Convergence Towards Greater Variance

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This research investigates heterogeneous effects within a political exchange paradigm operative in Chinese local political frameworks involving Provincial Party Secretaries (PPS) and City Mayors. Expanding on previous investigations that showed how this political exchange affects higher infrastructure spending in China relative to other countries, this study specifically centers on subway infrastructure as a conduit facilitating the alignment of objectives between PPS and city mayors, thereby augmenting their prospects for future career advancements. My findings reveal statistically significant differences in the efficacy of securing subway project approvals in relation to tenure, which can greatly influence the promotion likelihood of city mayors in China. Furthermore, my study confirms that there are no statistically significant differences based on age. git_personal access token: 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

Introduction

Many developing countries around the world, especially in Africa, Latin America, and Southeast Asia, have experienced rapid economic growth in recent years. In particular, countries in sub-Saharan Africa have experienced growth that surpassed their initial growth rates around the 1960s - 70s, a period in which many of those countries gained Independence (Diao, McMillan, & Rodrick, 2019). However, numerous problems still hold the region back, one of which is an employment issue. A striking statistic is that for every 10 - 12 million youths that enter the labor market each year, only 3 million formal sector jobs are created for them (Fields, 2021). This issue is especially salient, given the continent's large youth population, with the median age in the continent being 19 years (IMF Picture this).

It is therefore a serious research question of how best to harness the budding potential of African countries, particularly in terms of allocating their numerous resources to productive parts of their economies in ways that can ensure sustained growth. In this paper, I aim to contribute to the Literature by analyzing firm level data for four sub-saharan African countries, namely Nigeria, South Africa, Senegal, and Malawi??, specifically by characterizing what type of firms, in terms of size and the estimation of labor productivity, are actually increasing employment and therefore playing a role in reducing the issue highlighted above; I aim to focus specifically on the role that the exit and entry of firms play in determining labor productivity, especially how it relates to affecting the dispersion of productivity across firms.

Past research has extensively studied the concept of structural transformation, which is a topic that directly relates to the reallocation of factors of production, such as labor, to more productive sectors of the economy; such as (cite specific papers, kuznet, arthur lewis). There has also been much study on the macroeconomic concept of Total factor Productivity (TFP), particularly on the role that mis-allocation, and thus reallocation of factors of production, can play in increasing TFP growth (cite Hseih & Klenow, Bailey et al). My contribution to these broad areas of research is synthesizing and combining their findings in order to apply to recently compiled data, specifically on a micro firm level, from which I can get more granular insights as to the specific mechanisms that could potentially be driving macro trends as it relates to the allocation of labor in the context of developing countries.

A recent paper by Diao et al is the main predecessor to my thesis, as they also explored the dynamics of manufacturing firm size, labor productivity, employment growth, as well as capital stock with a micro lens, using firm level data from Ethiopia and Tanzania. Their findings were consistent with past work that has shown that even though many African countries have experienced

much structural change, by moving labor out of Agriculture (a sector that has generally been shown as less productive than modern sectors, such as manufacturing), those same African countries still record low productivity within the modern sector that labor is moving to, which is an opposite play-out of how such change occurred during the growth path for Asian economies (cite Diao, McMillan, Rodrick, 2019). This, in turn, has not contributed positively to aggregate productivity growth within those countries. This paper serves as a great inspiration for this report, as I can now contribute to the conversation by analyzing if such dynamics exist in other African countries, particularly in other regions, and if they do not, what special conditions are at play in those countries. In addition, I am able to use recently updated data, such as those used in the original paper, as well as firm survey data compiled by the World Bank to confirm the macro trends they found in their paper and to put more of a spotlight on the role that the churning of firms plays.

Although a sizable portion of the Literature has focused on the Manufacturing sector, specifically due to its "almost" traditional pathway to economic prosperity, based on the experiences of Europe during the Industrial Revolution or the East Asian Miracle, there's is another relevant question of if Manufacturing is still a viable path for upcoming economies. Work by Amirapu and Subramanian (2015) and Fan, Peters, and Zilibotti (2023) have explored the major role that the services industry has played in the development of India, a currently developing country. Therefore, although I aim to focus on the manufacturing sector for the purposes of this paper, there is still the underlying importance of other modern sectors, from which this study could be extended to and which I will return to later in the paper.

