ECONOMIC RESEARCH FORUM

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Policy Paper

Job Creation in Egypt

A Sectoral and Geographical Analysis Focusing on Private Establishments 1996-2017

December 2019

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A Sectoral and Geographical Analysis Focusing on Private Establishments 1996-2017[1]

prepared for

Ministry of Planning, Monitoring, and Administrative Reform

Arab Republic of Egypt

by

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December 2019

[1]*The authors acknowledge generous funding from Egypt Gulf Bank.*

Executive Summary

This policy paper examines the evolution and structure of job creation in private establishments in Egypt from 1996 to 2017 using data from the recently released 2017 Establishment Census and its predecessors in 1996 and 2006.

We examine the pattern of job creation by industry, firm size category, and location. By linking data from the Establishment Censuses, the Labor Force Survey and the 2013 Economic Census, we are also able to characterize the jobs created during this period according to their educational, age and gender distributions of the workers hired, and according to the formality and productivity of the industries in which they are created. Finally, we analyze the pattern of non-operating establishments to determine the extent to which non-operating establishments constitute new establishments being readied for production in expanding industries or whether they are the result of establishment closures in struggling industries.

Our findings suggest that Egypt has experienced steady deindustrialization as the share of manufacturing in employment fell from 32% to 21% over the 1996-2017 period. Moreover, approximately two-fifths of employment is in the retail sector, which is the largest industry sector in terms of employment. Some of the fastest growing industries in terms of employment growth from 2006 to 2017 include finance and insurance, real estate, transportation and storage, and construction. The information and communications industry also exhibited rapid rates of growth, but its growth rate slowed down somewhat compared to the 1996-06 period. Nonetheless, nearly two-thirds of net employment growth is contributed by industries that require relatively low skill levels and provide mostly informal jobs. The exception are financial services, which grew fast and tends to have relatively educated workers and more formal jobs.

Egypt had been known to suffer from the phenomenon of the "missing middle," whereby employment is concentrated in micro establishments at one end of the establishment size distribution and in large establishments at the other, with a relatively small share of jobs in small and medium establishments. A major finding of this report is that the middle of the establishment size distribution is re-emerging. Employment in the small and medium establishment segment of private establishments grew more rapidly in the 2006-2017 period than either the microenterprise segment or the large establishments segment. This re-emergence of the "missing middle" has substantial implications for the evolution of productivity and formality in the economy and for job creation for the growing ranks of educated workers.

As for the geographic distribution of employment, the Cairo region continues to occupy a dominant position, but one that is declining over time. The fastest job growth in 2006-2017 was in Upper Egypt, a region whose employment growth had lagged in the past. Employment growth in the Suez Canal region has lagged in recent years, primarily due to a particularly sharp reversal of manufacturing and in tourism-related jobs. Together with the neighboring governorate of Damietta, the governorates of Port-Said and Suez have seen especially sharp reversals of their manufacturing industries.

Finally, the distribution of non-operating establishments by industry suggests that education, and accommodation and food services represent two potentially struggling industries. They had the highest and fastest growing share of non-operating establishments, combined with a sluggish annual job creation rate between 2006 and 2017.

Our policy recommendations center around three axes:

1- Continuing to support the growth of small and medium establishments,
2- Reversing or slowing the relative decline of manufacturing,
3- Identifying and promoting promising sectors for job creation.

While the procedures to start SMEs has been substantially streamlined and access to finance has greatly improved, there is still a great deal to be done to reduce the costs of being formal and to make them more predictable and rule-based and less subject to the discretion of officials at all levels of government.

This includes reducing the tax burden and increasing the ease and predictability of tax payments, streamlining health and safety regulations and licensing requirements and relying on greater digitalization of transactions with the bureaucracy.
With regard to reversing or slowing the decline in manufacturing, it is necessary to assist manufacturing firms of all sizes to integrate into local and global value chains through an improvement in the climate for foreign investment and a greater intermediation role on the part of the relevant government agencies and industry councils.

Finally, some of the promising sectors for employment growth in Egypt include tradable services, such as business process outsourcing and information technology services. They also include horticulture and agro-processing for export.

The care economy, which includes health, education and social care also offers good opportunities for growth in the private sector, especially if supported by public investments in early childhood care and education and in universal health insurance.

Finally, the recovery of the tourism industry is essential to job growth in a number of related industries and needs to be supported to the extent possible.

List of Abbreviations

ALMPs	Active Labor Market Programs
CAPMAS	Central Agency for Public Mobilization and Statistics
CLS	Commerce, law and services
EdSc	Teacher training and educational sciences
ETP	Enterprise Training Partnerships
GIZ	German International Development Agency
HASS	Humanities, arts and social sciences
ILO	International Labor Organization
IMC	Industrial Modernization Center
ITC	Industrial Training Council
LFS	Labor Force Survey
MCIT	Ministry of Communications and Information Technology
MIIC	Ministry of Investment and International Cooperation
MoHE	Ministry of Higher Education
MoM	Ministry of Manpower
MoSS	Ministry of Social Solidarity
MSMEDA	Micro, Small and Medium Enterprises Development Agency
MTI	Ministry of Trade and Industry
PEO	Public Employment Office
RLMO	Regional Labor Market Observatories
SFD	Social Fund for Development
STEM	Science, Technology, Engineering and Mathematics
UNDP	United Nations Development Program
UNICEF	United Nations International Children's Emergency Fund

Contents

Introduction

This policy paper examines the evolution and structure of job creation in private establishments in Egypt from 1996 to 2017 by taking advantage of data from the recently released 2017 Establishment Census and its predecessors in 1996 and 2006. While we also tackle job creation in public enterprises as well, the main focus of the paper is on private establishments. We examine the pattern of job creation by firm size category, location, and industry. We also identify the top ten 3-digit industries (among a possible 136 industries) in terms of contributions to job growth. By linking data from the Establishment Censuses to other data sources, such as the Labor Force Survey, we are also able to characterize the jobs created in terms of the educational, age and gender distributions of the workers hired, and the formality and productivity of the industries in which the jobs are created. Finally, we analyze the pattern of non-operating establishments in the 2006 and 2017 Establishment Censuses to determine the extent to which non-operating establishments constitute new establishments being readied for production in expanding industries or establishment closures in struggling industries.

It is useful to point out at the outset that employment in private establishments, which is the focus of this report, makes up about a third of total employment in Egypt. The remainder consists of employment outside fixed establishments (46%), government employment (18%), and employment in public enterprises (3%). Although the share of private establishments in employment has been rising over time due to the declining share of government and public enterprise employment, the bulk of employment in Egypt still continues to be private employment outside fixed establishments.

Most jobs in industries such as agriculture, construction, and transportation take this form. Hence, the analysis in this paper will not fully represent developments in these industries, which for the most part fall outside the scope of the establishment censuses. We should also note that the public enterprise sector makes up only 6.3% of employment in non-governmental establishments, down from 6.9% in 2006 and 11.5% in 1996. Employment in public enterprise establishments declined in absolute terms between 1996 and 2006 and grew more slowly than average from 2006 to 2017.

The first major finding of this report regarding employment in private establishments is that employment in small and medium enterprises is growing more rapidly in the 2006-2017 period than in either microenterprises or large enterprises. This is good news since this segment of the economy was previously known as the "missing middle" and has received a great deal of policy attention in Egypt in recent years.[2] Small and medium enterprises generated over one half of employment growth in private establishments from 2006 to 2017; two-thirds of which was in small establishments (5-24 workers) and one-third was in medium establishments (25-199 workers). The net contribution of large establishments (200+ workers) to employment growth in the 2006-17 period was less than 1.5%.

