

How Do Cities in Ethiopia Create Jobs?

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WORLD BANK GROUP

Trade and Competitiveness Global Practice Group

October 2016

Abstract

This paper reviews city-based industrialization across Ethiopia to understand (a) its importance in driving net job creation, and (b) the factors that determine the success of high-growth industries and cities. The focus of the analysis is on firms, industries, and cities in Ethiopia that create and sustain jobs. The analysis finds that much of new job creation is found in emerging cities, although capital

intensity in production is also increasing. As in other countries, 97 percent of new jobs are created by large firms, and it is incumbents and not new entrants that contribute to initial and sustained increases in employment. Agglomeration economies, better business environment, and access to better infrastructure are factors that matter, albeit differently, depending on firms' size, life-cycle, and rate of growth.

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How Do Cities in Ethiopia Create Jobs?*

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Keywords: Cities, Jobs, Gazelles, Agglomeration, Industrialization

JEL Classification: O12, R11, R12

* The author is grateful to Bob Rijkers, Tom Farole, Somik Lall, Roland White, Ruth Hill and Onur Ozlu for providing feedback, comments and suggestions. Lars Christian Moller, Johanne Buba, Eyasu Tsehaye and Karan Singh helped facilitate data access and readiness. This research was carried out as part of the Ethiopia Urbanization Review project at the World Bank Group.

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1 Introduction

According to the second Growth and Transformation Plan (GTP II), Ethiopia aims to become a middle-income country by 2040. In fact, industrialization is the main instrument at the disposal of the Government of Ethiopia to achieve its objectives – creating employment and growth.¹

This paper reviews city-based industrialization across Ethiopia to understand (a) its importance in driving net job creation, and (b) the factors that determine the success of high-growth industries and cities. The focus of the analysis is on firms, industries and cities in Ethiopia that *create and sustain jobs*. As firms and companies are the agents of job creation, the analysis is focused on firms. A growing body of evidence shows that firm dynamics vary dramatically across countries at different stages of development (Hsieh and Klenow, 2009, 2014), making it more difficult for policy makers to apply standard conclusions to their own contexts. Indeed, many local and national policy makers often invest in programs to promote small and medium enterprises (SMEs), even though empirical evidence for this proposition is limited (Beck et al 2005).

Owing to data constraints, only firms above a certain size threshold (10 employees and more) could be observed over time. Although there is widespread evidence that household and micro and small enterprises create the vast majority of jobs in developing countries, there is also growing evidence that these firms also exit the market in large numbers, destroying jobs, and that they tend to stay small, adding little to employment growth over time (see Rijkers et al 2014 for an excellent overview of the related literature on the ability of productive enterprises to increase employment).

This paper tests the conceptual framework developed by the Competitive Cities Report (World Bank 2015b), which postulates that the ability of firms is a function of their allocative efficiency to choose between capital and labor, which in turn is determined by a combination of factors within their local environment. Cities are well suited to solve development challenges since their geographical scale often matches the natural scale of economic development, particularly with regard to agglomeration economies and administrative outreach. Four major categories of policy levers (institutions and regulations; infrastructure and land; skills and innovation; enterprise support and finance) are integral. City leaders need to juggle those multiple complex areas of policy and investments to facilitate city competitiveness, i.e. facilitate firms and industries to grow jobs, raise productivity and increase incomes of citizens.

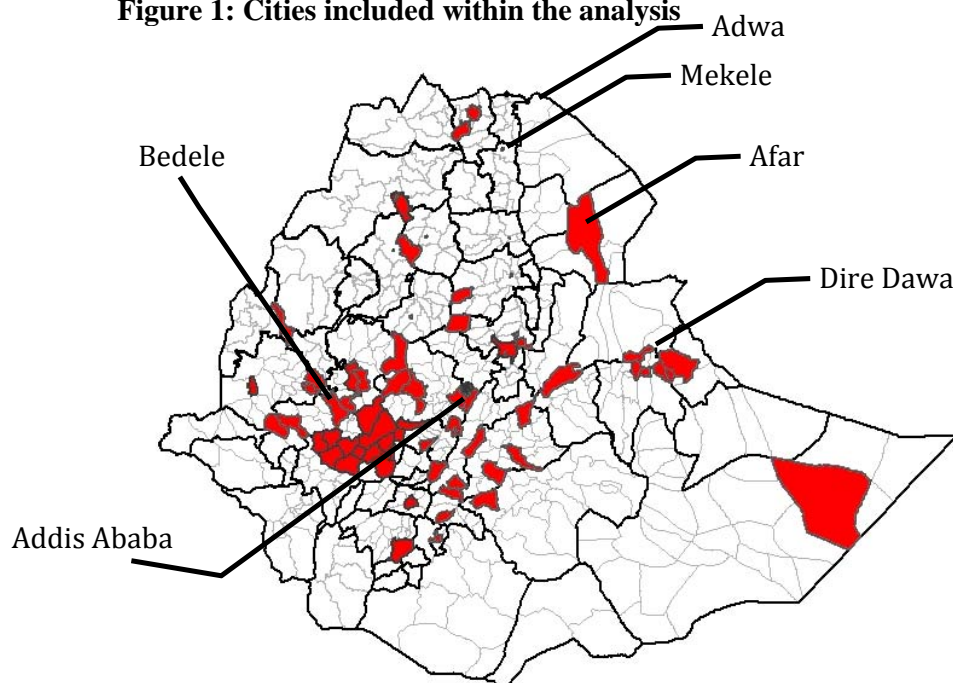
This paper is structured as follows. Section 2 below provides an overview of the spatial structure of the country, and describes the different sources of data used within the analysis. Section 3 describes job dynamics in Ethiopia – Who creates jobs? Where are they located? What variables are correlated with job growth? The econometric strategy is presented in Section 4. Two models (at the firm and at the city level) are utilized to identify the determinants of cities' success in employment creation and growth. Section 5 concludes.

¹ The GTP II identifies light manufacturing industries as the main drivers for sustained economic growth and job creation.

2 Data and Definitions

Ethiopia has a federal government system, with nine autonomous regions and two charter² cities (Addis Ababa and Dire Dawa). These regions are further subdivided into zones, which are then divided into urban administrations and rural woreda administrations. Addis Ababa and Dire Dawa are divided into sub-cities, which are then further divided into woredas.³ There are 84 urban administrations in the country, which generally have populations of 20,000 or more. According to the 2007 Census, alongside Addis, only 10 cities in Ethiopia have populations exceeding 100,000. Note that there is no such administration unit as ‘cities’ under the administrative structure of the country. Cities in Ethiopia could be equivalent to regions (as in the case of Addis Ababa and Dire Dawa), or to zones (as in the case of Mekele) or to urban administrations or woredas (such as Sebeta, Adwa etc). In this paper, the focus will be on 27 of the largest cities in the country, for which adequate information on economic activity is available – see map below.

Figure 1: Cities included within the analysis



The analysis in this paper uses several different data sets, provided for by the Central Statistical Agency – see Table 1 for a brief description and coverage.

² Charter cities have the administrative remit of regions.

³ Woredas in Addis and Dire Dawa are urban, but in other parts of the country refer to rural areas.

Table 1: Data Sets Used in this Report

Data Title	Year(s)	Type	Source
Demographic and Health Survey	2011	Household Survey	CSA
Urban Bi-Annual Employment and Unemployment Survey	2009, 2010, 2011, 2012	Household Survey	CSA
Large and Medium Scale Manufacturing and Electrical Industries Firm Survey	1999-2010	Firm Census	CSA
Welfare and Monitoring Survey	2011	Household Survey	CSA
Household Income and Consumption Survey	2011	Household Survey	CSA

Notes: XXXX-YYYY: Refers to panel data; XXXX, YYYY: Refers to cross-sectional data.

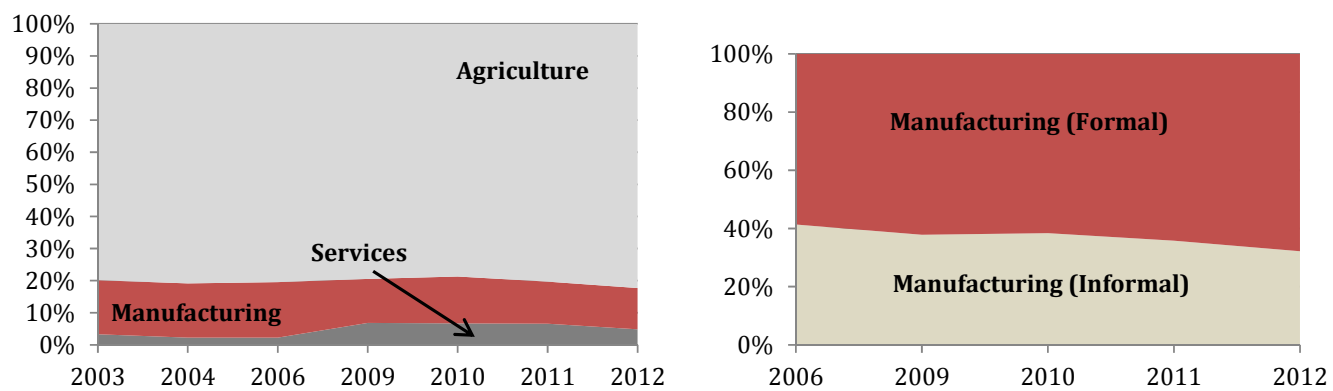
Data on firms, industries⁴ and employment within the report are taken from different data sources. All of the data used in the report are taken from surveys undertaken by the Ethiopian Central Statistical Agency (CSA). The *Large and Medium Scale Manufacturing and Electrical Industries Survey* (LMMIS) covers all establishments with 10 or more employees that use power-driven machinery, often manufacturing firms. It is undertaken in over a 100 of the largest towns and cities in Ethiopia, which relate to the urban administrations.⁵ The *Urban Bi-Annual Employment and Unemployment Surveys* (UBAEUS) were conducted first in 2003, 2004 and 2006. After 2009, they have been conducted annually. The survey provides information on the economic characteristics of the population aged 10 years and over, including their activity status, employment, and unemployment situation. It also covers detailed socio-demographic background variables such as age, gender, educational status, training and marital status. The unit of analysis is the household and the individual, and the survey identifies regions, zones and woredas. All surveys, except for the LMMIS which is a census, are representative at the woreda level. Figure 2 shows graphically the distribution of employment across the country – and the proportion accounted for by formal manufacturing firms.

The report also supplements the analysis on firms and employment with data drawn from the *Demographic and Health Survey (DHS)*, the *Welfare and Monitoring Survey (WMS)* and the *Household Income and Consumption Survey (HICE)*. All of these are sample surveys with the household identified as the unit of analysis. They provide information on a rich array of variables, including social indicators (health, education, poverty) and economic indicators (access to services, assets, consumption).

⁴ Industry refers to the ISIC 2-digit industry classification for manufacturing.

⁵ Informal in Ethiopia is less widespread than elsewhere in Sub-Saharan Africa. In 2011, 37 percent of those employed in Ethiopian cities were in the informal sector—this is low, versus average rates of 60 percent or higher elsewhere. Also, informal employment is more widespread in cities other than Addis Ababa.

Figure 2: Sectoral distribution of Employment



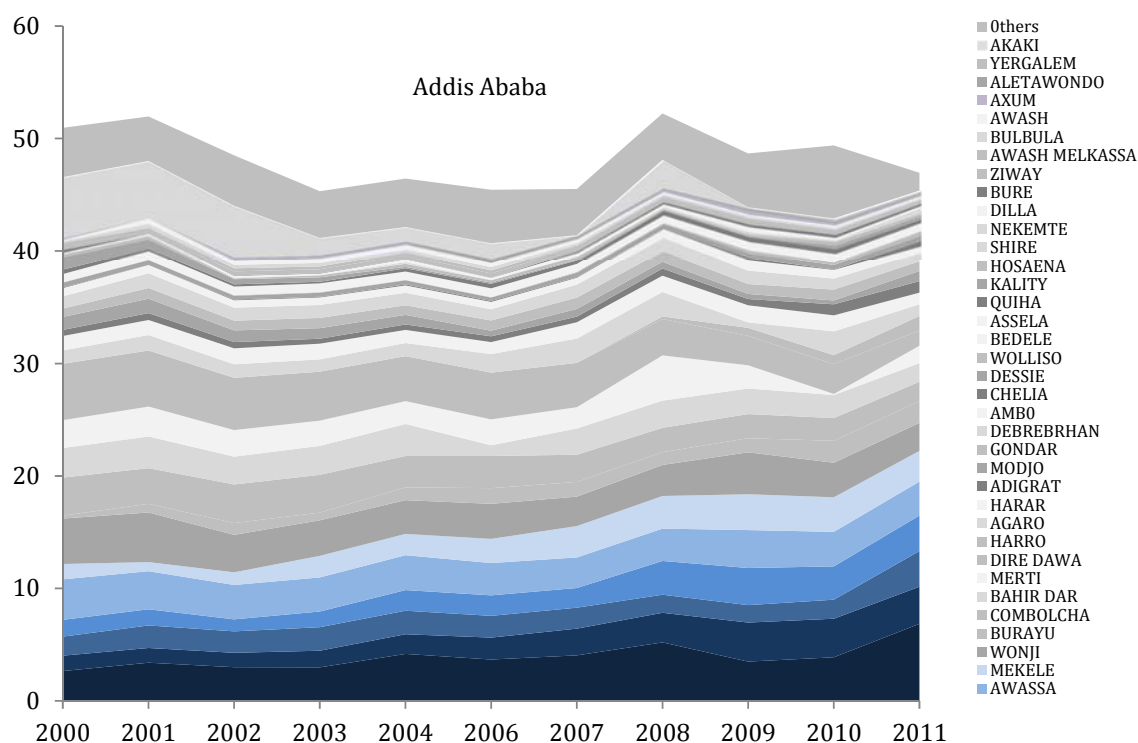
Source: UBAEUS, CSA

3 Job Dynamics in Ethiopia

The Spatial Distribution of Jobs and Firms

Where are firms located? Although the GoE has taken several policy measures to support industrialization across the country, it is cities that remain the harbingers of industrial concentration and growth. Figure 3 presents the distribution of manufacturing firms across cities in Ethiopia, between 2000 and 2011. While most industrial activity is concentrated in Addis Ababa, over time, a number of cities have managed to expand their manufacturing base – in particular: Adwa, Sebeta, Debreziet, Nazareth, Awassa and Mekele (shaded in blue). Altogether, these six cities expanded their share in the total number of manufacturing firms, from 12.2 % (2000) to 22.2 % (2011).