The rest of the proposal will proceed as follows: first, I will go through a Literature review where I highlight important works, that have inspired this these, followed by a discussion of the data that will be used and of the methodologies that will be employed

Literature Review

Many developing countries around the world, especially in Africa, Latin America, and Southeast Asia, have experienced sustained and rapid economic growth in recent years. In particular, countries in sub-saharan Africa have experienced growth that surpassed their initial growth rates around the 1960s - 70s, a period in which many of those countries gained Independence (Diao, McMillan, & Rodrick, 2019). A big driver of this growth has been the reallocation of factors of production from low productivity sectors, a typical example being traditional agricultural activities, to high productivity sectors,

such as modern manufacturing, a process commonly termed Structural Change (Diao, McMillan, & Rodrick (2019), McMillan & Rodrick (2011)). This distinction between high and low productivity sectors has been explored through models posited by economists, such as Arthur Lewis the Nobel Laureate, in which there is a capitalist sector that utilizes productive capital and is an engine for overall economic growth and the subsistence sector that does not use any capital but holds "unlimited amounts of labor" and can therefore drag down overall growth and also allows for the existence of a dual economy (Lewis 1954). (finish reading paper). Also check out kuznets (talk more here about the equalizing of MPL across sectors ina neoclassical sector with no distortions or wedges)

However, is structural change enough for sustainable growth? McMillan & Rodrick state that it is possible for a country to experience positive economic growth just from the reallocation of factors of production from low to high productivity sectors without any productivity growth within sectors (2011). However, this form of growth might not be sustainable. Diao, McMillan, & Rodrick develop a model, which is consistent with data sources compiled from the World Bank…(get the data sources), that decomposes aggregate labor productivity growth into a collaboration between structural change and within sector productivity growth (2019). The model shows that structural change is the main driver of economic growth in many African countries and that this growth in particular is demand driven (Diao, McMillan, & Rodrick 2019). This specifically means that much of the labor leaving the traditional agricultural sector has been due to the cropping up of many modern, small, and many times, less productive modern firms providing employment opportunities so as to meet the increased demand of modern products nationally, brought about by factors, such as foreign aid transfers or increased productivity in the agricultural sector itself; as a result, the analysis is also consistent with limited or almost zero productivity growth within the modern sectors (non-agricultural sectors) (Diao, McMillan, & Rodrick, 2019). This is in comparison to development case studies in East Asia whose growth, characterized by a positive supply shock to the modern sector, sees a positive contribution of both structural change and within sector productivity (Diao, McMillan, & Rodrick, 2019). From this, we can see that structural change is only part of the development story for sub-saharan Africa. Another dimension involves the neoclassical Solow model, which emphasizes the savings rate, the accumulation of capital, both physical and human, as well as innovation through an endogenous technological factor; this part of the story focuses more on growth that assumes a single sector economy (Diao, McMillan, & Rodrick, (2019) Fields, Gary). To tie these views together, it might be possible to think of the structural growth view as more of a reallocation of existing factors of production across sectors, while the neoclassical Solow approach as a focus on the growth

process within each sector (Diao, McMillan, & Rodrick, 2019).

As highlighted above, even though the structural change path is alive and well within sub-saharan Africa, it seems this path is not directing surplus labor to the productive parts of the modern sectors, and providing further boost to productivity growth, based on Diao et al's model. This is a cause of concern, as successful case studies in Botswana and Ghana, also analyzed through the lens of the model, both highlight the necessity of sectoral productivity growth for sustained aggregate productivity growth; without it, much of the recent growth accelerations in African countries might be short lived.

Building off of this, it is paramount to understand why this path diverges into a situation of misallocation between less productive and more productive firms. Within the literature of misallocation, the landmark paper by Hseih and Klenow highlights the importance of re-allocation of resources being a source of huge increases of the aggregate productivity of China and India with growth rates of 30 - 60%, using the United States as a benchmark, a relatively un-distorted economy (2009). Other research, such as that by Bailey et al, has also emphasized the great contribution of increasing output shares of high productivity firms and decreasing output shares of low productivity firms to total factor productivity growth in the U.S. manufacturing sector (1992). From this, we can see how pivotal re-allocation of resources is for increased aggregate productivity growth.