[2] *See discussion of the establishment of the Micro, Small and Medium Enterprises Development Agency (MSMEDA) in Section 1.2 below.*

The growth of medium enterprise employment is good news for Egypt's increasingly educated labor force because medium enterprises disproportionately employ workers with higher education (35% vs. 21% in all private establishments). In contrast, large establishments disproportionately employ secondary educated workers. Among university-educated workers, medium establishments have the greatest diversity of educational specializations. Medium enterprises also disproportionately hire women (18% vs. 13% overall), a group that continues to be highly under-represented in the Egyptian private sector.

With regard to the geographic distribution of employment in private establishments, the Cairo region continues to occupy a dominant position, but one that is declining over time.[3] Lower Egypt has maintained its relative position, thus growing at roughly the national rate. The Alexandria region lost some market share from 1996 to 2006 but then recovered its previous share by 2017. All three governorates in this region, Alexandria, Buhaira and Matrouh experienced a large acceleration in job growth, with Matrouh having the second highest rate of growth among all governorates in Egypt in 2016-17 (10.5% p.a.), after Luxor governorate.[4]

Employment in private establishments grew much faster than average in 1996-06 in the Suez Canal, but slowed substantially in the 2006-2017 period. This is a concern, because Suez and Port Said, together with Damietta, experienced some of steepest declines in manufacturing employment between 2006 and 2017. This region also includes North and South Sinai governorates, which had the largest declines in overall job growth in 2006-17.

The fastest job growth in 2006-2017 was in Upper Egypt, a region that had a relatively small initial share of national employment in private establishments, but has seen this share increase from 13% to 18% from 1996 to 2017.

The three Upper Egypt sub-regions we identify (North, Central and South) have grown faster than the national average in both sub-periods and have, thus, consistently added to their national share of private establishment employment since 1996. The fastest growing region in the 2006-2017 period was North Upper Egypt, which experienced an employment growth rate of 7.9% per annum (p.a.) relative to a national rates of 5.1% p.a. At the governorate level, some of the fastest job growth occurred in Luxor, Fayyoum Sohag, Minia and Beni Sueif governorates.

With regard to the pattern of employment growth in private establishments by industry, some of the fastest growing industry sections (1-digit level of ISIC code) from 2006 to 2017 include finance

[3] *We use the Ministry of Planning's definition of planning regions throughout this paper, which is as follows: (1) The Cairo region includes the Cairo, Giza and Qalyubiya governorates, (2) Alexandria region includes Alexandria, Buhaira, and Matrouh governorates, (3) Lower Egypt region includes Dakahliaya, Gharbiya, Menufiya, Damietta, and Kafr El-Sheikh governorates (4) Suez Canal region includes Suez, Ismailiya, Port Said, Sharqiya, North and South Sinai governorates (5) North Upper Egypt includes Beni Sueif, Fayyoum, and Minya governorates (6) Central Upper Egypt includes Assiut and Wadi El-Gedid governorates, (7) South Upper Egypt includes Sohag, Qina, Luxor, Aswan and Red Sea governorates.*

[4] *See Figure 14.*

and insurance, which recovered strongly in this period after declining in absolute terms in the 1996-2006 period. They also include real estate, transportation and storage, construction, and arts, entertainment and recreation. Neither construction nor the transportation and storage industries are well-represented in the establishment census because most of their employment is outside establishments, but these high growth rates reflect a greater institutionalization of jobs in these fast-growing sectors. The information and communications industry also exhibited rapid rates of growth as more of its employment switched from the public to the private sector during the two sub-periods under consideration. It was the fastest growing 1-digit industry from 1996 to 2006, but its growth slowed in the 2006-17 period, albeit remaining above the average employment growth rate.

In terms of contribution to employment growth, the largest industry section continued to be wholesale and retail trade, but its contribution to net employment growth has declined from 45% in 1996-2006 to 38% in 2006-17. The contribution of manufacturing to employment growth has also declined from 19% in 1996-2006 to 13% in 2006-17, as it continues to grow more slowly than average. The sluggish growth of manufacturing over the past two decades is one of the most important findings of this report and one that requires immediate policy attention.

The industry sections that have substantially increased their contribution to job creation across the two sub-periods are construction, transport and storage, finance and insurance, and "other services," which includes non-governmental organizations, maintenance and repair, and personal services.

We also examined employment growth by industry at a much more disaggregated level (down to the 3-digit level industry group) to identify the top ten 3-digit industry groups contributing to employment growth in 2006-17 and the type of jobs they are creating. The top ten industry groups (out of a possible 136 3-digit industry groups that can be traced since 1996) contributed 65% of net job growth from 2006 to 2017, up from 50% in 1996-2006. These are not necessarily the fastest growing industry groups, but rather the industry groups that contributed the most to overall employment growth in 2006-17, which is a function of both their size in the economy and their rate of growth.

These top ten 3-digit industry groups are dominated by industries related to trade and distribution (such as other retail trade, warehousing and storage, food and beverage stores, non-specialized stores), but they also include personal services, non-governmental organizations, financial services, restaurants and food service, and specialized construction activities. Only one manufacturing sub-sector, namely, sawmilling of wood made it to the top-10.

These top ten industry groups contributing to job growth have a higher percentage of micro establishments than the national average, a smaller than average share of formal firms, a smaller share of formal employment, a lower than average labor productivity, and a lower than average share of workers with university degrees. Moreover, these industries are slightly less likely to hire young workers (ages 15-29) than the national average and slightly less likely to hire women than the national average.

This analysis indicates that nearly two-thirds of net employment growth in Egypt is contributed by these top-10 industry groups, which require relatively low skill levels and provide disproportionately informal jobs. The exception is financial services, which grew very fast in 2006-17, and tends to have a relatively educated workers, more formal jobs, higher labor productivity.

Furthermore, with regard to the distribution of non-operating establishments by industry, some of the industries with either the highest share (in 2017) or a fast-growing share of non-operating establishments between 2006 and 2017 exhibited lower annual job creation rate between 2006-2017. This shows evidence of potentially struggling industries. These include the education and the accommodation and food services industry sections, which was affected by the slowdown in tourism during this period.

Past research on employment growth in Egypt

Previous research on employment growth in Egypt has primarily focused on challenges of labor supply, that is the number and types of workers in the labor market, as well as what jobs they are undertaking. Past studies have demonstrated high rates of unemployment among youth (particularly new entrants trying to find their first job), the educated, and women (Assaad & Krafft, 2015a). Young people may spend a substantial amount of time searching for their first job (Assaad & Krafft, 2016). Job creation has largely tracked population growth, with the exception of slower job creation during the global financial crisis and immediately following the 2011 uprising (Assaad & Krafft, 2015b).

Past research shows that the jobs that have recently been created in Egypt are increasingly informal, as the formal private sector has been slow to create jobs while the public sector has downsized (Assaad & Krafft, 2015b). It has also shown that employment is predominantly concentrated in microenterprises, and that there have not been large shifts in firm sizes, industries or economic activities over the 1998-2012 period (Assaad & Krafft, 2015b). Employment dynamics, as measured by transitions across jobs, tend to be sluggish, consistent with limited structural shifts in the economy (Yassine, 2015).