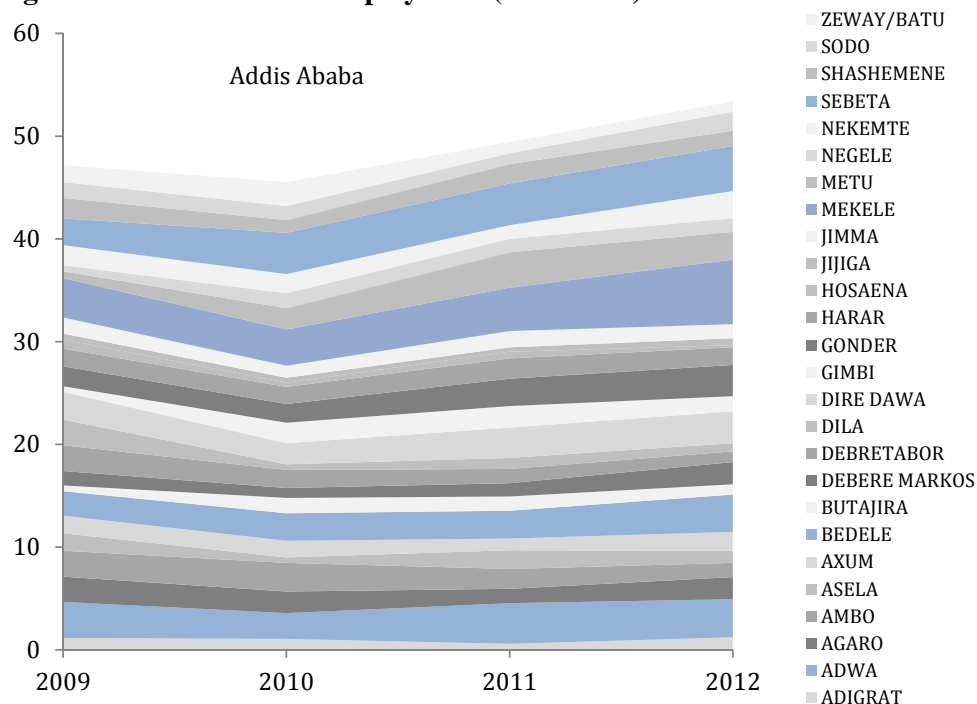
Figure 3: Distribution of Firms (2000-2011)



Source: LMMIS, CSA

Where are jobs located? Although Figure 3 depicts the distribution of firms over a decade, the data are drawn from the LMMIS, which does not include services enterprises, or micro and small enterprises. Using data from the Urban employment and unemployment survey (2009, 2010, 2011, 2012), Figure 4 shows the distribution of employment across selected cities and how it has changed over time. There are a number of similarities between the two graphs – for one, the share of Addis remains dominant, with the city accounting for around half of medium and large firms, and half of total employment. What is interesting is that most cities lost their share of employment in 2010 compared to Addis, indicating that either firms located in the capital were more resilient to global macro-economic shocks, or that firms and people migrated to Addis over this period.

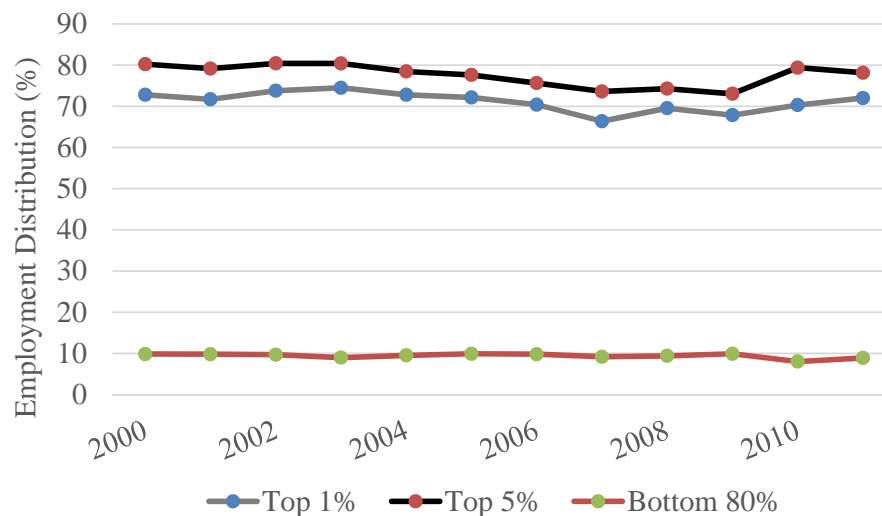
Figure 4: Distribution of Employment (2009-2012)



Source: UBAEUS, CSA

When the focus is on employment by MLEs (Medium and Large Enterprises) only, Addis contributes an even larger share. Figure 5 summarizes the share of employment by the top 1%, 5%, 10% and bottom 80% of cities, across different years. Employment is extremely skewed towards Addis, which accounts for almost three-fourths of employment in any given year. The smallest cities account for less than 10% of total employment across Ethiopia.

Figure 5: Distribution of Employment (by Cities)

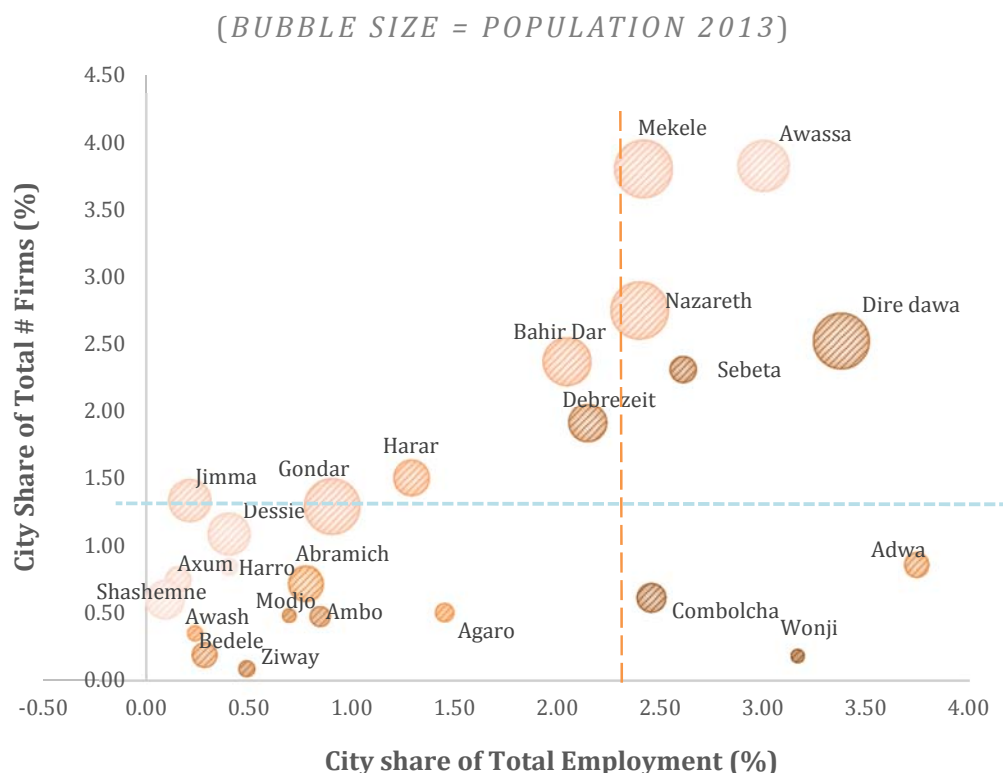


Source: LMMIS, CSA

II.B: Who Creates Jobs?

In which cities are firms creating jobs? While Figure 3 shows that new firms/investors are choosing to invest in cities other than Addis, what matters is what this means for job creation. Figure 6 presents the distribution of employment and the distribution of firms across cities in Ethiopia – Addis, which is not displayed, accounts for about half of total employment and half of the total number of firms. Firms in new, emerging cities (such as Adwa, Sebeta and Debrezeit) are creating more jobs per capita firms. On the other hand, while fast-growing industrial towns such as Nazareth, Awassa and Mekele attract a number of new firms, these new entrants do not create as many jobs relative to those in other cities in the country. It is thus worth investigating if the capital or labor intensity used within the industrial sector might be a determinant of the extent of job creation by different industries across Ethiopian cities.

Figure 6: Distribution of Firms and Jobs (2007-2011)

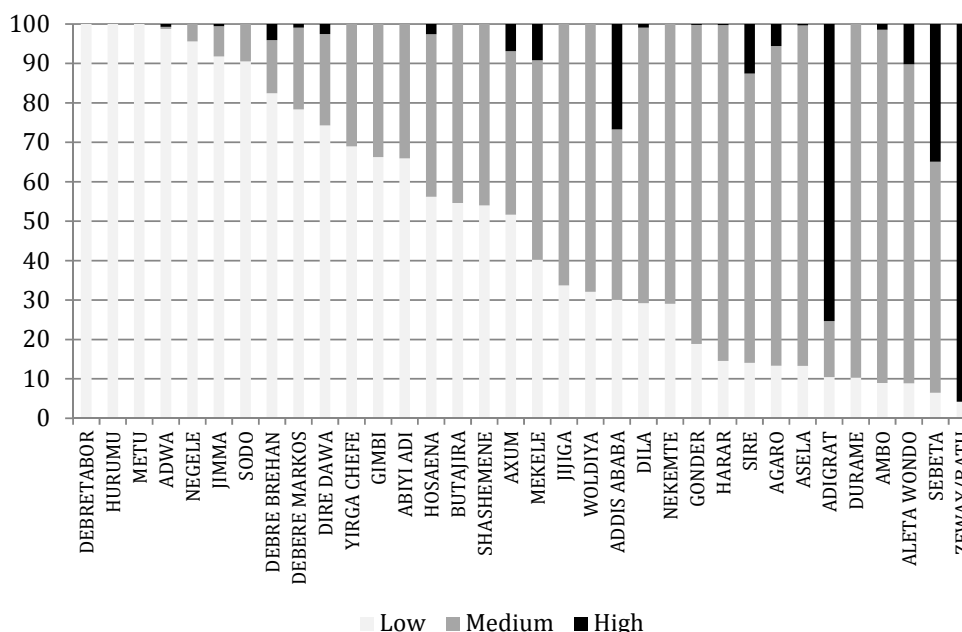


Source: LMMIS, CSA

What types of sectors within cities create jobs? Since the LMMIS data are limited to manufacturing industries only, the emphasis here is on the difference between capital and labor-intensive industries. Manufacturing, particularly light manufacturing, is an important source of employment and could be an important engine of growth in labor-rich Ethiopia. Figure 7 depicts the distribution of city-level employment by the

following categories of capital intensity – low, medium and high.⁶ Indeed, certain cities seem to attract only low-capital (and hence high-labor) based industries, such as Dire Dawa. On the other hand, emerging cities such as Mekele and Sebeta seem to attract medium and high-capital intensive industries, which might be a worrying pattern. It is difficult to ascertain what model of development would be most sustainable for Ethiopia – modest capital intensity is required for firms to compete in international markets, while optimal use of labor would also help raise labor productivity across different types of industries.

Figure 7: Town employment contribution by capital intensive sector.



Source: UBAEU, CSA

Is the increase in capital intensity explained by a move to capital-intensive sectors? In other words, are cities specializing in products that require additional investments in capital? I estimate a regression (panel fixed-effects) model to study the relationship between sectoral composition at the city level and firms' capital intensity in production. The results suggest that cities are not necessarily decreasing their share of labor-intensive sectors, but they are increasing the capital-intensity in employment. Although traditionally capital-intensive sectors (non-metallic minerals, publishing and printing) are increasing intensity faster, this is also true of labor-intensive industries (such as wearing apparel, tanning and dressing, etc.).