One step towards tackling this issue is first identifying possible reasons for this misallocation. Diao et al take an amazing approach by analyzing firm level data in Ethiopia and Tanzania, differentiating the firms by size and estimating the labor productivity and employment growth of both small, medium, and large firms (2021). Building off the model established in the earlier paper by Diao, McMillan, & Rodrick (2019), Ethiopia and Tanzania serve as great case studies for understanding this misallocation, as the paper reports that even though both countries have experienced strong structural change, they have also experienced weak within sector productivity in the modern sector. Diao et al find that smaller, less productive firms in both countries have had much higher employment growth than highly productive firms, which, in turn, has a negative effect on aggregate labor productivity (2021). Diao et al posit that a direct cause for this phenomenon is due to the fact that the highly productive firms are extremely capital intensive, with capital stock levels that are on par with richer countries, such as the Czech Republic, and that such technology advanced firms just do not require as much labor as past industrialization movements have had, such as in Europe or East Asia (2021).(can also bring up point of manufacturing now requiring more tech worldwide and GVCs causing a homogenizing of technology effect)

An interesting question arises, which is the main purpose of this thesis, is does this phenomenon also plays out in other sub-saharan African countries. Specifically, I aim to study the following countries: Nigeria, South Africa, and Senegal (or Malawi or Kenya or Ghana). Senegal serves as a great comparison to Ethiopia and Tanzania, as it has also experienced a similar phenomenon of high structural transformation with low modern sector productivity, particularly for the sectors that contributed the most to structural change (Diao, McMillan, & Rodrick, 2019). Nigeria and South Africa, on the other hand, took membership in another group of sub-saharan African countries who actually experienced weak structural change, still with a negative correlation with sectoral productivity growth in the manufacturing sector (Diao, McMillan, & Rodrick, 2019). In addition to estimating the labor productivity and employment growth across time for these countries n a firm level basis, as done for Ethiopia and Tanzania, I plan to dig deeper into the role that entry and exit of firms plays in determining labor productivity growth, specifically using decomposition equations and measurements of factor productivity used in prior literature (put note in, citing Hsieh & Klenow, Bailey et al). I will be using similar data from Diao, McMillan, & Rodrick (2019) work, which is data from Groningen Growth and Development Center (GGDC) (now updated to the latest 2023 version), to replicate and confirm similar patterns of negative correlation between structural change and sectoral labor productivity in terms of their contribution to productivity growth. However, for the main analysis of the firm level environment for thee countries I will be using the carefully curated World Bank Enterprise survey panel data, which I will go into more detail in upcoming sections, that contains random samples of formal private sector firms, designed to be representative of the population of firms within each economy.

In the next section, I will go through a description of the World Bank Enterprise Data and cleaning of the data for my research purposes, as well go more in depth as to the measurements of productivity and the identification of the entry and exit of firms

Data and Methodology

Data

The data that will be utilized in this analysis is provided by the World Bank through their Formal Private Enterprise survey. The survey is a random sample of firms, carefully curated to be representative of the population of firms within each economy; Table 1 highlights some important statistics for the

economies that will be analysed in this paper. The main sectors of interest, which most of the firms are broadly categorized into are Manufacturing and Services (cite World Bank). Based on the focus on the manufacturing sector in past Literature, as explained earlier, the main focus of this thesis will be on the distribution of firm productivity within the manufacturing sector. The data is collected through stratified random sampling, in which the levels of strata include firm size, sector, and region, and sampling weights are provided in order to adjust for population representation (cite World Bank).

(talk about the efforts of the world bank to maintain the panel, cite that churning world bank paper)

Specifically, the countries of interest for this paper: Senegal, South Africa, and Nigeria, the years over which the data spans ranges from 2003 to 208, with South Africa having the longest time span between 2003 and 2018. All countries have three years of panel data as decomposed in table 1. It might therefore be worthwhile to estimate the firm entry and exit both between the longer time frame between the earliest year and latest year, as well as the middle year and latest year.

(talk more about the variables of interest, such as labor, sales, profit, value added, share of sales, sampling weights, control that can be put in such as strata levels)

The below section goes into more detail as to how I intend to define firm entry and exit, based on models developed in past Literature, as well as how I intend to estimate the effect of firm churn on the variation in labor productivity

Conclusion