Although labor market outcomes suggest that labor demand is weak, there has been limited research on labor demand, primarily due to a lack of firm-level data. Recent increases in access to firm-level data have started to illustrate important aspects of labor demand. The Global Entrepreneurship Monitor (GEM) for Egypt identified challenges limiting entrepreneurship (Hattab, 2013). World Bank enterprise surveys of manufacturing and services firms with five or more employees have also identified a number of challenges in the economic environment (World Bank, 2013). Corruption and political connections in particular have been demonstrated to reduce job creation in Egypt (Diwan, Keefer, & Schiffbauer, 2014). Labor demand in micro and small enterprises appears to be particularly sensitive to macroeconomic conditions (Krafft, 2016).

A few studies have looked directly and specifically at job growth and labor demand. Job growth in the private sector and within establishments has been identified in past research as essentially keeping pace with labor supply pressures (suggesting a labor-absorbing paradigm) (Assaad, Krafft, & Yassin, 2018). Job

growth was not in higher-productivity sectors, meaning that there was a lack of productivity-enhancing reallocation of labor. Job growth was the same across industries regardless of the years of schooling employees typically had, suggesting that there will be a widening gap between labor demand and supply as education continues to rise. Industries with more informal employment were also growing faster, while large firms had weak job creation (Assaad, Krafft, & Yassin, 2018). This paper digs deeper into the characteristics of job creation over time with a particular focus on the fast-growing industries as well as non-operating firms.

Labor market and employment stakeholders in Egypt

This section discusses the responsibilities and work of the most important governmental and non-governmental actors that are engaged in labor market programs and in the provision of employment services[5].

> The first major actor in that regard is the Ministry of Manpower (MoM), which is in charge of enforcing the labor code, promulgating its executive regulations and proposing new provisions to the code to the cabinet of ministers and the parliament, in consultation with trade unions and employers' associations.

As part of its enforcement of the labor code, MoM is responsible for "labor inspection, industrial relations, conflict resolution, employment services and for providing a labor market information system" (ILO 2017, p. 18). The ministry manages 317 public employment offices (PEOs) responsible "for the registration of jobseekers and job vacancies and the issuance of work permits" (ILO, 2017a). Besides their standard employment services, some employment offices conduct inspections, carry out career guidance sessions, and provide matching services for job-seekers and employers. MoM also administers 27 vocational training centers to help prepare job-seekers to meet the needs of the labor market. Finally, the ministry publishes a monthly national employment bulletin that lists some of the available vacancies in some firms, detailing the needed qualifications, and addresses and phone number of these firms (source: MoM website). The bulletin also includes the vacancies advertised in the newspapers, whether these vacancies are for jobs in Egypt or abroad. Finally, the bulletin includes some labor market statistics from the CAPMAS Labor Force Survey (LFS) bulletin, such as the distribution of the employed/unemployed by gender, region and educational level. It also publishes information from the Ministry of Interior about the number of jobs held by Egyptians abroad, and the number of foreigners working in Egypt.

The second important player is the Ministry of Trade and Industry (MTI), under which the Industrial Modernization Center (IMC) operates. IMC is in charge of supporting the growth of small and medium enterprises (SMEs). MTI also used to supervise the Industrial Training Council (ITC) which was responsible for the implementation of active labor market programs (ALMPs), delivering skills training services to job-seekers to either become entrepreneurs/self-employed, or to find wage employment in the labor market. ITC was in charge of a recent project "the National Program for Training for Employment." However, ITC was recently dissolved and merged into the Micro, Small and Medium Enterprises Development Agency (MSMEDA), which was centered on what was formerly known as the Social Fund for Development (SFD). Basically, SFD and ITC were combined to constitute this new entity (see below the description of MSMEDA).[6] Moreover, MTI supervises, through the Federation of Industries, the 12 enterprise-training partnerships (ETP) at sectoral level – eight in manufacturing and two each in construction and tourism. These ETPs are organized by employer groups to provide training that is designed (in terms of curricula) to meet the needs of each sector. In addition, MTI has a program on Promotion of Small and Medium-sized Enterprises (PSME) in cooperation with GIZ where the latter provides technical support to MTI on how to focus "its industrial policy on promoting business innovation and boosting employment" (GIZ website)[7].

As for MSMEDA, it is a quasi-governmental body that is responsible for promoting entrepreneurship, mainly in micro and small enterprises, and to deliver skills training programs (Barsoum, 2016). It is not yet determined whether the latter will be delivered through the former ITC or SFD staff. MSMEDA also runs some public works programs.

The Ministry of Higher Education (MoHE) is the fourth major stakeholder. It hosts the labor market observatory, which is responsible for producing statistics on the needs of the labor market. It does so by identifying the growing and contracting sectors, the occupations most/least in demand, and trends in education. The purpose is to bridge the employability gap, narrow the mismatch between labor demand and educational outputs, and better inform students about labor market needs.

> Moreover, the Ministry of Education (MoE), the fifth major stakeholder, in partnership with GIZ, has introduced two pilot Regional Labor Market Observatories (RLMOs) in Sixth of October and Sadat cities. This project is under the GIZ project of Employment Promotion (EPP) aiming at establishing six regional labor market observatories in order to help in the provision of labor market information (GIZ, 2015; Said, 2015).

Sixth, the Ministry of Youth and Sports offers career guidance throughout its 4,200 youth centers across the nation, and has three active labor market programs: "Egypt Works/Masr ta'amal" in

[5] *This section is based on available studies describing the role of different actors in Egypt's labor market (Barsoum, 2016, 2018; GIZ, 2015; ILO, 2017a; Ministry of Education, 2014; Said, 2015) as well as on interviews with Mrs. Amal Mowafi, Chief Technical Advisor, ILO and Mr. Luca Fedi, Employment specialist, North and East Africa, ILO.*

[6] *Similar to the ITC, there were plans for the IMC to be placed under the umbrella of MSMEDA. However, there was resistance to that on the part of the business community resulting in IMC remaining with MTI.*

[7] *https://www.giz.de/en/worldwide/16281.html. GIZ website also includes a list of all their labor market interventions in Egypt https://www.giz.de/en/worldwide/319.html. Last accessed October 2nd 2018*

collaboration with UNDP, "My journey/ Meshwary" with UNICEF, and the Job Search Club with the International Labor Organization (ILO). All these programs offer a mix of skills training, entrepreneurial training and career guidance services.

Seventh, the Ministry of Local Development has one active labor market program called "Your project/Mashroua'ak," which facilitates access to credit. In the same spirit, the Ministry of Investment and International Cooperation (MIIC), the eighth major player, developed an entrepreneurship platform "Your idea is your project/Fekretek Sherketek," that aims at supporting and promoting the growth of startups. This is through offering mentorship, funding, and training.[8]

Ninth, the Ministry of Communications and Information Technology (MCIT) had a project to help individuals with disabilities integrate into the labor market in collaboration with ILO.[9] This was introduced with other initiatives as a part of a cooperation protocol with MIIC with the goal of "creating a supportive environment for entrepreneurship; developing innovative young people capabilities; attracting international investments in ICTs; stimulating investment for startups; and promote technological innovations that help integrate and Empower People with Disabilities (PwDs)." (MIIC website[10]).

Tenth, the Ministry of Social Solidarity (MoSS) has the Productive Families Scheme[11] in addition to the planned prospective "Forsa" program for job placements for Takaful and Karama beneficiaries in order to exit the system as well as those who were rejected from Takaful and Karama but on the edge of poverty (MoSS website and ILO, 2017b).[12] Forsa acts as the employment support component of the Takaful and Karama cash transfer programs.[13] It aims at providing a job placement for Takaful and Karama beneficiaries who are able to work and are 15-55 years old. Through the employment opportunity, hence income security, channeled by Forsa, they will be able to graduate from Takaful and Karama.