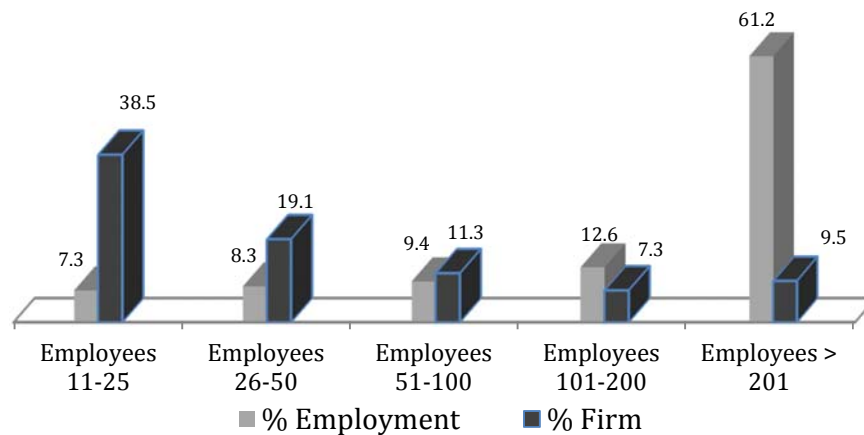
What is the importance of firm size in job creation? Figure 8 shows the distribution of employment and the total number of firms for the period of 2000-2011.⁷ Clearly, enterprises with fewer than 50 employees dominate the account for close to 60% of the total number of firms. However, the bulk of employment (i.e. more than 60%) is

⁶ Capital intensity is based on the firm's capital-per-labor ratio.

⁷ The data are shown for 36 cities, which account for 77 percent of the total firms, and 73 percent of the total employment generated within the LMMIS data.

accounted for by firms with 201 employees or more. This indicates that much of total employment is accounted for by larger firms in Ethiopia. This also suggests that resources are not being allocated or re-allocated efficiently in the Ethiopian context – in fact, recent research in Ethiopia (Gebresilasse 2016) finds that misallocation of resources across firms has had a severe effect on total factor productivity.

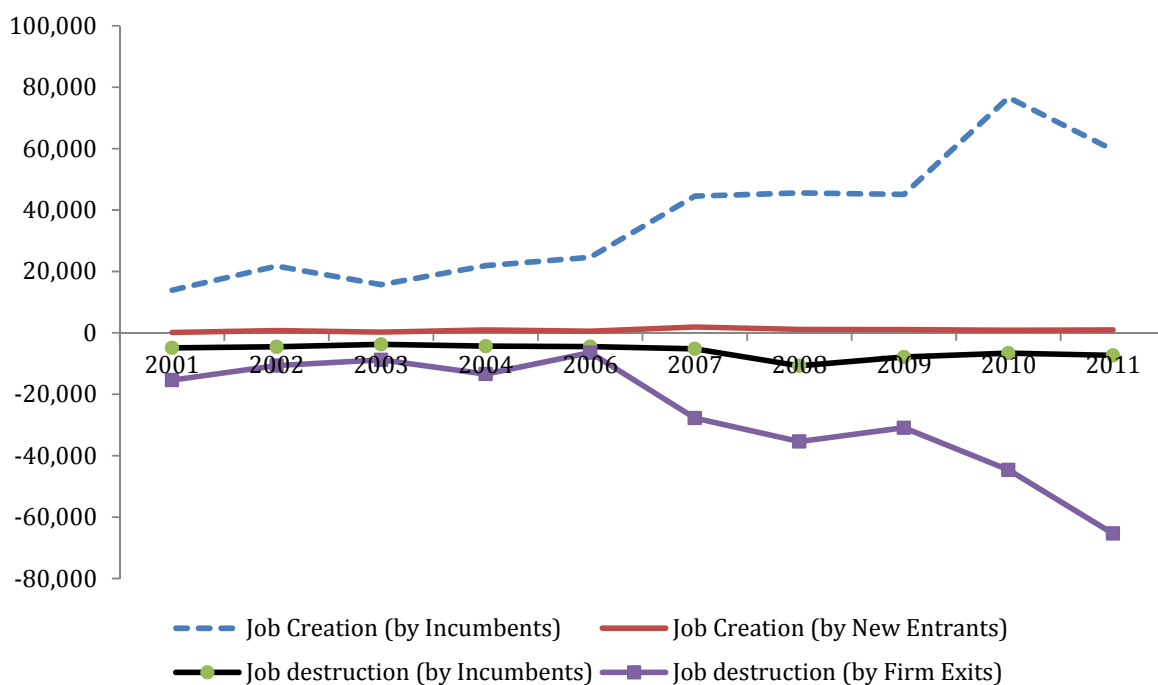
Figure 8: Distribution of firms and employment by Size



Source: LMMIS, CSA

What are the sources of Net job Creation? Simply put, *Net Job Creation (NJC)* = *Job Creation* – *Job Destruction*. Job creation by firms can take place in two ways, (1) by new entrants creating new jobs, and (2) by existing firms creating new jobs. In the same way, jobs could be destroyed in two ways (1) by firms exiting the market, and (2) by existing firms destroying jobs. Figure 9 below measures the sources of job creation and job destruction. Jobs are created mostly by existing firms – and jobs are destroyed mostly by firms exiting the market. This suggests that incumbents might benefit from production know-how and experience and that new entrants might need time to start growing their labor force.

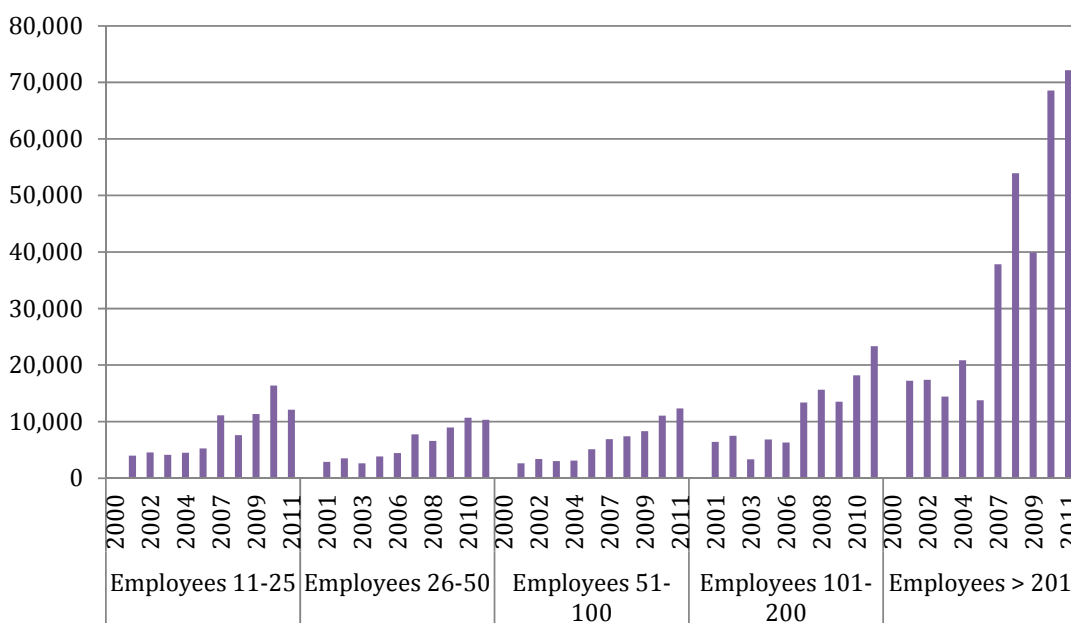
Figure 9: Job creation and destruction by Entry, Exit and Survival



Source: LMMIS, CSA

What firms are creating and destroying jobs? Figure 10 shows the breakdown of firms by size over time, and by the contribution of each category to net job creation over the last 10 years.

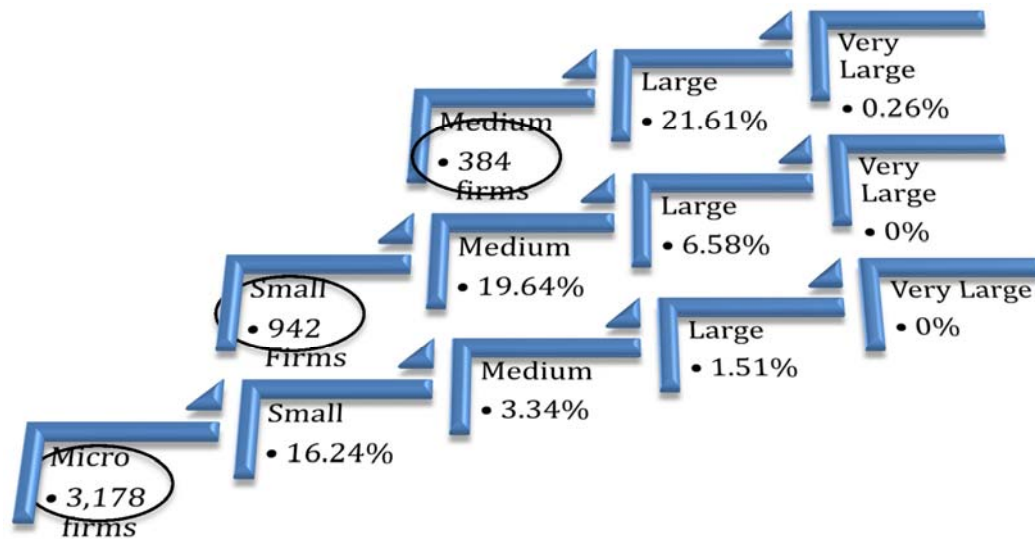
Figure 10: Net Job Creation (by Firm Size)



Source: LMMIS, CSA

If it is large firms that create a large proportion of jobs, how easily can firms graduate in terms of size, from small to medium to large? In the LMMIS data, the rates of graduation are extremely low. Of the total number of micro-enterprises (employing less than 20 employees) within the data set, only 16 percent become small (i.e. employing between 21-50 employees), and even fewer, a measly 3.34 percent become medium (i.e. employing between 51-100 employees), and only 1.51 percent become large (i.e. employing between 101-1,000 employees). None graduate to very large status (i.e. employing more than 1,001 employees). Similarly, of all small enterprises within the data set, only 6.58 percent graduated to large-enterprise status – see Figure 11.

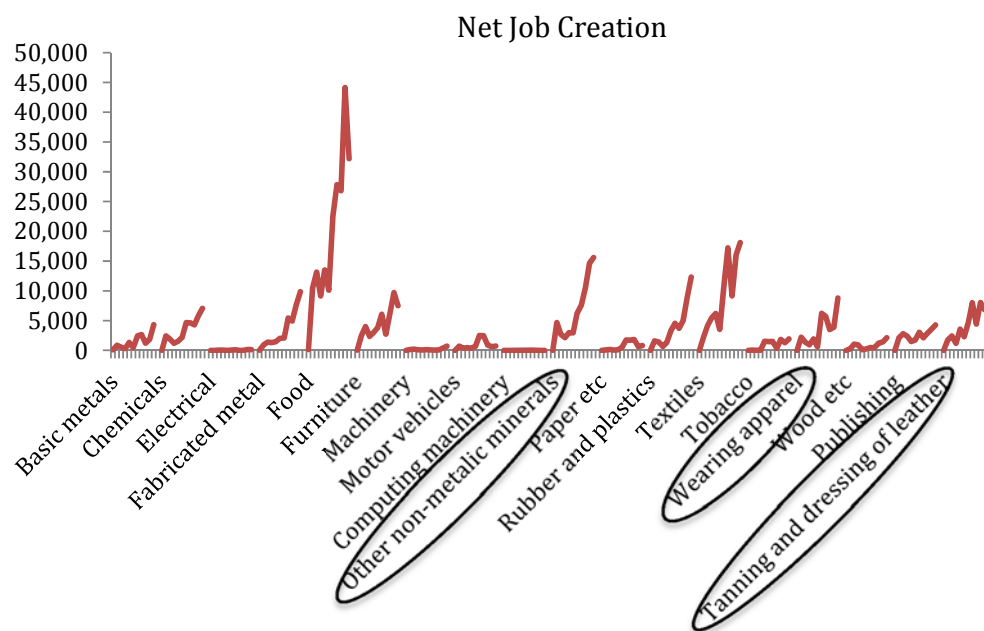
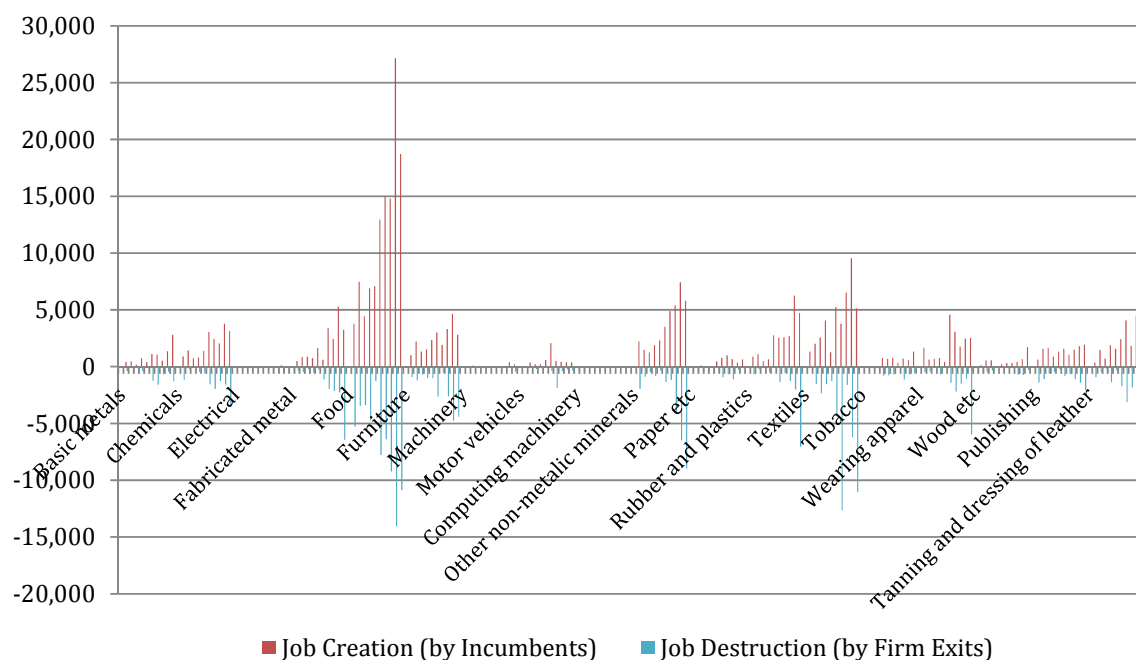
Figure 11: Firm graduation rates



