC Industries (Grouped)	No. of 4 digit Industries	No. of Products	No. of Firms, 2007 (% total)	Maximum No. of products per firm	Average firm size in 2007 (workers)
Food & Beverage	13	44	346 (34%)	6	93
Food	9	35	313 (31%)	6	74
Beverage	4	9	23 (3%)	2	270
Textile & Garments	4	29	73 (7%)	4	379
Textile	2	19	33 (3%)	4	603
Garments	2	10	40 (4%)	4	194
Leather & Footwear	2	12	72 (7%)	4	110
Tannery	1	4	18 (2%)	4	202
Footwear	1	8	54 (5%)	4	79
Chemical & Plastic	7	22	128 (13%)	6	108
Non-metal	5	10	273 (27%)	5	42
Metal & Machinery	10	21	116 (11.5%)	3	69
Total	41	138	1008	6	104

Source: Annual Census of Ethiopian Manufacturing conducted by the Central Statistical Authority of Ethiopia (CSA).
Note: The table excludes the printing and paper, and the wood and furniture industries because of inadequate data on number of products.

During the period 1996-2007, manufacturing sales in Ethiopia grew by approximately 11 percent per annum. Firm level data (Sutton and Kellow 2010) suggest that industrial growth in Ethiopia occurred primarily from trading companies converting to manufacturing, rather than from small and medium firms converting to large enterprises. Traders have utilized their wealth of experience and detailed knowledge of both local and international markets to

enable them to take advantage of opportunities to engage in large scale manufacturing. Owners and managers of small manufacturing firms who lack this knowledge of the market are at a disadvantage, and the data suggest that most new small firms ultimately exit the market. Foreign direct investment (FDI) has also played a major role in industrial growth. By the late 2000s, government estimates suggest that employment by foreign firms in Ethiopia may equal the total employment by the leading domestic firms.[19]

While 11% growth may sound impressive, this growth has taken place from a very small base, such that the role of manufacturing in the Ethiopian economy has been marginal in terms of value added, exports and employment, even in recent times. Moreover, government planning documents demand a higher rate of manufacturing growth, especially in sectors identified as strategic, such as agro-processing sectors with strong backward linkages. However, using census-based firm-level panel data on Ethiopian manufacturing during 1996-2002, Shiferaw (2007, 2010) shows several important characteristics of the sector. First, there are many small firms: 70 percent of firms employ less than 50 workers. Second, there is a high degree of survival for firms at the top of the productivity distribution while the majority of the least efficient firms in the bottom two quintiles (nearly 60 percent) exit the market. In addition, there is also a high degree of both job creation and destruction. Fourth, the sub-sectors with the most employment growth are not those related to the ADLI strategy (agro-processing). Fifth, many firms engage in virtually no investment. Finally, small firms rarely scale up, with entrepreneurs preferring to start additional small firms rather than re-invest in existing small firms.

These results point to some important issues in the sector. For example, a lack of competition in domestic markets may inhibit firms at the bottom of the productivity distribution to move up the productivity ladder compared to firms in advanced economies (Shiferaw 2007). There is also huge unevenness in investment; firms that carry out the largest investments account for about 80 percent of total manufacturing investment. This could be explained by several factors. First, credit constraints and high fixed costs could lead to discontinuity and lumpiness of investment. The Ethiopian financial sector is capital and competition-constrained, with no foreign investment in the banking sector, and a non-level playing field between the main state bank and a series of relatively

[19] Note that the findings cited above are based on data from a non-representative sample of 50 large and medium size firms designed to depict a general picture of the industrial sector.

young private banks. Moreover, in 2007 the government imposed tight lending controls on private banks in an effort to curb speculative investments and inflation. Hence, as a general rule only large firms at the top of the production pyramid are able to access bank capital. Small and medium enterprises generally constitute a missing middle, in that they are also bypassed by Ethiopia's sizeable microfinance sector.

In addition to credit constraints, uncertainty and irreversibility of investments seem to be a limiting factor for small firms in particular. Shiferaw (2009b) captures the degree of irreversibility by the scope for secondhand markets in machinery and equipment as well as by the degree of competitiveness of product markets.[20] Disruption in electricity is also an element of uncertainty. A 2008 survey data of small-scale handlooms in Addis Ababa and SNNPR (Ayele et al. 2009) indicates that productivity per worker is about 40 percent higher for electrified versus non-electrified firms in SNNPR. This productivity effect is achieved in large part because in towns with electricity access, producers work longer hours and firms share workspaces with electric lights at lower rental cost. Workers in non-electrified rural villages on average worked only 7.2 hours per day, whereas their counterparts in other electrified (but rural) villages worked 10.7 hours per day. However, uncertainly in electricity supply is still a problem in Ethiopia. Uncertainty therefore seems to be an important reason why many investors do not expand an existing firm, but rather seem to prefer to open another small low-risk establishment.

CONCLUDING OBSERVATIONS

Ethiopia has achieved substantial economic growth in the past decade, much of this driven by increases in agricultural production. Further growth, however, will likely require a more rapid transformation of the economy. Major productivity increases in agriculture are still possible but increasing land pressure, as well as environmental degradation, are important drags on per capita on-farm incomes. Moreover, relatively thin markets for agricultural products in small towns and urban areas also limit demand for agricultural produce. Without greater nonfarm income, rural households are highly exposed to drought and other agricultural shocks. Continued improvements in

[20] The assumption being that it would be easier to liquidate an investment project in a competitive market where a large number of firms produce a homogenous product.

transportation networks between rural and urban areas are needed to lower transportation costs, as well as promote the flow of goods, people and information. Since rural areas still lag well behind urban areas in health and education, further investments in these areas are also needed to build human capital.

Although agriculture continues to be the foundation for economic growth and poverty reduction, benefits may be gained from fostering more rapid urban growth and greater rural–urban linkages. Indeed, unless policies actively impede urbanization, Ethiopia will most likely have urbanization rates of 30 percent or more within the next two decades. Public investments and other development policies will play a large role in whether this urbanization ultimately increases economic growth and helps reduce poverty or impedes equitable economic development. In addition to investments, government regulatory and financial policies need to become friendlier to small and medium enterprises, in terms of improving access to capital, and making it easier to both start and scale up small and medium sized firms.

Ethiopia faces key development policy decisions as it moves forward. The current government's sizeable investments in agriculture and rural infrastructure have thus far paid handsome dividends. At the same time, government policy has effectively slowed rural-urban migration through regulations prohibiting sale of land, loss of land rights for those who leave rural areas, and registration requirements for new migrants. Allocation of public investments across sectors and across rural-urban space, together with land policies and various regulations on labor mobility, will be major determinants of the growth path of Ethiopia's economy and the extent of poverty reduction in the coming decade.

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