However, Forsa has not yet begun.

> Finally, the Ministry of Planning, Monitoring and Administrative Reform (MOPMAR) has the main task of coordinating between all the different entities in the labor market (and, overall, in the economy). It has also the public investment portfolio. This portfolio, in terms of size and composition, is expected to affect the labor market. The macroeconomic analysis unit aims at estimating the effect of the public investment portfolio on job creation. MOPMAR also operates two active labor market programs, one for promoting entrepreneurship through young entrepreneurs mentorship and trainings known as "Pioneers 2030/Rowad 2030,"[14] and the other is the new National Training Academy (NTA) for the preparation of youth for the labor market.[15]

As for international organizations/agencies and other national NGOs, examples include, but are not limited to, the ILO, whose mandate aims at strengthening the capacity of all the above-mentioned institutions and players in through technical and non-technical support, and programs. USAID currently implements the "WISE" project for enhancing vocational education – in partnership with multiple national stakeholders such as the ministry of education, MTI, etc.

Among NGOs, the Alexandria Businessmen Association (ABA) is known for its rotating microfinance program. Nahdet el Mahrousa and Masr el Kheir are generally involved in ALMPs.

To conclude, there are many stakeholders and players in the Egyptian labor market with various active labor market programs that seem to lack coordination and suffer from high levels of fragmentation (Barsoum, 2016; ILO, 2017a). More importantly, most of these programs have not been rigorously evaluated to be able to draw lessons on what works in terms of design, targeting, and impact (Barsoum, 2018; ILO, 2017a).

[8] *http://www.sherketak.com and http://www.miic.gov.eg/English/MediaCenter/News/Pages/We-Launched-Fekretak-Sherketak-Initiative-to-Promote-Startups,-Dr.-Nasr-form-YENA-Conference.aspx.*
Last accessed October 9th 2018.

[9] *http://www.mcit.gov.eg/Media_Center/Press_Room/Press_Releases/25976 and http://www.mcit.gov.eg/Media_Center/Press_Room/Press_Releases/4453*

[10] *http://www.miic.gov.eg/English/MediaCenter/News/Pages/MIIC,-MCIT-Sign-Protocol-to-Promote-Egypt-Regional-Position-in-Entrepreneurship-and-Investment.aspx.*
Last accessed October 9th 2018.

[11] *http://www.moss.gov.eg/ar-eg/Pages/news-details.aspx?nid=165.*
Last accessed October 2nd 2018

[12] *http://www.moss.gov.eg//ar-eg/Pages/program-details.aspx?pid=11. Last accessed October 2nd 2018*

[13] *Takaful (solidarity) and Karama (dignity) are two social assistance programs introduced in 2014 that aim at alleviating poverty through conditional and unconditional cash transfers (Selwaness & Messkoub, n.d.)*

[14] *https://rowad2030.com/en/.*
Last accessed October 2nd 2018.

[15] *http://ntaegypt.com.*
Last accessed October 2nd 2018.

Data and Methods

Although the primary data source for this report is the establishment censuses carried out by CAPMAS concurrently with the decennial population censuses, we make use of several additional data sources to put the establishment censuses in context and describe more fully the characteristics of jobs and the workers hired in the sectors of the economy contributing the most to job creation. These additional data sources include the Labor Force Survey, also carried out by CAPMAS, which provides a full picture of employment in Egypt and allows us to determine the characteristics of workers in various segments of the labor market. They also include the Economic Census of 2012/13, also carried out by CAPMAS, which provides a more in-depth look at the characteristics of establishments and firms, including formality and productivity, but is only available for one point in time. What follows is a detailed description of how we utilize these various data sources.

Establishment Censuses

The primary datasets we use to measure the growth of employment are the establishment censuses of 1996, 2006 and 2017 (EsC 1996, 2006, and 2017). These censuses capture firm-level information for every establishment in Egypt and were carried out at the same time as the decennial population and housing censuses. They include information on the sector of ownership of the establishments, number of workers, industry (up to the 4-digit ISIC code), and governorate. Not included in our universe is employment in the government, which includes the civil and security services and the economic and service authorities, nor employment outside fixed establishments, such as employment that takes place in fields, construction sites, the street, or in mobile vehicles.

We use the 100% sample of establishments in 2017 and 2006. Because we only had a 10% random sample of establishments from the 1996 EsC, we used data from the published tables that analyzed the 100% sample to create weights for the number of workers at the 3-digit industry and governorate levels (CAPMAS, 1997). These weights allow us to produce the correct employment estimates by 3-digit industry and governorate, but may not provide exact estimates of the distribution of firms by other characteristics such as firm size.

Since the system of industrial classification changed from ISIC rev 3.1 in 1996 to ISIC rev. 4 in 2006 and 2017, we harmonized industry coding at the 3-digit level across the three censuses, which required us to merge some 3-digit industries in all the three years to achieve harmonization. In addition, because we only have a 10% sample from EsC 1996, we had to aggregate further very small 3-digit industries with fewer than 3 establishments in the 10% sample to obtain industry cells of sufficient size. This aggregation process resulted in total of 136 harmonized 3-digit industries instead of the original 167 found in the 1996 data, 200 found in the 2006 data, and 196 found in the 2017 data.

Merging Data from Other Sources

Labor Force Survey

We use data from the Labor Force Survey (LFS) to add information on the characteristics of workers beyond what the EsC contains. We obtain data on the characteristics of workers in establishments from the Labor Force Surveys of 2010 to 2014, including sex, age group, marital status, and education. We restrict the LFS to observations who are employed in an establishment, and for whom we have information on sector of employment, industry and age. We merge these characteristics with the establishment-level establishment census data by aggregated 3-digit industry level, sector (private/public) and firm size category. We use four categories of firm sizes from LFS (LFS firm size hereafter): micro (1-4 employees), small (5-24 employees), medium (25-99 employees), and large (100+ employees). Thus, the information from the LFS is aggregated over 136 industries x 2 sectors x 4 firm size categories (1,088 cells in all).[16]

We look into different worker and job characteristics of private sector industries using characteristics from the LFS. First, we calculate the percentage of workers in different educational attainment categories. We divide educational attainment in three categories: (1) less than secondary, (2) secondary and post-secondary, and (3) university and above. Second, we divide university graduates into five certificate categories: (1) teacher training and education sciences (EdSc), (2) humanities, arts, and social sciences (HASS), (3) commerce, law, and services (CLS), (4) science, engineering, and medicine (STEM), and (5) unknown. Then we examine the distribution of university graduates by certificate category. Third, we divide the employees into three age categories: ages 15-29, ages 30-44, and ages 45-64. We calculate the distribution of workers by age category. Fourth, we calculate the percentage of female workers and the percentage married among female workers. Fifth, we calculate percentage of workers with formal employment. If the worker has social security or an employment contract, then s/he is considered formally employed. Because we use pooled LFS data from 2010-2014, we only relate these characteristics to EsC data from 2017.