Source: LMMIS, CSA

What industries are creating and destroying jobs? Figure 12 shows that job creation and destruction takes place across different manufacturing sectors over time. Indeed, the level of job destruction in many sectors is quite high. Altenburg (2010) argues that industrial policy in Ethiopia predefines entry of entrepreneurs into priority industrial sectors in the country, limiting the effect of market forces, and leading to larger exits (and subsequent job destruction) later. The second graph shows net job creation across manufacturing sectors – the priority sectors under GTP II have been highlighted.

Figure 12: Job creation and destruction (by industry) and net job creation



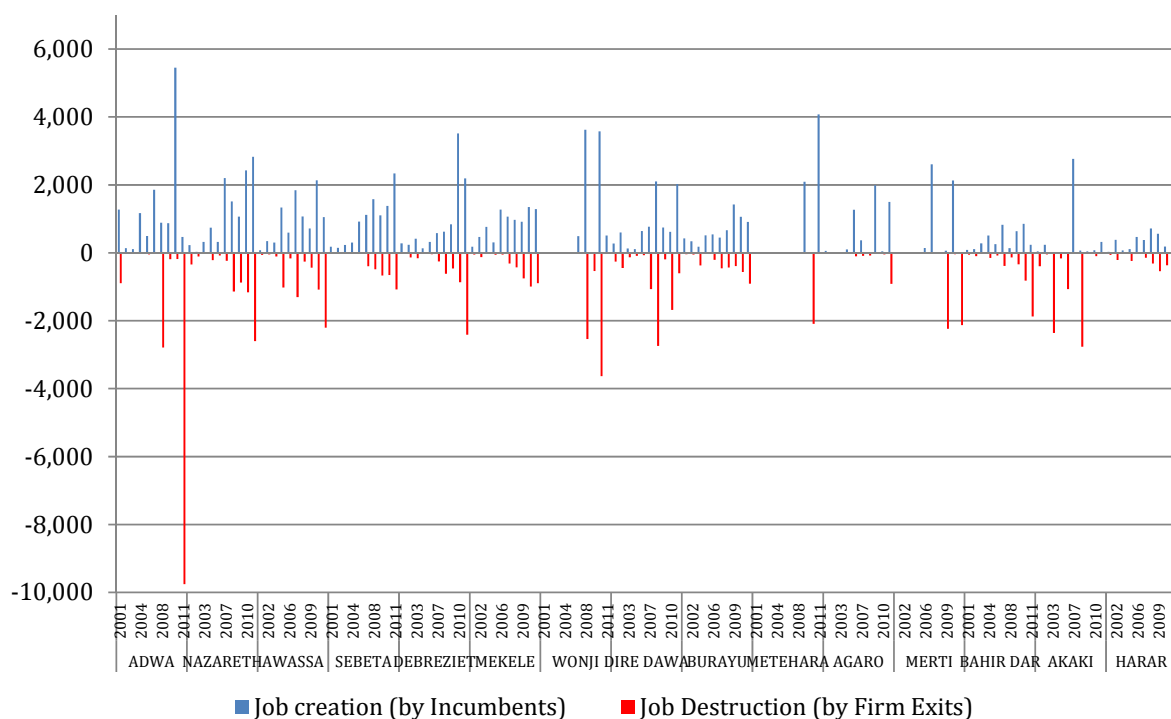
Source: LMMIS, CSA

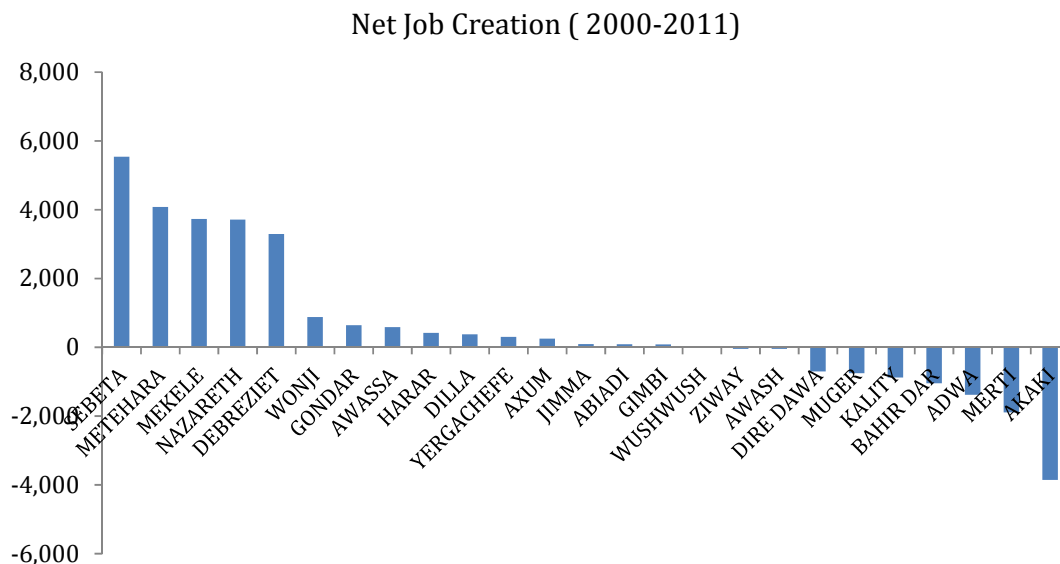
Policy makers are also often interested in job creation, both initial and sustained, since new jobs, even those that last only for a short term could have beneficial impacts on the overall economy over that period. A breakdown of job creation by incumbents and entrants finds that, on average, only 2 percent of new jobs are created by new firms – the rest are created by incumbents. Only in sectors like basic metals and machinery do entrants make somewhat of a dent – accounting for 6-8 percent of new jobs. Since a

large proportion of entrants will fail to survive, entrepreneurs in Ethiopia make little impact on the labor market and do not last very long anyway.

Which cities are creating and destroying jobs? Figure 13 depicts job creation and destruction across cities in Ethiopia. Some towns create lot of jobs and destroy fewer jobs – such as, Sebeta and Mekele. It also summarizes the net job creation across cities in Ethiopia over the last decade. It is interesting that there is much disparity and volatility across NJC by cities in Ethiopia – this could be a factor of natural advantages of the city (for instance its proximity to Addis), or it could be a function of the city-level policies (such as investments in infrastructure, fiscal policies, etc.). Indeed, net job destruction within a city is worrying – firms and employment could be moving away from certain areas owing to natural decline, or anti-market policies pursued by some regions.

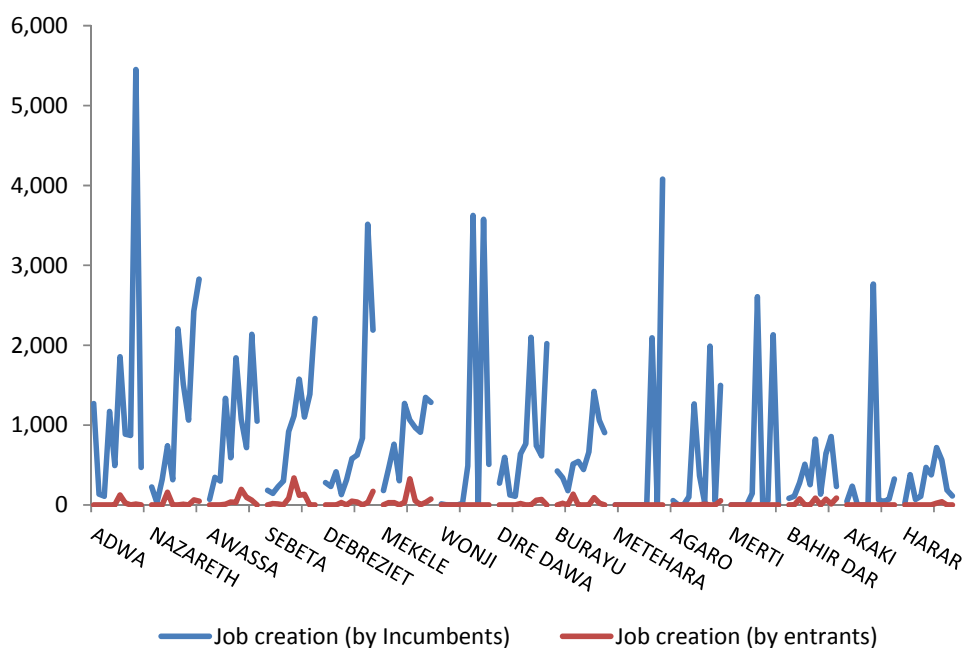
Figure 13: Job creation and destruction (by city)





Source: LMMIS, CSA

Figure 14: Sources of total Job Creation by City (2000-2011)



Source: LMMIS, CSA

In fact, on average, only 3 percent of total new job creation across cities comes from new entrants. There is little variation across cities – Bahir Dar and Sebata top the range at 9 and 8 percent respectively. The overwhelming source of job creation is incumbent firms – see Figure 14. This creates a big conundrum for policy makers in Ethiopia – entrants to the market not only do not graduate, they also leave scarcely a mark on the

labor market before exiting the market and destroying whatever little jobs they do create.

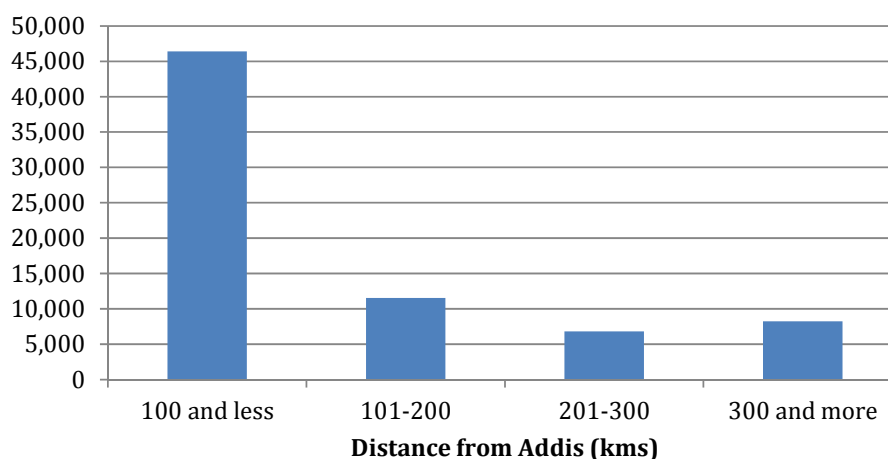
Indeed, this creates questions about the focus of public policies on encouraging entrepreneurship, without adequate focus on the needs of existing enterprises.

Why are some firms, industries and cities able to grow employment, while others seem to lag behind? If a large share of employment growth comes from incumbent firms, i.e. firms that survive over a period of time, then it will be worthwhile understanding the factors that allow firms to enter, survive and grow over time in cities. The next section will analyze some of the factors that might predict job growth in Ethiopian cities over time, and provide clues for a more robust multivariate analysis in section 4.

II.C: What Are the Predictors of Jobs?

Does location matter to NJC? The net jobs created by cities vary significantly over time and space – it turns out that one of the major factors that seem to affect these distributions is proximity to the capital city – Addis. Cities closer to the capital might benefit from demonstration effects, knowledge spillovers, market access, and forward and backward linkages.