Economic Census

We use the Economic Census (EC) of 2013 to add information on total factor productivity (TFP), labor productivity (LP), and firm formality at the level of each 3-digit industry disaggregated by firm size category. The EC data are establishment-level data, but unlike the EsC it is based on a sample rather than a full count. We restrict the sample to private sector establishments. We calculate TFP and LP at the establishment level. To calculate the LP, first we divide the total value added of the establishment by the total number of workers employed. We divide these values by 100,000 for scaling, so that labor productivity is reported in hundred of thousands of Egyptian pounds per worker. To calculate TFP, we use a translog Cobb-Douglas production function. This means we run a weighted regression of the log value added at the establishment level on log value of capital (lnK) and log of total number of workers (lnL).

[16] *The following formula is used to calculate the percentage of workers with each characteristic. First, we obtain the weighted sum of workers by characteristic for each 3-digit industry code-sector-LFS firm size cell from the LFS. When we merged the aggregated LFS data into the EsC, we achieved a 98.7% match. For the unmatched observations, we impute the values from the mean of the characteristics at the 2-digit industry-sector pair. This imputes 99.68% (75,702) of the unmatched observations. To impute for the rest of the unmatched observations, we use the mean of the characteristics at the 1-digit industry-sector pair. We also obtain the number of employed in each 3-digit industry code-sector-firm size cell in the same way.*

We also include the square of both of these two terms and the interaction between lnK and lnL. We calculate the predicted log of value added, and calculate TFP as the difference between the observed value and the predicted value. We normalize TFP by subtracting the mean and dividing by the standard deviation so that the national mean in EC data is zero and deviations from the means are measured in units of standard deviations. We then aggregate TFP and LP at the 3-digit industry level disaggregated by establishment size categories.

With 136 3-digit industries and 4 establishment size categories, we should have 544 cells, but since some combinations of industry-size category are empty cells, we end up with a total of 453 cells. Finally, we merge the aggregated EC data set with the EsC data at the level of these industry-size cells.[17] Thus, the information on labor productivity, TFP and firm formality associated with each establishment in the EsC data in each of the three years 1996, 2006, and 2017 refers to the average characteristics of the industry-size cell it belongs in 2012-13, the date of the EC.

Employment Creation Outcome Variables

Unlike conventional firm-level data, our datasets do not provide information on the number of job vacancies nor the number of jobs created or destroyed, but only the number of jobs in firms of some category *s* (for example, industry or firm size category) at a point in time *t* ($E_{s,t}$). With such data, our key dependent variable is growth in the number of workers employed over time (between one wave or census and the other).

Specifically, we calculate an annual (percentage) net employment growth rate, *g*, in category *s*, from time *t1* to *t2* based on employment, *E*, as follows:

(1)

$$g_{s,t1,t2} = \frac{ln\left(\frac{E_{s,t2}}{E_{s,t1}}\right)}{t2\text{-}t1} * 100$$

where ln is the natural logarithm. We also calculate the contribution to net employment growth, *d*, by category *s* between time *t1* to *t2* using the following formula:

(2)

$$d_{s,t1,t2} = \frac{(E_{s,t2}\text{-}E_{s,t1})}{\sum_s E_{s,t2}\text{-}\sum_s E_{s,t1}} * 100$$

[17] *We match about 96% in the first merge. We impute the missing values with a successive merging algorithm. First, we impute the missing values the values from respective 3-digit industry codes, which achieves almost 100% matching. Second, we impute the missing values the values from respective 2-digit industry codes. Third, we impute the missing value from the 1-digit industry code, which leads us to a fully matched sample.*

Because we have employment data from three waves (1996, 2006, 2017), we calculate net employment growth rates and contributions to growth for two periods: 1996-2006 and 2006-2017.

In addition, we also look at the job composition in each of the three years for each category. We calculate job composition *e* for category *s* and time *t* as follows:

(3)

$$e_{s,t} = \frac{E_{s,t}}{\sum_s E_{s,t}} * 100$$

For our analysis, we mainly focus on private sector firms. We calculate all these outcomes by establishment size category, by governorate, by 1-digit industry code, and 3-digit industry code. Establishment size is categorized as follows: micro (1-4 employees), small (5-24 employees), medium (25-199 employees), and large (200+ employees).[18]

Non-operating establishment outcomes

For this analysis, we focus on the share of non-operating establishments in each industry and region. Specifically, we calculate the share of non-operating establishments as the number of non-operating establishments in a specific industry divided by the total number of establishments in this industry (multiplied by 100). We also calculate the growth rate in this share.

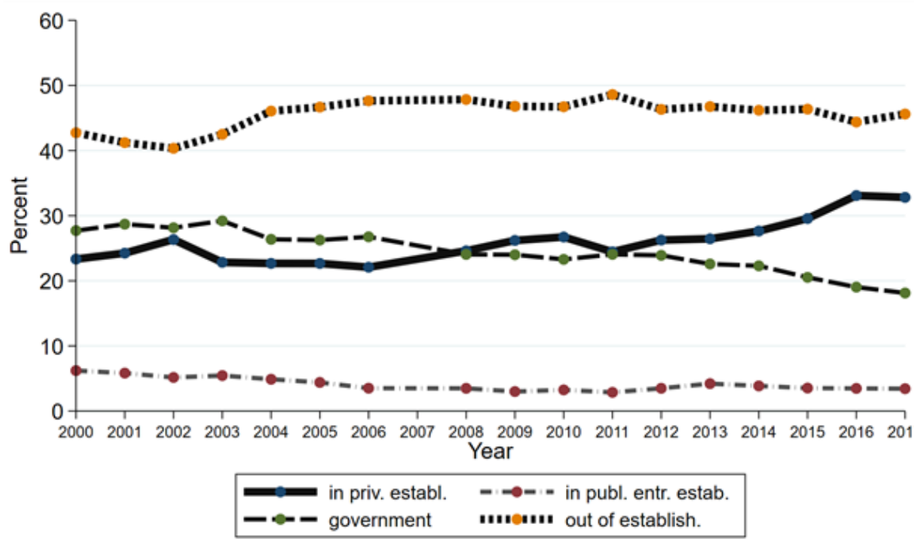
[18] *It should be noted that for the purpose of our analysis we use these categories. The LFS firm size categories (micro (1-4 employees), small (5-24 employees), medium (25-99 employees), and large (100+ employees)) were only used while manipulating the LFS data and then for the matching EsC data with LFS data.*

Role of Private Establishments in Total Employment

The focus of this policy paper is job creation in private establishments over the 1996 to 2017 period. While the establishment censuses of 1996, 2006, and 2017 also include employment in public enterprise establishments, we focus our analysis on employment in private establishments. As such, according to the official Labor Force Survey (LFS), employment in private establishments made up about a third of total employment in Egypt in 2017 (33%). The remainder was made up by employment in public enterprise establishments (3.5%), government (18%) and outside fixed establishments (46%).

As shown in Figure 1, the proportion of employment in private establishments has been rising over time after a period of relative stability. It remained at about 22-23% from 2000 to 2006 and then rose steadily from 2006 to 2010, dropped slightly in 2011, but resumed its increase to reach 33% by 2016 and remained at about that level in 2017. In contrast, the proportion of employment in government and public enterprises has been falling steadily. The share of employment in government went from 28% in 2000 to 18% in 2017 and the share in public enterprises went from 6% in 2000 to 3.4% in 2017. The share of employment outside fixed establishment has been relatively steady in recent years at about 45-46%.

Figure 1. Distribution of total employment (percentage) by in/out of establishments and sector, 2000-2017



Source: Authors' calculations based on data from LFS.