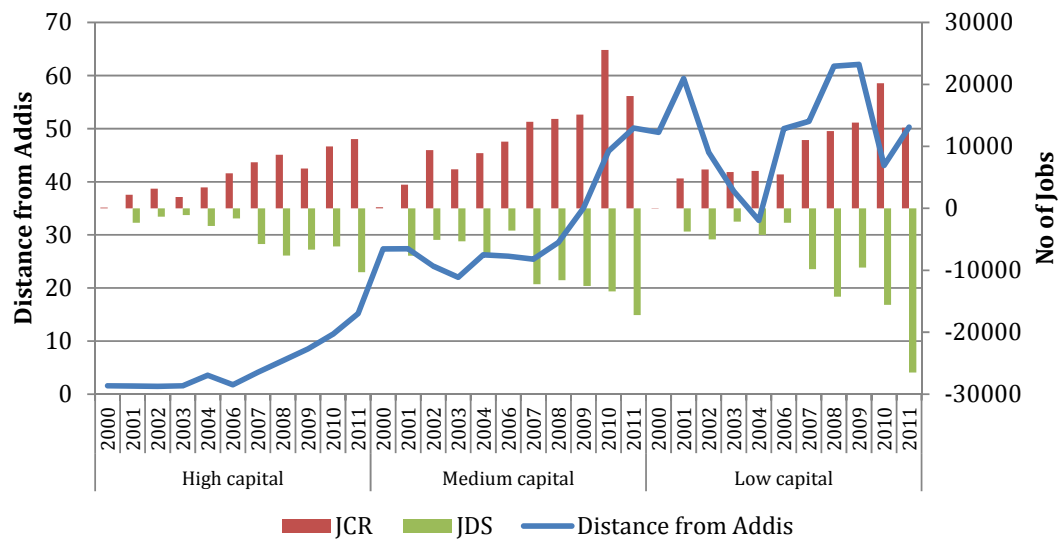
Figure 15: City-level NJC (2000-2011) and distance from Addis



Source: LMMIS, CSA

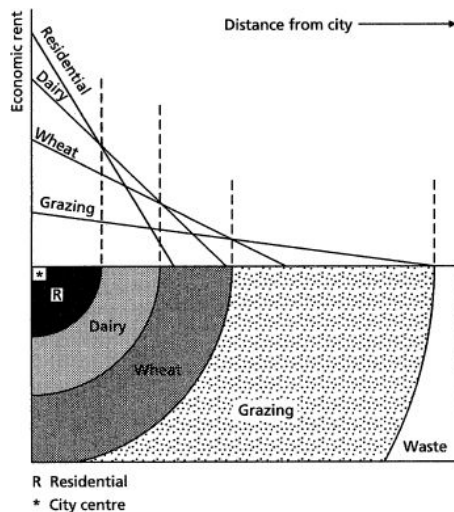
Figure 16 shows that sector location choice varies by the level of capital intensity – capital intensive firms clearly seem to locate closer to Addis. Capital-intensive sectors usually require access to good infrastructure, and this could be one reason why certain sectors are more attractive to Addis. However, the average distance-from-Addis is increasing for both high and medium capital-intensive firms – following the earlier logic, this might imply that cities closer to Addis might also have improved their infrastructure capacity to accommodate such sectors.

Figure 16: Job creation and location choice of sector



Source: LMMIS, CSA

The graph suggests that improvements in infrastructure might affect the location choices of new entrants and investors. Medium capital-intensive sectors are on average located far away from the capital, although the trend is similar to high capital-intensive sectors. However the low capital intensive sectors (i.e. labor-intensive sectors) are located far from the capital, are located far away from the center (Addis Ababa).

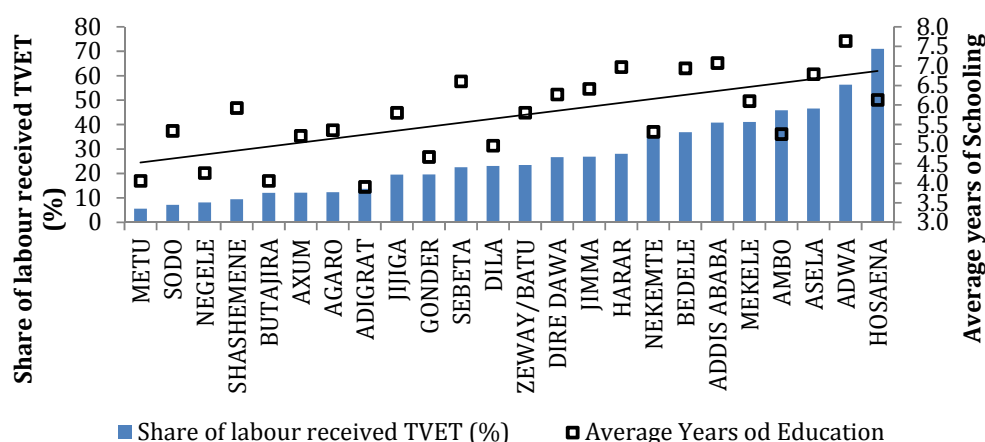


Indeed, the sectoral trends are broadly in line with the representation of land use patterns as suggested by Johann Heinrich von Thünen (1826), who found that urban centers were more likely to be used for high-rent economic activities. In the case of Ethiopia, this might imply that high capital-intensive industries are in a better position (i.e. perhaps they are more profitable) to afford the cost of land use closer to the capital city.

Does the quality of labor matter for Ethiopian manufacturing? Ethiopia is experiencing a demographic transition. The labor force has increased from 4.7 million

in 1984 to 26.5 million in 1994 and further to 33 million in 2005—and is projected to increase to 81.9 million by 2030. The industrial sector has much potential to create the many jobs that will be required in the coming years. But the descriptive statistics suggest that many cities attract capital-intensive firms, and that there is scope to increase the contribution of labor-intensive manufacturing. The move towards capital-intensive manufacturing could be a function of whether Ethiopian workers have the right skills – whether acquired through traditional academic and/or vocational education. The right mix between the two is subject to debate – for instance, Biavaschi et al (2012) argue that school education is the foundation and that vocational education and training is an add-on component only. Shaorshadze (2012) argues that Technical and Vocational Education and Training (TVET) in Ethiopia has been mostly supply driven. Figure 16 presents shows that the cities with high levels of school education also have high levels of vocational education. This very likely because in the both are provided by the public sector. This is unlike in successful countries such as Germany, where vocational education is supported by the private sector and is complementary to traditional school-based education. In a developing country like Ethiopia, given that policy makers might have to make cost-based choices, research (Tsang 1997) indicates that secondary vocational education is more expensive than secondary academic education, indicating a larger role for private sector involvement.⁸

Figure 17: School education versus vocational education



Source: UBAEUS, CSA

Does infrastructure matter? Industrialization, urbanization and growth are all infrastructure-intensive processes. Hulten (1996) shows that a country's stock of infrastructure and its ability to use it efficiently accounted for a large part of growth rates, and that low and middle-income countries did not use infrastructure efficiently. Indeed, the stock and the efficient use of infrastructure in most African countries lags behind other countries.

Foster and Morella (2011) found that the recent infrastructure build up in Ethiopia contributed to 0.6 percentage points to annual per capital GDP growth. However they also concluded that there remained a large scope for improvements in infrastructure.

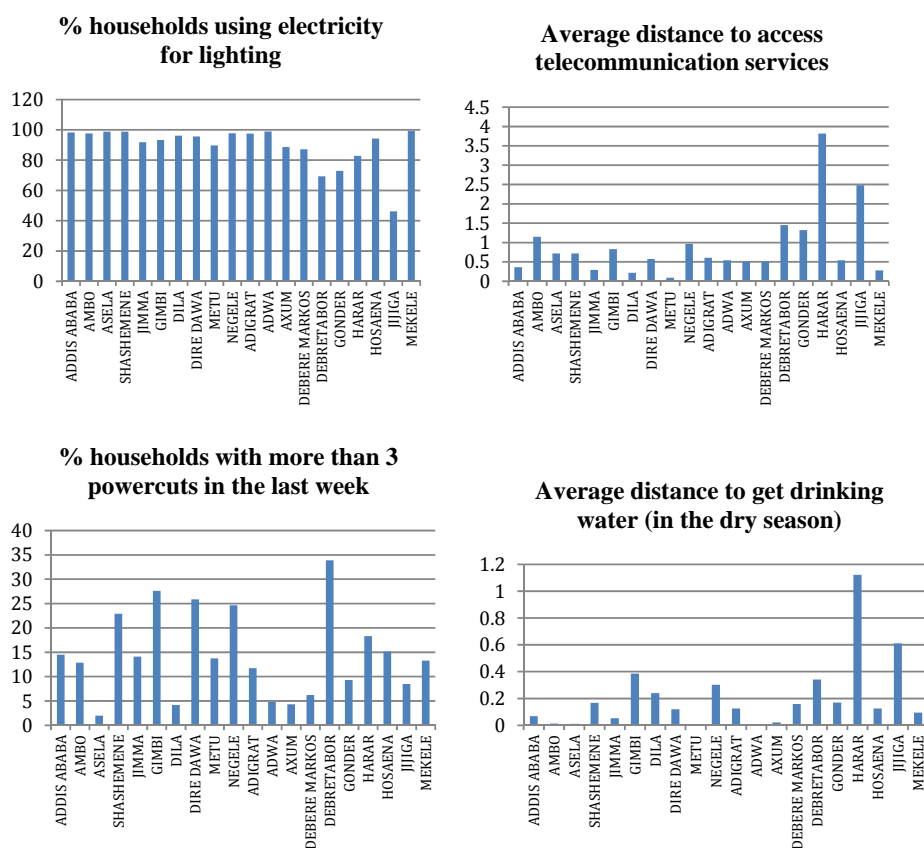
⁸ In fact, pre-employment vocational training is much more expensive than in-service training.

By scaling-up the levels of infrastructure to those in middle-income countries would result in growth acceleration of 3 percentage points.

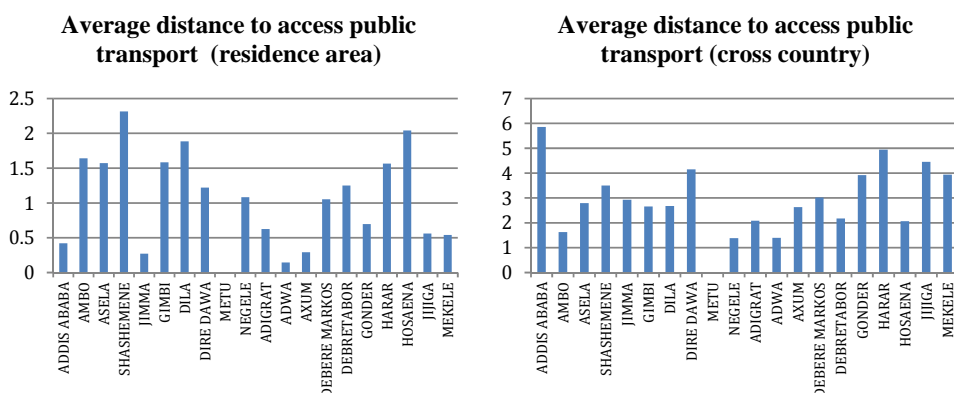
The availability of infrastructure varies substantially in a number of respects at the level of cities – see Figure 18. Interestingly, access to electricity in Ethiopia, is not an important constraint in urban areas (as compared to statistics from other Eastern African countries). A significant proportion of households use electricity to light up their house.⁹ However, the reliability of electricity supply is certainly an issue – households seem to experience frequent power cuts.

Access to telecommunications, water and transport infrastructure also seems to be problematic in Ethiopian cities. However, the acuteness of these problems differs substantially across cities.

Figure 18: Infrastructure endowment of towns in Ethiopia (2011)



⁹ It is assumed that access to infrastructure at the household level is a good proxy for access for firms.



Source: WMS, 2011

What is the impact of agglomeration? It was Marshall (1919) who was the first to formally identify the benefits of agglomeration. Clusters of firms that are predominantly in the same sector can take advantage of localization economies. These include sharing of sector-specific inputs, skilled labor and knowledge. Thus, cost-saving externalities are maximized when a local industry is specialized. The Marshall-Arrow-Romer (Marshall 1890, Arrow, 1962, Romer 1986) models predict that such externalities predominantly occur within the same industry. Therefore, if an industry is subject to localization externalities, firms within that industry should benefit from spillovers, growing faster and possibly, creating more employment.

An overall large size of the urban agglomeration and its more diverse industry mix is also thought to provide external benefits beyond those realized within a single sector or due to a tight buyer-supplier network¹⁰ (Henderson 2003). Chinitz (1961) and Jacobs (1969) proposed that important knowledge transfers primarily occur across industries and the diversity of local industry mix is important for these externality benefits. These benefits are related to the diversity of the industrial mix within a city. These include access to specialized industries and services, availability of a large labor pool with multiple specializations, inter-industry information transfers and the availability of less costly general infrastructure. Cities also provide a larger home market for end products, make it easier to attract skilled employees who are attracted by urban amenities not available in smaller towns, and support a large number of complementary service providers such as financial and legal advisers, advertising and real estate services.