The proportion of employment in private establishments varies according to industry, region, type of worker, and job characteristics. As shown in Table 1, the proportion of employment in private establishments by industry varied from 2% in agriculture to 95% in accommodation and food services in 2015. Besides accommodation and food services, jobs in manufacturing, wholesale and retail trade, information and communications, real estate activities and professional, scientific and technical services are mostly housed in private establishments. Like agriculture, jobs in construction and transport and storage are mostly outside of establishments. Other sectors whose employment is mostly in the public sector and therefore not in private establishments include mining and utilities, administrative and support services, education, and human health and social work. Industries such as finance and insurance, arts, entertainment and recreation, and other services occupy an intermediate position with about 35% to 45% of their employment in private establishments.

Industries such as mining and utilities, finance and insurance, information and communication, real estate activities, and administrative and support services have increased their share of employment in private establishments at a much faster rate than average. While the share of employment in private establishments is 1.3 times what it was, on average, in 2015 compared to 2000, it is 3.6 times what it was in information and communications, 2.8 times in finance and insurance, 2.3 times in administrative and support services, and 2.1 times in mining and utilities.

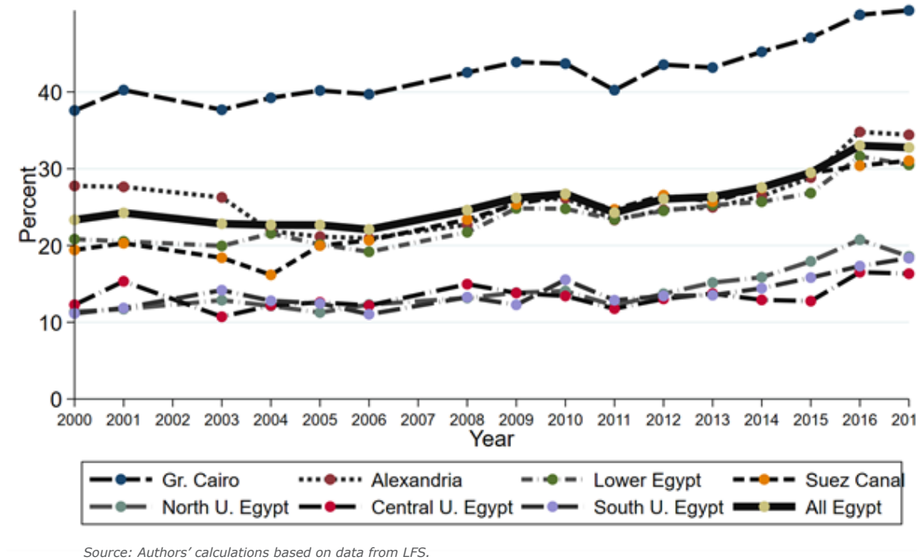
Table 1. Percentage of employment that is in private establishments by industry group, 2000, 2009, 2012, 2015

Industry Group	Year			
	2000	2009	2012	2015
A: Agriculture	2	3	2	2
C: Manufacturing	66	76	79	83
E D B: Mining and utilities	9	15	16	19
F: Construction	16	11	8	8
G: Wholesale and retail trade	68	70	75	78
H: Transportation and storage	6	7	5	4
I: Accommodation and food service	87	91	94	95
J: Information and communication	19	49	63	69
K: Financial and insurance activities	13	27	27	36
L: Real estate activities	39	59	66	66
M: Professional, scientific & technical serv.	70	73	74	76
N O: Administrative and support services	4	7	6	9
P: Education	6	6	8	10
Q: Human health and social work	14	21	20	26
R: Arts, entertainment and recreation	28	36	33	45
S T U: Other service activities	45	44	34	38
Total	23	26	26	29

Source: Authors' calculations based on data from LFS.

The proportion of employment in private establishments differs substantially by region as well. As shown in Figure 2, it ranges from 16% in Central Upper Egypt to 51% in Greater Cairo in 2017. The three Upper Egypt regions have similar rates of employment in private establishments, around 16-19%. Alexandria, Lower Egypt and the Canal cities also have very similar shares of around 31-34%, which is very close to the national average share of 33%. The trend in the proportion of employment in private establishments in most regions matches the moderately rising national trend, especially since 2011.

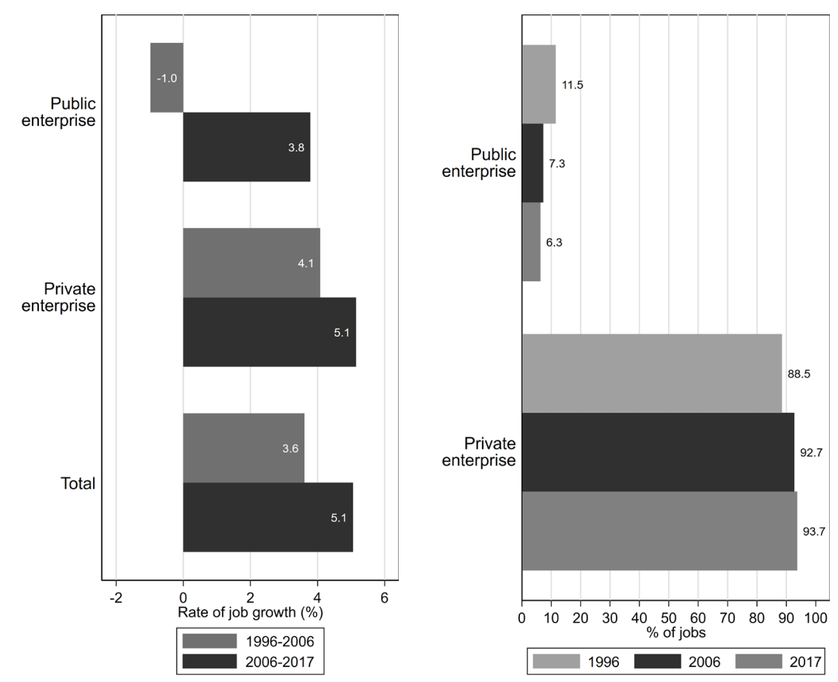
Figure 2. Percentage of employment that is in private establishments by planning region, 2000-2017



Source: Authors' calculations based on data from LFS.

Figure 3 shows the annual rate of job creation and composition of jobs across the public and private sectors. Hereafter we focus on the private sector, but the figure helps situate and detail the role of public enterprise establishments (not including government employment) relative to private sector establishments. Within public and private establishments, 11.5% of jobs were in public enterprise establishments in 1996, which dropped to 7.3% by 2006 and 6.3% by 2017. In terms of growth, the annual rate of job creation was -1.0% p.a. in public enterprise establishments over 1996-2006, as this sector contracted. Growth was positive, 3.8% p.a., among public enterprises over 2006-2017, but below the rate of 5.1% in private establishments. All subsequent results are for the private sector only.

Figure 3. Annual rate of job creation (percentage) and composition of jobs (percentage of jobs) by sector



Source: Authors' calculation based on data from Establishment Census 1996, 2006, 2017.

Patterns of job creation in private establishments

We examine in this section job creation on private establishments in Egypt. We start by analyzing job creation by establishment size and underscore the growing role of small and medium enterprises in job creation. We then examine job creation by industry, first looking at industry sections, the most aggregated level of industry classification (1-digit ISIC level) and then moving to the level of industry groups (3-digit ISIC level). Out of a possible 136 (3-digit) industry groups, we identify the top 10 in terms of their contribution to employment creation in 2006-17. In a subsequent section, we focus on the job and worker characteristics in these top-10 industry groups.

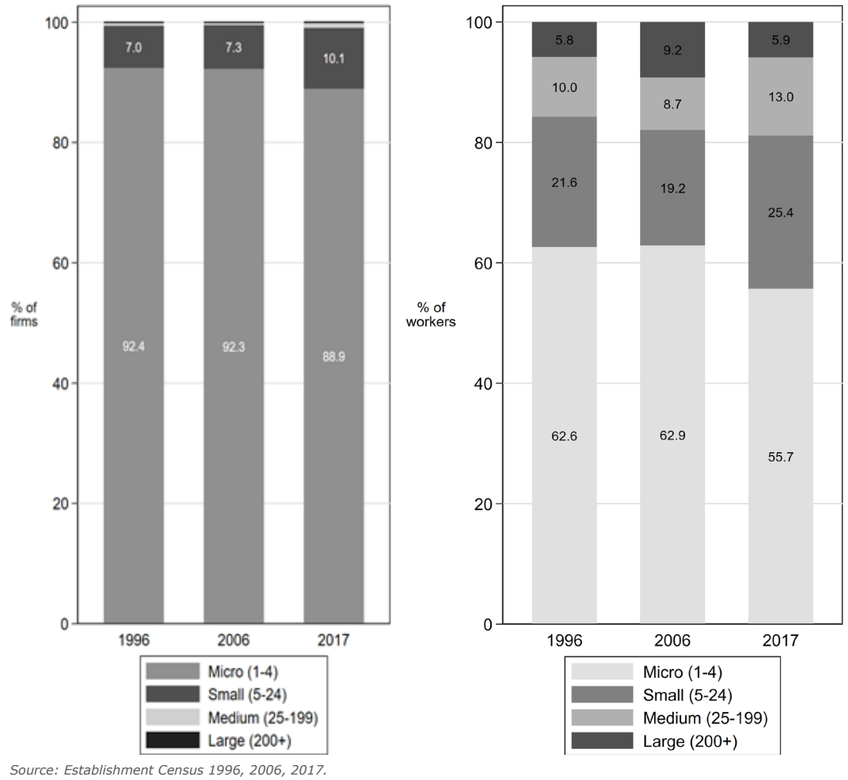
Job creation by establishment size

Before we turn to job creation by establishment size, we first examine the distribution of private sector establishments by size over time (Figure 4 left panel). The vast majority of establishments are micro (with 1-4 workers). The share of micro establishments has decreased slightly over time, from 92% in 1996 to 89% in 2017. This decline has primarily been the result of an increase in the share of small establishments (5-24 workers) from 7% in 1996 to 10% in 2017.

We turn next to the distribution of private sector employment in establishments by establishment size (Figure 4 right panel). Micro establishments make up more than half of employment within private establishments (56%), but this share has dropped since 2006 (from 63%), after having been stable at that level from 1996 to 2006. The share of employment in large establishments (200+ workers) grew substantially from 1996 to 2006 (6% to 9%), but fell back to its 1996 level by 2017. From 2006 to 2017, the distribution of employment shifted noticeably from both micro and large establishments to the small (25%) and medium (13%) categories.

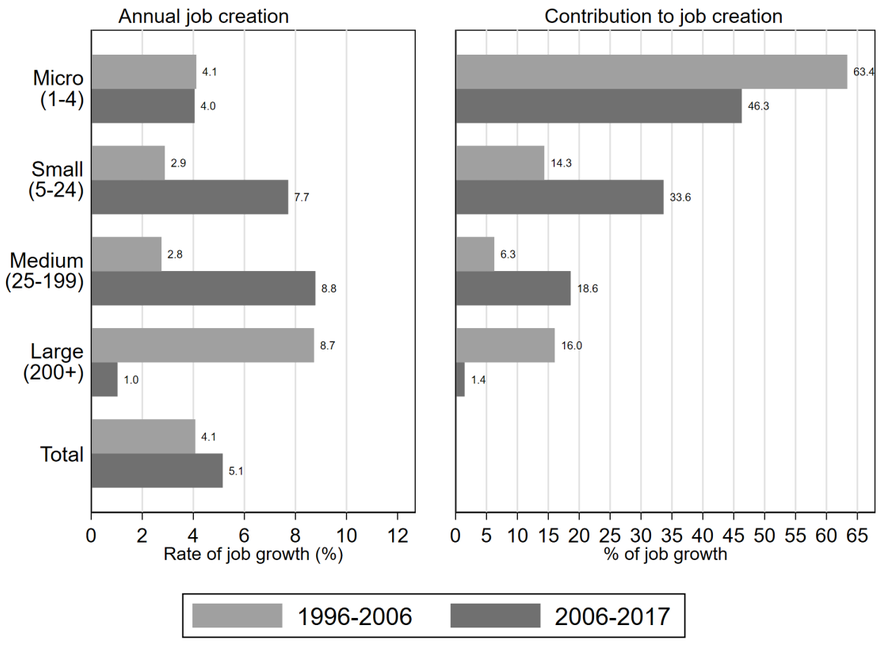
Figure 5 shows the annual rate of job creation in different establishment size categories and the share of total job creation coming from each size category. Micro establishments grew at the same annual rate as total private establishment employment (4.1% p.a.) from 1996 to 2006. Although they continued growing at approximately that rate from 2006 to 2017, overall employment growth had accelerated to 5.1% p.a., explaining their reduced share in employment. The annual rate of job creation was lower in small and medium establishments over 1996-2006 (~3% p.a.) than the overall rate (4% p.a.), but increased substantially in 2006-2017 to 8% p.a. for small establishments and 9% p.a. for medium establishments, more than twice the rate of growth of employment in micro establishments. Conversely, job growth in large establishments was 9% p.a. over 1996-2006 and then slowed to 1% p.a. over 2006-2017. As a result of these shifting rates, the contribution of micro establishments to net job growth declined from 63% in the 1996-2006 period to 46% in the 2006-17 period, that of small enterprise increased from 14% to 34% and that of medium establishments rose from 6% to 19%. The contribution of large establishments to job growth plummeted from 16% to near 1%.

Figure 4. Percentage of establishments and percentage of workers by establishment size category, private sector establishments



Source: Establishment Census 1996, 2006, 2017.

Figure 5. Annual rate of job creation (percentage) and contribution to job creation (percentage of job creation) by establishment size



Source: Establishment Census 1996, 2006, 2017.

Note: Medium and large size establishments are a very small share of total establishments, therefore, the labels of those two categories are not shown in the figure.