The table below lists the top 5 cities in terms of intra-industry and industrial diversity in 2012. Clearly, Addis Ababa tops both rankings – not only is the strength of intra-industry clustering (measured by the localization variable) strongest within the city, but it also ranks the lowest on the Herfindahl Index, indicating high levels of industrial diversity.

¹⁰ Firms in a given industry could also benefit from firms in related industries. Such inter-industry agglomeration is often related to inter-industry linkages, buyer-supplier networks and opportunities for efficient subcontracting (see Venables 1996). However, owing to a lack of a national input-output matrix, it has not been possible to study inter-industry clustering.

Table 3: Highest ranked cities (by agglomeration)

City	Localization Index	City	Herfindahl Index
<i>Addis Ababa</i>	0.53	<i>Addis Ababa</i>	0.06
<i>Bedele</i>	0.22	<i>Asela</i>	0.07
<i>Gimbi</i>	0.19	<i>Jijiga</i>	0.08
<i>Sebeta</i>	0.15	<i>Shashemene</i>	0.09
<i>Dila</i>	0.13	<i>Adigrat</i>	0.10

Source: UBEUS (2012), CSA

4 What determines city success in job creation?

The previous section lays out the different factors that could possibly determine the differences in employment across industries and cities. Firms are the agents that create employment, and firms ability to survive, grow and create jobs is a function of the business environment within which they operate. It is important to test whether individual firm's abilities to create employment are based on agglomeration economies, or on other factors, such as good business environment, access to infrastructure or labor markets. In theory, if the Government of Ethiopia is interested in encouraging industrial growth in particular cities, it should have a clear understanding of what factors drive employment.

The analysis differentiates between drivers of competitiveness at the level of the firm and at the level of the city. Individual firm-level performance is driven by factors internal to the enterprise, and those of its immediate business environment. The performance of clusters of firms within a city is affected by the business environment, but additionally by the interactions between individual firms and industries. If the focus were entirely at the level of firms, this would miss the effect of dynamic relationships between groups of industries.

III.A: Firm-Level Model

Thus, in this section, an econometric model is used to test the importance of the different sets of factors. In particular, the growth of employment at the firm-level is modeled as a function of economic geography (i.e. agglomeration), business environment and infrastructure – these variables include factors that are common to the city and those that are common to particular industries within the city. The main estimating equation is as follows:

$$\begin{aligned} & \ln(\text{Emp_growth})_{ijk} \\ & = f(\text{Agglomeration}_{jk}, \text{Business Environment}_{ijk}, \text{Infrastructure}_{ijk}) + I_i + J_j + K_k + T_t + \varepsilon_{ijk} \end{aligned}$$

Where, the dependent variable is the log employment growth¹¹ for firm i in industry j and city k (between year t and $t - 1$). Agglomeration includes localization and

¹¹ Log employment growth is used as dependent variable (instead of, for example, the Davis-Haltiwanger-Schuh employment measure) to allow for similar dependent variables at the firm-level and the city-level models.

industrial diversity, business environment includes licensing fees and taxes, and infrastructure includes the costs of transport and electricity.

The coefficients of the regression model could be biased owing to endogeneity concerns. On the one hand, although the regression assumes that the rate of growth of firm employment is a function of different factors, it is possible that employment growth drives agglomeration, availability of infrastructure and the existing business environment within a location. To mitigate reverse causality concerns, the explanatory variables are lagged (i.e. they are defined at year $t - 1$). On the other hand, the effect of unobservable factors could continue to bias the coefficients. The underlying assumption within the model is that is a particular city offers certain inherent features that improve the profitability of firms, this will lead to employment growth. Such features could be related to the factors captured within the model, but they could also have to do with essentially un-measurable factors such as local business cultures or natural endowments. A battery of fixed effects are included in different variations of the model to control for omitted variables bias in the estimations, specifically, industry, city, year and firm fixed effects.

Localization can be measured by own industry employment in the city, which reflects disproportionately high concentration of firms within the same industrial sector within the city. This is measured as the proportion of industry j 's employment in city k as a share of all of industry j 's total employment in the country. The higher this value, the higher the expectation of intra-industry concentration benefits in the city.

$$\sigma_{jk} = \frac{E_{j,k}}{E_k}$$

The Herfindal measure is used as a measure of industrial diversity within the city. The Herfindal index of a city k is the sum of squares of employment shares of all industries in city k . Unlike the measure of localization, which focuses on one industry, the industrial diversity index considers the industry mix of the entire city economy. The largest value for is one when the entire city economy is dominated by a single industry. Thus a higher value signifies lower levels of economic diversity.

$$U_j = \sum_k \left(\frac{E_{jk}}{E_j} \right)^2$$

Business environment is proxied by the amount of license fees and taxes paid by firms in given industries and cities over time. Infrastructure access is measured by the cost of transportation, electricity and bank loans, and rents proxy the cost of land. To control for time-invariant factors, year fixed effects are included. City fixed-effects control for factors common to the city. And finally, to account for firm-level differences and to understand dynamic changes, firm fixed-effects are included.

The response variable is the log of employment growth at the firm-level. In model (1) the economic geography variables are introduced, followed by business environment variables in model (2) and then by infrastructure variables in model (3). In model (4) city-level dummies are included, supplemented by year dummies in model (5) and industry dummies in model (6). Finally in model (7) firm dummies are included (which

make the inclusion of city and industry dummies superfluous), and finally model (8) includes firm and year dummies.

Table 4: What explains employment growth (at the firm-level)?

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Localization	0.0074*** [0.002]	0.0117*** [0.002]	0.0100*** [0.003]	0.0165*** [0.004]	0.0172*** [0.004]	0.0274*** [0.005]	0.0741*** [0.010]	0.0831*** [0.010]
Herfindal	0.0114** [0.005]	0.0180*** [0.006]	0.0151** [0.006]	-0.0060 [0.015]	0.0051 [0.016]	0.0086 [0.016]	-0.0180 [0.019]	-0.0012 [0.020]
Taxes		-0.0005 [0.001]	0.0029 [0.003]	0.0013 [0.003]	0.0006 [0.003]	-0.0017 [0.003]	-0.0077* [0.004]	-0.0124*** [0.005]
Licensing		-0.0025 [0.002]	-0.0017 [0.002]	-0.0037* [0.002]	-0.0036* [0.002]	-0.0048** [0.002]	-0.0094*** [0.003]	-0.0100*** [0.003]
Transport			-0.0045* [0.003]	-0.0035 [0.003]	-0.0044 [0.003]	-0.0066* [0.003]	-0.0069 [0.005]	-0.0117** [0.005]
Electricity			-0.0007 [0.003]	0.0002 [0.003]	0.0011 [0.003]	-0.0031 [0.004]	-0.0121** [0.006]	-0.0128** [0.006]
Constant	1.0276*** [0.011]	1.0753*** [0.026]	1.0738*** [0.027]	1.0693*** [0.037]	1.1384*** [0.048]	1.3091*** [0.067]	1.5086*** [0.082]	1.6492*** [0.091]
City	×	×	×	✓	✓	✓	NA	NA
Year	×	×	×	×	✓	✓	×	✓
Industry	×	×	×	×	×	✓	NA	NA
Firm	×	×	×	×	×	×	✓	✓
#	7,029	5,320	5,218	5,218	5,218	5,216	5,218	5,218
R ²	0.004	0.005	0.005	0.023	0.025	0.029	0.421	0.425

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Variable Name	Variable Description
Dependent Variable	Growth of employment
Localization	Localization
Herfindahl	Hirschmann Herfindahl index (Industrial Diversity)
Licensing	Log of License Fees
Taxes	Log of Total Taxes
Transport	Log of Total Transport Costs
Electricity	Log of Total Electricity Costs
Year	Year fixed effects
City	City fixed effects
Industry	Industry fixed effects
Firm	Firm fixed effects

Agglomeration: Among the economic geography variables, localization (i.e. the level of intra-industry clustering within a city) has a consistently positive and statistically significant effect on firm employment growth. In model (8), a percentage point increase in the localization index within a city leads to a 8.31 percent increase in employment growth. These findings are supported by previous research (Hanson 2001, Lall et al 2004, Brulhart and Mathys 2008) that also find that existing clustering of industry has positive spillovers for firms, whether related to productivity, profits or growth. Indeed,

clusters in Ethiopia could be natural clusters or those supported by government policy. The latter have involved policy interventions to promote activity for firms in particular industries in specific locations (Ali 2012).

The effect of industrial diversity (represented by the Herfindahl index) is negative but statistically insignificant in model (8). Given that most Ethiopian cities (with the exception of Addis Ababa and possibly Dire Dawa) are relatively small, it is no surprise that firms are yet to benefit from economic spillovers related to industrial diversity.

Business Environment: The analysis above indicates that a 1 percent increase in taxes leads to a 1.24 percent fall in firms' employment growth. Since the regression controls for firm-specific controls (such as size, ownership, industry and location), this suggests that increases in taxes on manufacturing firms might have a deleterious effect on employment growth in the future. Currently, Ethiopia ranks 109 out of 189 economies with regard to paying taxes according to the 2014 Doing Business Survey (World Bank 2014).¹² and there has not been a significant overhaul of tax policy since 2004. The average tax burden on manufacturing enterprises has also remained broadly unchanged in the last decade or so, and increased somewhat after the 2004 reform. While Ethiopia uses fiscal instruments such as tax holidays, etc. to attract investment in particular locations and industries (KPMG 2012-2013), it is unclear that this policy is being used effectively. Tax policy ought to ensure a level playing field and in many cases can be misused in that special tax breaks are meted out to large, influential corporations (Gauthier and Gersovitz 1997). Indeed, there is research (see Tybout 2000 for an overview) to indicate that the tax burden falls disproportionately on medium-sized firms in developing countries – small firms often stay informal to avoid taxes and large firms are influential enough to obtain special treatment. Given the country context, it is often medium-sized firms that employ labor, both skilled and unskilled, in large quantities and thus a high tax burden could strongly and negatively affect employment growth.

Similarly the model suggests that a 1 percent increase in licensing fees (measured at the firm level) negatively affects employment growth in equal measure. License fees and lengthy license procedures are often barriers to entry and expansion, slowing economy-wide growth (Rodrik and Subramanian 2004). Djankov et al (2002) find that countries with heavier regulations (including high licensing fee burdens) suffer from higher corruption and larger informal economies. Similarly, Klapper et al (2004) find that high costs of entry negatively affects entrepreneurial growth across a variety of industries. According to the 2014 Doing Business Survey, Ethiopia ranks 166 (out of 189 economies) with regard to the 'starting a business' indicator, and licensing fees are used in the model as a proxy for entry regulations in Ethiopia.

Infrastructure: The infrastructure variables (transport, electricity) and business environment variables (taxes, licensing) are constructed using firm-level data from the LMMIS data set. The variables is averaged across firms at the level of industries and cities, and over time.

Transport costs negatively affect firm employment growth, after controlling for firm

¹² The total number of hours taken to pay taxes has increased from 212 hours in 2004 to 306 hours in 2014.

and year fixed effects. In other words, a 1 percent increase in transport costs leads to a 1.17 percent fall in the rate of growth of employment for a given firm. In Ethiopia, the percentage cost of transport per unit of output for manufacturing firms has declined marginally from 3.2 (2002) to 2.8 (2012). The cost of transportation is often related to exogenous shifts in oil prices, although since international oil prices have been rising steadily, this fall would indicate the availability of better transport infrastructure within Ethiopia. There is ample evidence in economic literature to indicate the importance of transport infrastructure on industrial growth and employment - Martina and Rogers (1995) show that better transport infrastructure facilitates trade and thus drives economic growth within and across countries; Holl (2004), Jedwab and Moradi (2013) find evidence of positive effects of transport infrastructure at a much more disaggregated spatial scale.

The cost of electricity in Ethiopia for manufacturing firms has fallen on average between 2002 and 2012. The availability (access and reliability) of electricity is an important input into manufacturing, not just with regard to entry, but also modernization and expansion. Foster and Morella (2011) argue that electricity in Ethiopia is underpriced. The results from the model above indicate, however, that any increases in the costs of electricity would negatively affect employment growth within the manufacturing sector.

III.B: Firm-Level Model for Gazelles (or, Job Superstars)

In the literature on firm-level data, the term “gazelles” refers to rapidly-growing firms. Gazelles are of interest both because of their disproportionate contribution to employment and as an indicator of entrepreneurship. The idea of “gazelles” dates from the work of David Birch (Birch et al 1993). Birch classified firms into “mice,” small firms that tended to stay small; “elephants,” large firms that did not grow rapidly, and “gazelles,” firms that did grow rapidly and which accounted for a large share of employment or revenue growth. A better understanding of the characteristics of gazelles, and the environments in which they thrive or fail to thrive, could lead to new insights on the conditions within Ethiopian cities under which job growth thrives or fails to thrive, a matter which ought to be of great concern to policymakers.

In this paper, gazelles are defined as firms that double employment during any 4-year window in the available data. For example, for the period 2002-2006, if $\frac{Employment_{2006}}{Employment_{2002}} \geq 2$, an enterprise is considered to be a gazelle for that period. By this definition, over longer periods, any given firm is likely to have episodes when it is a gazelle and episodes when it is not.

Breaking down the total number of firms that are gazelles¹³ by size category reveals

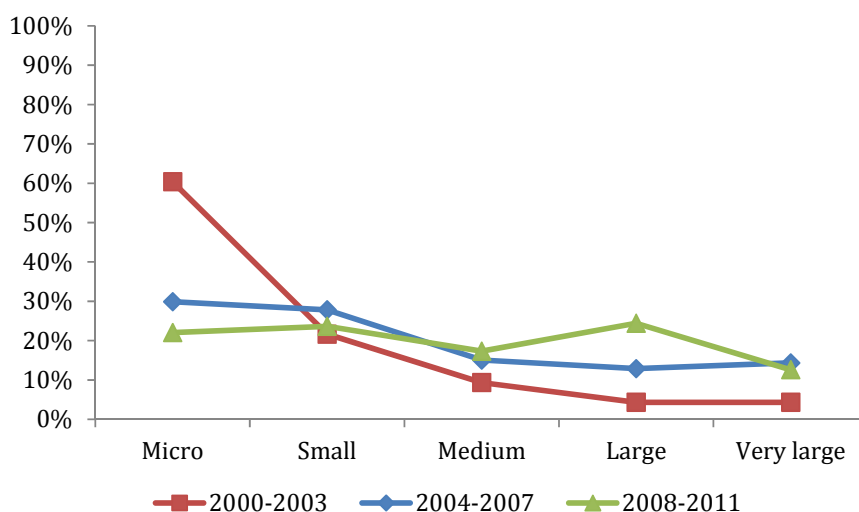
¹³ Here every instance that a firm gazelles is taken as a separate observation. Thus, if a firm grew rapidly in one period as a micro-enterprise, and then again in the next period as a small enterprise, it would be counted in both periods in the size category. There is a risk that the measurement of gazelles might include high-volatility firms. In fact, around half of the gazelles in the database repeat their

some very interesting trends in Ethiopia. The total instances of rapid growth increases dramatically in the second time period (2004-2007), and then falls, equally dramatically, in 2008-2011 – the last two years of this period are particularly depressing. However, what is interesting is that size distribution of gazelles across different periods. Between 2000-2003, micro and small firms accounted for the lion's share (81%) of gazelling. In later years, their proportion almost halved, while the proportion of large and very large firms tripled in 2004-2007, and then more than quadrupled in 2008-2011. The table and figure show the change in the size distribution of gazelles.

Table 5: Gazelling by firm-size

<i>Years</i>	<i>2000-2003</i>		<i>2004-2007</i>		<i>2008-2011</i>	
<i>Size</i>	#	%	#	%	#	%
Micro	265	60.36%	246	29.89%	28	22.05%
Small	95	21.64%	229	27.83%	30	23.62%
Medium	41	9.34%	124	15.07%	22	17.32%
Large	19	4.33%	106	12.88%	31	24.41%
Very large	19	4.33%	118	14.34%	16	12.60%
Total	439	100%	823	100%	127	100%

*Micro=20 or fewer employees; Small=21-50 employees; Medium=51-100 employees; Large=101-1000 employees; Very Large=1001+ employees.



Source: LMMIS, CSA

93% of gazelles are private or co-operative firms, and yet state-owned enterprises, or publicly owned enterprises account for a much larger proportions of gazelles in many size categories, compared to their overall distribution – see Table 6. Almost 35% of state-owned firms are large or very large, compared to only 12% of private firms.

stellar performance over a second 4-year period, but it is not easy to ascertain if the remainder include high-volatility firms.

Table 6: Gazelles by Firm Size and Ownership

Type of ownership	Private or co-operative		Public	
Size	#	%	#	%
Micro	517	44.42%	22	28.21%
Small	334	28.69%	19	24.36%
Medium	176	15.12%	10	12.82%
Large	135	11.60%	20	25.64%
Very Large	2	0.17%	7	8.97%
Total	1164	100%	78	100%

Source: LMMIS, CSA

To understand what factors affect the probability that a firm will gazelle, i.e. grow jobs very rapidly, a Probit regression model is used. Two sets of regressions are carried out – one covering all gazelles in the data set (see Table 6) and the other differentiating between gazelles on the basis of size and ownership (see Table 7). For ease of comparison with the analysis in Section III.A, the same set of variables, relating to agglomeration, business environment and infrastructure are used.

The following estimating equation is used:

$$Y_{ijk} = f(\text{Agglomeration}_{jk}, \text{Business Environment}_{ijk}, \text{Infrastructure}_{ijk}) + J_j + K_k + T_t + \varepsilon_{ijk}$$

Where, the dependent variable [defined for firm i in industry j and city k (between year t and $t - 1$)] equals 1 if the firm is gazelle and 0 otherwise. Agglomeration includes localization and industrial diversity, business environment includes licensing fees and taxes, and infrastructure includes the costs of transport and of electricity.

Table 7: What explains the emergence of Job Superstars?

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES						
Localization	0.0284* [0.016]	0.0156 [0.020]	0.0329 [0.021]	0.0156 [0.030]	-0.0034 [0.032]	-0.0343 [0.042]
Herfindal	0.0868** [0.044]	0.0647 [0.050]	0.0970* [0.051]	0.7783*** [0.122]	0.5927*** [0.145]	0.5814*** [0.147]
Taxes		-0.0353*** [0.011]	-0.0306 [0.020]	-0.0444** [0.023]	0.0062 [0.024]	-0.0198 [0.028]
Licensing		0.0477*** [0.015]	0.0483*** [0.016]	0.0256 [0.019]	-0.0396* [0.021]	-0.0167* [0.022]
Transport			0.0119 [0.021]	0.0148 [0.024]	0.0207 [0.026]	0.0188 [0.030]
Electricity			-0.0188 [0.021]	-0.0213 [0.024]	-0.0245 [0.026]	0.0162 [0.032]
Constant	-1.0425*** [0.104]	-1.0193*** [0.205]	-0.9319*** [0.215]	-0.3550 [0.389]	-1.2082*** [0.421]	-1.1554** [0.585]
City	×	×	×	✓	✓	✓
Year	×	×	×	×	✓	✓
Industry	×	×	×	×	×	✓
#	9,984	9,422	9,211	8,591	8,591	8,542
R ²	0.000567	0.00244	0.00262	0.0274	0.105	0.118

What is interesting here is how the factors that affect the emergence of particular high-growth firms differs from those affecting job growth across all firms. In particular, a higher value of the Herfindahl Index (i.e. more industrial concentration, and less diversity) strongly and positively affects the probability of gazelling. This suggests that firms that grow rapidly tend to be in smaller cities, or in places where industry is more concentrated. Also, high licensing costs also negatively affect the ability of firms to grow employment at a rapid rate.

Table 8 differentiates these effects across different firm types – by size (micro, small, medium and large) and by ownership (private and public). Medium and large enterprises are more likely to grow jobs rapidly when within-industry clustering is high – the opposite holds true for public enterprises. The results for positive effect of the lack of industrial diversity is consistent across the different gazelle types. Licensing fees discourage gazelling for small and medium firms, but not others – these are firms that have the highest potential to graduate into large-firm status. High costs of electricity dissuade both large and public enterprises (there is significant overlap between the two types).

Table 8: What explains the emergence of Jobs Gazelles (by firm size)?

VARIABLES	All	Micro	Small	Medium	Large+	Private	Public
Localization	-0.0343 [0.042]	-0.2002*** [0.065]	0.0340 [0.111]	0.3023* [0.191]	0.5000*** [0.187]	-0.0164 [0.045]	-0.3940** [0.240]
Herfindal	0.5814*** [0.147]	0.3754* [0.222]	0.7763** [0.364]	1.2325** [0.492]	0.4719 [0.546]	0.5743*** [0.153]	2.1066** [1.023]
Taxes	-0.0198 [0.028]	0.0685 [0.044]	-0.1333** [0.066]	-0.0618* [0.101]	0.0746 [0.110]	-0.0250 [0.030]	0.3918 [0.274]
Licensing	-0.0167 [0.022]	0.0279 [0.036]	-0.0930* [0.055]	-0.1397* [0.075]	0.0084 [0.062]	-0.0295 [0.024]	0.1184 [0.103]
Transport	0.0188 [0.030]	-0.0108 [0.044]	-0.0306 [0.072]	0.2235* [0.129]	0.0680 [0.130]	0.0016 [0.031]	0.0714 [0.241]
Electricity	0.0162 [0.032]	0.0370 [0.051]	0.1319 [0.084]	-0.0933 [0.105]	-0.2128* [0.113]	0.0493 [0.033]	-0.6122** [0.289]
Constant	-1.1554** [0.585]	-2.0340** [0.948]	-3.9773 [87.965]	1.2027 [2.178]	-2.2036 [93.708]	-0.9025 [0.613]	-12.5619 [553.045]
City	✓	✓	✓	✓	✓	✓	✓
Year	✓	✓	✓	✓	✓	✓	✓
Industry	✓	✓	✓	✓	✓	✓	✓
#	8,542	3,921	1,954	935	1,135	7,664	437
R ²	0.118	0.192	0.148	0.187	0.209	0.132	0.332

III.C: City-Level Model

In this section, the econometric model described in Section III.A, is tested at the level of cities. Employment growth at the city-level is modelled as a function of economic geography (i.e. agglomeration), educational attainment and infrastructure. The main estimating equation is as follows:

$$\ln(\text{Emp_growth})_k = f(\text{Agglomeration}_{jk}, \text{Education}_k, \text{Infrastructure}_k) + K_k + T_t + \varepsilon_k$$

Where, the dependent variable is the log employment growth for city k between year t and $t - 1$. Agglomeration includes localization and industrial diversity, education includes proxies for traditional educational attainment and vocational training, and infrastructure includes proxies for access to electricity transport and water.

Testing an econometric model at the city-level serves many important functions: first, it serves as a robustness check to the results of the firm-level model; second, and importantly, while firms are the main agents of job creation, a city-level model helps make linkages between different industries (agriculture, manufacturing, services) and sectors (formal, informal); and third, a city-level model gives equal weight to cities, while the firm-level model is biased towards cities with the most observations.

Table 9: What explains employment growth (at the city-level)?

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Licensed	-0.0001 [0.000]	0.0001 [0.000]	-0.0007 [0.001]	-0.0009 [0.001]	-0.0003 [0.001]	-0.0004 [0.001]
Localization	0.0213** [0.009]	0.0232** [0.009]	0.0230* [0.013]	0.0211 [0.014]	0.0706*** [0.025]	0.0742** [0.029]
Herfindal	-0.0229* [0.012]	-0.0234** [0.012]	-0.0398** [0.016]	-0.0379** [0.016]	-0.0971*** [0.033]	-0.0944** [0.035]
Education		0.0005 [0.004]	-0.0064 [0.006]	-0.0022 [0.006]	-0.0181** [0.009]	-0.0154 [0.013]
Vocational Training		-0.0010** [0.000]	-0.0001 [0.001]	-0.0001 [0.001]	-0.0017 [0.001]	-0.0016 [0.001]
Electricity			0.0002 [0.001]	0.0002 [0.001]		
Transport			-0.0351** [0.013]	-0.0350** [0.013]		
Water			0.0170* [0.009]	0.0168* [0.009]		
Constant	1.0252*** [0.033]	1.0371*** [0.039]	1.0696*** [0.086]	1.0558*** [0.087]	1.1717*** [0.116]	1.1632*** [0.143]
City	×	×	×	×	✓	✓
Year	×	×	×	✓	×	✓
#	74	74	49	49	49	49
R ²	0.106	0.167	0.324	0.356	0.560	0.573

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes:

1) Data for the following variables is taken from the UBAEU (2003, 2004, 2006, 2009, 2010,

- 2011, 2012): License, Localization, Herfindahl, Education and Vocational Training.
- 2) Data for the following variables is taken from the Welfare and Monitoring Survey (2011): Electricity, Transport and Water.

Variable Name	Variable Description
Dependent variable	Growth of employment
License	Share of employment in licensed enterprises
Localization	Log of Localization
Herfindahl	Log of Hirschmann Herfindahl index)
Education	Average years of school education
Vocational Training	% of labor force with TVET training
Electricity	% of households using electricity for lighting
Transport	Log of households' average distance to access public transport
Water	Log of households' average distance to access drinking water
Year	Year fixed effects
City	City fixed effects

5 Policy and Conclusions

The distribution of economic activity and employment over physical space (i.e. economic geography) is central to economic development. Geographical variations in industrialization are an important factor affecting geographical variations in jobs. And so the question of which kinds of industries and cities are creating employment and why is vital to an understanding of economic growth and development. City leaders care increasingly about creating and maintaining employment within particular locations by encouraging industries and firms. They are interested in understanding what sorts of policy levers affect economic outcomes – is it a set of infrastructures? Fiscal incentives? Good business environment? Or could it be agglomeration – the compounding effect of existing industries and firms? The primary objective of this study is to investigate what drives employment and economic growth in Ethiopian cities so as to inform leaders how best to prioritize policy decisions.

Ethiopia has a small, yet significant, window of opportunity to exploit its demographic dividend. Its labor force doubled over the last two decades, and it continues to have a very large youth bulge entering the labor market in the next 20 years. Many of these young people will be moving to cities in search of employment. Urbanization could become one of the most important catalysts to tackle economic growth and job creation in the next few years, even decades. Cities should aim to create the conditions for entrepreneurs, firms, and industries to become competitive.

An analysis of industrial development and employment outcomes reveals that:

- On average, formal manufacturing employment is concentrated in Addis. However, **much of new job creation is coming from emerging cities** (such as Adwa, Sebeta and Debrezeit). Other fast-growing cities, like Mekele, Nazareth and Awassa, attract new firms, but without commensurate increases in employment. **Capital intensity in many cities is growing** – which might be worrying if policy makers would like to focus on encouraging labor-intensive production.
- **97 per cent of new job creation comes from large firms.** Most firms are small

– they do not contribute to much of new and sustained increases in employment. **But, graduation rates are very, very low** – hardly any micro (less than 20 employees) and small (21-50 employees) enterprises graduate to medium (51-100 employees) and large (101+ employees) size status.

- In addition, **it is incumbents, not entrepreneurs, that do much of initial, and sustained job creation** – new entrants create an abysmal proportion of new jobs and since most end up exiting the market they destroy most of these jobs. In other words, **entrepreneurs in Ethiopia make minimal impact on the labor market and do not last very long anyway**. It is mostly incumbents that do the heavy lifting, of initial and sustained job creation over time. This result holds quite consistently across cities and industries.

What factors seem to drive sustained increases in jobs across Ethiopian cities?

- **Job creation:** Intra-industry clustering, low taxes and licensing fees, and low transport and power costs determine firms’ ability to grow employment.
- **Emergence of Job Superstars:** Industry concentration in a few manufacturing sectors and low licensing fees increase the probability that firms will double employment every 4 years. This is particularly true for small and medium enterprises.
- **City-level employment:** Employment at the level of cities is higher when intra-industry clustering and industrial diversity is high, and transport costs are low.

How can public policy help draw on these findings to improve economic outcomes for cities in Ethiopia¹⁴?

- **Identify and invest in cities’ competitive advantage.** Secondary and smaller cities are seeing the growth of naturally forming industrial clusters, while Addis Ababa’s advantage seems to lie in its diverse industrial structure. As the government’s MSME Strategy notes, not all cities will be able to attract medium and large enterprises in equal measure—cities will end up specializing in particular sectors and industries. Cities in Ethiopia will have different functions, and their capital and labor needs will differ accordingly. The government can encourage discrete growth corridors (e.g. Bahir Dar–Gonder, Mekele–Dessie, Harar–Dire Dawa, and Addis Ababa–Hawassa) by strengthening inter- and intra-city cluster links and providing the necessary infrastructure. More generally, cities should develop their local economic development strategies and invest in quick-wins for identifying and exploiting their comparative and competitive advantages.
- **Identify and invest in growing the missing middle of companies and jobs across urban areas.** Most of existing employment takes place within small, entrepreneurial firms, many of which are also informal. At the same time, new and sustained job creation in Ethiopia comes from medium and large firms. Small entrepreneurial firms seldom sustain increases in job creation. In particular, the quality of employment and associated incomes is low, suggesting that self-employment will not be a panacea for robust economic growth. Wage employment is crucial to job growth and sustainability, but Ethiopia has a sizable missing middle. Research (in Ethiopia and elsewhere) demonstrates that waged employment is associated with a fall in urban poverty and the emergence of more formal employment, the latter also increasing with city size. In fact,

¹⁴ This section draws upon the World Bank (2015a) Ethiopia Urbanization Review.

most waged-employment is in the formal sector, while self-employment is mostly informal and mostly young. This suggests that firm graduation from small to medium to large sizes, and the creation of stable jobs, will be crucial for growth and for poverty reduction. These patterns differ across cities—city size affects the emergence of formal and waged-employment—and so cities must identify and invest in the factors that allow existing firms to expand and create new jobs, and that encourage firms to graduate, such as better regulated taxes and access to infrastructure.

- **Target interventions according to the constraints and the needs of different typologies of firms.** The GoE has already taken several steps to target job creation across the spectrum – for instance, the Micro and Small Enterprise Development Agency focuses attention on the needs of micro/small firm. Secondary cities are becoming hubs for medium-sized firms owing to the emergence of clusters, and the Ministry of Industry is using industrial zones to attract investment across different regions by large firms (whether foreign or domestic). These initiatives could be strengthened further:
 - **Small Enterprises:** Global evidence suggests that small and informal firms produce and sell low-quality goods and services, effectively meeting the demand for these products in developing countries. And while they tend to suffer from low levels of productivity, there is much scope for increases in operational efficiency and size if they are provided an opportunity to tap larger markets, with labor, technology and other inputs to production. Thus, local and national governments should provide light-touch, supportive regulation of household-enterprises, aimed at ameliorating their constraints without adding to regulatory burdens. This could be achieved by (i) the provision of small-scale facilities that allow enterprises to enjoy the advantages of co-location exploiting buyer-supplier, labor market and technology linkages; and (ii) Support the development of small-scale businesses in sectors which have significant potential and can expand symbiotically with formal sector enterprises e.g. “boda boda” motorbikes feeding BRTs.
 - **Medium enterprises:** The research illustrates that improvements in local business licensing and permitting systems help firms to grow more rapidly. The ability and capacity of urban local governments to deal with their growing administrative remit (especially in cities with newly-expanded mandates) is crucial – firms interviewed in different sub-cities in Addis repeatedly identified the low capacity of public-sector employees as an important constraint on productivity. In addition, ULGs should also consider extending some of the enterprise support services, including access to space and facilities, being provided to start-ups to existing firms to enable them to expand operations faster.
 - **Large enterprises:** Large enterprises in Ethiopia account for the bulk of sustained job creation in the manufacturing sector, and their continued success has much to do with the city-level business environment – including factors such as licensing, permitting and tax systems. The implementation of these systems fall under the remit of Urban Local Governments (even if rates and bands are set by regional and/or national government) with effective implementation a function of local capacity. Availability of serviced land and infrastructure also matter greatly to large investors, and the federal government has taken

several policy measures to support industrialization across the country, including the setting up of industrial zones close to major urban centers, including in and around Addis Ababa and Dire Dawa. There is a need for better understanding how best to maximize the potential benefits of the co-location of cities and industrial zones, owing to their linkages across strategic objectives (jobs, investment), spatial policies (access to land and infrastructure) and industry-level issues (access to labor and final markets, regulations).

Some of these factors might lie outside the policy mandate of local urban governments, such as interventions on educational infrastructure or intercity transport infrastructure—but a number of them can be affected directly by city officials.¹⁵ For instance, the importance of tax and licensing fees for firm start-ups and growth suggests that differences in local capacity to carry out functions related to private sector development could have significant effects on city competitiveness. In addition, the ability to provide land and business premises in support of clusters falls within the administrative remit of city governments, and could be used strategically in line with knowledge of comparative advantage and quick wins.

References

- Ali, M. (2012). Government's Role in Cluster Development for MSEs: Lessons from Ethiopia. CMI Report R 2012: 2, Bergen. Norway
- Altenburg, T. (2010) 'Industrial policy in Ethiopia', Discussion Paper No. 2, German Development Institute, Bonn.
- Arrow, K.J. (1962) 'The economic implications of learning by doing', *Review of Economic Studies* 29: 155-173
- Beck, T., Demirguc-Kunt, A., Levine, R. (2005) 'SMEs, Growth and Poverty', *Journal of Economic Growth* 10(3): 199-229.
- Biavaschi, C., Eichhorst, W., Giulietti, C., Kendzia, M.J., Muravyev, A., Pieters, J., Rodríguez-Planas, N., Schmidt, R., and Zimmermann, K.F. (2012) 'Youth unemployment and vocational training' IZA Discussion Papers 6890, Institute for the Study of Labor (IZA), Bonn
- Birch, D.L., Haggerty, A. and Parsons, W. (1993) "Who's Creating Jobs?" Cambridge, Mass.: Cognetics.
- Brulhart, M. and Mathys, N.A. (2008) 'Sectoral agglomeration economies in a panel of European regions', *Regional Science and Urban Economics* 28: 348-362
- Chinitz, B. (1961) 'Contrasts in Agglomeration: New York and Pittsburgh', *American Economic Review* 51: 279-289.
- Djankov, S., La Porta, F., López-de-Silanes and A. Shleifer (2002) 'The Regulation of Entry', *Quarterly Journal of Economics* 117: 1-37.
- Foster, V. and Morella, E. (2011) 'Ethiopia's infrastructure: a continental perspective', World Bank Policy Research Working Paper Series.
- Gauthier, B. and Gersovitz, M. (1997). 'Revenue erosion through exemption and evasion in Cameroon', *Journal of Public Economics*, vol. 64(3), pages 407-424.
- Gebresilashe, M.M. (2016) 'Industrial Policy and Misallocation in the Ethiopian Manufacturing Sector', Working paper, Boston University.
- Hanson, G.H. (2001) 'Scale economies and the geographic concentration of industry', *Journal of Economic Geography* 1: 255-276

¹⁵ For additional findings on how city leaders can influence policy within and outside of their immediate administrative remit and capacity, see the World Bank (2015b) *Competitive Cities Report*.

- Henderson, J.V. (2003) 'The urbanization process and economic growth: the so-what question', *Journal of Economic Growth* 8: 47-71.
- Holl, A. (2004). 'Manufacturing location and impacts of road transport infrastructure: empirical evidence from Spain', *Regional Science and Urban Economics*, Elsevier, vol. 34(3), pages 341-363, May.
- Hsieh, C, Klenow, P. (2009) 'Misallocation and Manufacturing TFP in China and India', *The Quarterly Journal of Economics* 124(4):1403-1448.
- Hsieh, C, Klenow, P. (2014), 'The Lifecycle of Plants in India and Mexico', *Quarterly Journal of Economics* 129(3):1035-1084.
- Hulten, C.R. (1996) 'Quality Change in Capital Goods and Its Impact on Economic Growth', NBER Working Papers 5569, National Bureau of Economic Research.
- Jacobs, J. (1969) *The Economy of Cities*. Cambridge: MIT Press.
- Jedwab, R. and Moradi, A. (2013) 'Transportation Technology and Economic Change: The Impact of Colonial Railroads on City Growth in Africa', CSAE Working Paper Series 2013-17, Centre for the Study of African Economies, University of Oxford.
- Klapper, L. ,Laeven, L. and Raghuram, R. (2004) 'Business environment and firm entry : Evidence from international data,' Policy Research Working Paper Series 3232, The World Bank.
- KPMG (2012-2013) *Ethiopia Fiscal Guide 2012-13*.
- Krishnan, P. and Shaorshadze, I. (2012) 'Technical and Vocational Education and Training in Ethiopia' International Growth Center.
- Lall, S.V., Shalizi, Z. and Deichmann, U. (2004) 'Agglomeration economies and productivity in Indian industry', *Journal of Development Economics* 73 (2): 643-673
- Marshall, A. (1890) *Principles of Economics*. London: Macmillan
- Marshall, A. (1919) *Industry and Trade*. London: Macmillan
- Martin, P. and Rogers, C.A., (1995)'Industrial location and public infrastructure', *Journal of International Economics*, Elsevier, vol. 39(3-4), pages 335-351.
- Rijkers, B., Arroui, H., Freund, C. and Nucifora, A. (2014) 'Which firms create the most jobs in developing countries? Evidence from Tunisia', *Labour Economics*, Elsevier, vol. 31(C), pages 84-102.
- Rodrik, D and Subramanian, A. (2005) 'From "Hindu Growth" to Productivity Surge: The Mystery of the Indian Growth Transition', *IMF Staff Papers*, Palgrave Macmillan, vol. 52(2), pages 193-228.
- Romer, P.M. (1986) 'Increasing returns and long-run growth', *Journal of Political Economy* 94 (5): 1002-1037.
- Tsang, M. (1997). The costs of vocational training. *International Journal of Manpower*, 18(1/2): 63-89.
- Tybout J.R. (2000) 'Manufacturing Firms in Developing Countries: How Well Do They Do, and Why?', *Journal of Economic Literature*, American Economic Association, vol. 38(1), pages 11-44.
- Venables, A.J. (1996) 'Equilibrium locations of vertically linked industries', *International Economic Review* 49: 341-359.
- Von Thünen, J.H (1826), 'Die isolierte Staat (The Isolated State) in Beziehung auf Landwirtschaft und Nationalökonomie". Pergamon Press, New York. English translation by Wartenberg C M in 1966, P.G. Hall, Editor.
- World Bank (2014) *Doing Business Survey Ethiopia*.
- World Bank (2015a) *Ethiopia Urbanization Review*, Working Paper No. 100238.
- World Bank (2015b) *Competitive Cities for Jobs and Growth: What, Who and How*.