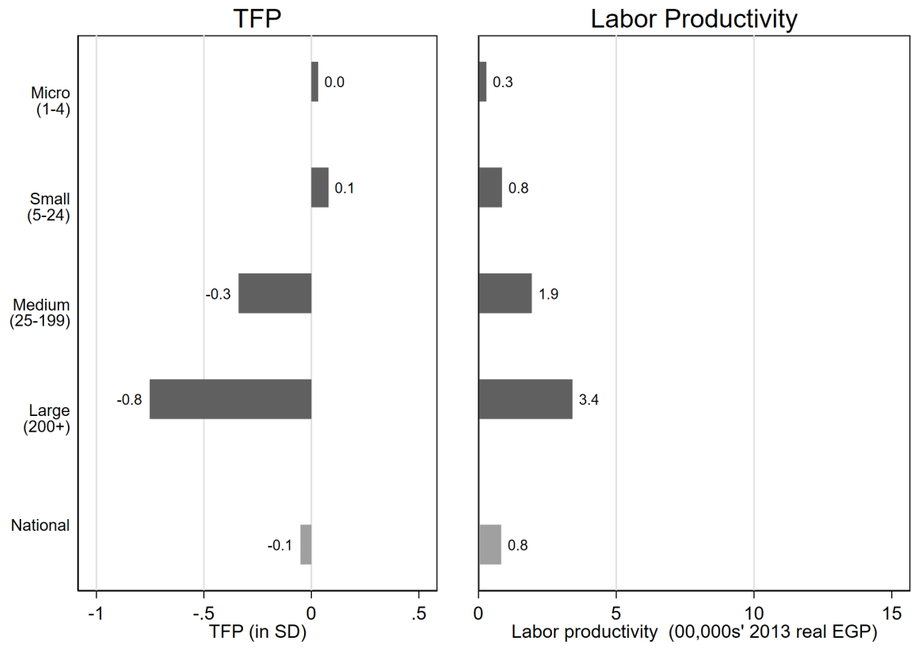
This shifting pattern of job creation by establishment size shows that the "missing middle" in the Egyptian economy appears to be re-emerging in the 2006-17 period. The growth of employment in small and medium establishments is partly coming at the expense of job growth in micro establishments, but even more so at the expense of large establishments whose employment hardly grew during this period.

Figure 6 shows labor productivity – value added per worker – along with Total Factor Productivity (TFP) – which accounts for both capital and labor inputs, by establishment size category. The data on productivity is calculated from the 2012-13 Economic Census and then merged into the 2017 Establishment Census by 3-digit industry and firm-size category. The two measures show very different patterns; while labor productivity rises

with firm size, TFP is highest in small firms, followed by micro, then medium, and lastly large firms. This means that after accounting for the amount of capital as well as labor utilized, small and micro firms are more productive than we would otherwise expect, probably because they use capital very efficiently.

The growth of employment in small firms bodes well for increasing the overall efficiency of resource use in the economy. Medium and large firms have higher labor productivity, but also use a lot more capital per worker than small firms.

Figure 6. Total factor productivity and labor productivity by establishment size



Source: Establishment Census data (2017) merged with data from Economic Census 2013.

We return to a more detailed discussion of job creation in small and medium establishments in Section 6.

Job creation by industry section (1-digit ISIC level)

Figure 7 shows the distribution of private establishment employment by industry section in 1996, 2006 and 2017 and Figure 8 shows the annual rates of growth (left panel) and the contribution to overall employment growth in the two sub-periods (right panel).[19] The following discussion will draw on both of these figures.

The most notable finding is that Egypt experienced rapid deindustrialization over the 1996-2017 period. The share of employment in manufacturing fell from 32% in 1996 to 27% in 2006 to 21% in 2017. This was the largest decline in share for any industry section. Employment in manufacturing grew much slower than overall employment in both sub-periods. Accordingly, its share in overall job creation fell from 18% to 13%. Despite this decline, manufacturing remains the second largest industry section in private establishment employment in Egypt.

The largest industry section is wholesale and retail trade, which made up nearly two-fifths of employment. Its share in employment rose from 42% in 1996 to 43% in 2006 and then fell back to 40% in 2017. It grew at annual rates of just over the national average in 1996-2006 (4.3% p.a. vs 4.1% p.a.), but grew more slowly than average in the 2006-17 period (4.7% p.a. vs 5.1% p.a.). Accordingly, its share in overall employment creation dropped from 45% in the first period to 38% in the second.

After trade and manufacturing, the next largest industry section in 2017 was "other services," which made up 9% of employment in 2017 and 12% of job creation in 2006-17 period. This section includes non-profit organizations, personal services and some repair activities. This section's share grew substantially from 2006 to 2017, as its rate of employment growth well exceeded the national average in this period (8.4% p.a. vs 5.1% p.a.).

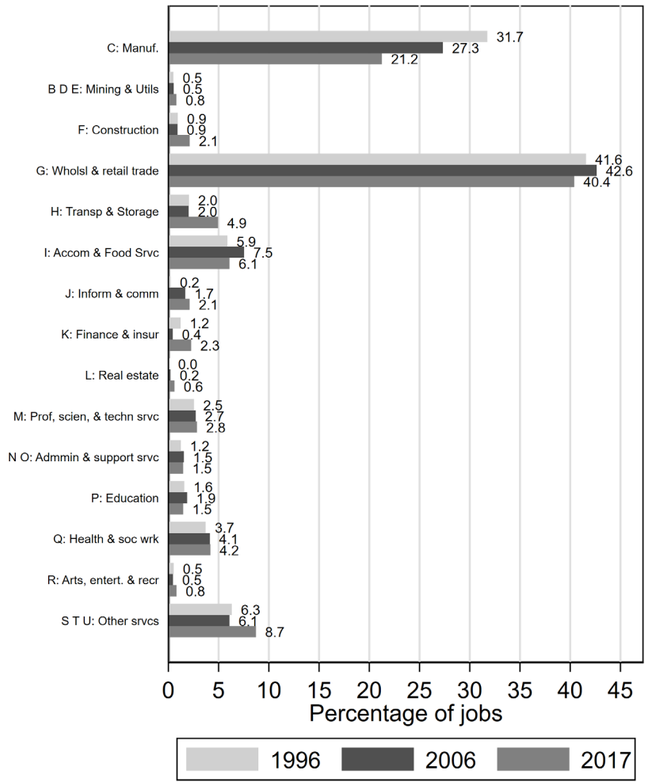
The next largest industry section in terms of share of employment is accommodation and food services; the employment share of this predominately tourism-oriented sector grew from 6% in 1996 to 8% in 2006, but shrank back to 6% in 2017 as the tourism industry fell on hard times post-2010. Employment in this sector grew rapidly from 1996 to 2006 at an annual rate of 6.6% p.a., but then slowed substantially to 3.2% p.a., well below the overall average. As a result, its share in job creation fell from 11% to 4%. As the tourism industry recovers, this industry could resume playing an important role in job creation, but it remains vulnerable to security shocks and other geopolitical developments in the Middle East region.

Other industry sections of notable importance for private sector job creation in Egypt include transport and storage, information and communications services, real estate, construction, health and social work, and finance and insurance. The growth rate of employment in the transport and storage industry shot up to 13% p.a. in the 2006-17 period and its share in employment creation increased accordingly from 2% to 9%. Although still quite small in terms of contribution to

[19] *Agriculture and forestry is not well-represented in the Establishment Census since it is virtually entirely outside of establishments in Egypt. We, therefore, exclude it from our analysis.*

overall employment, the information and communications industry grew very rapidly from 1996 to 2006, at the torrid rate of 24% p.a. However, its pace of employment growth slowed to 7% p.a. in 2006-17, which is still higher than the overall average. Because of its small size though, the contribution to job creation of the information and communication industry was just under 3% in 2006-17. Two other industry sections, which were small in terms of share of employment within private establishments, but whose employment grew rapidly are "Real Estate" and "Construction." Real estate grew very rapidly in both sub-periods, at rates of 19% p.a. and 15% p.a., respectively. Its contribution to job creation was nonetheless only 1% in 2006-17. The same applies to "construction", most of whose employment is outside establishments. Its employment growth accelerated from 3.8% p.a. in 1996-2006 to 12.9% p.a. in 2006-17, raising its contribution to job creation within private establishments from 0.8% to 3.7%.

Figure 7. Composition of jobs by industry section (1-digit level) (percentage of jobs)

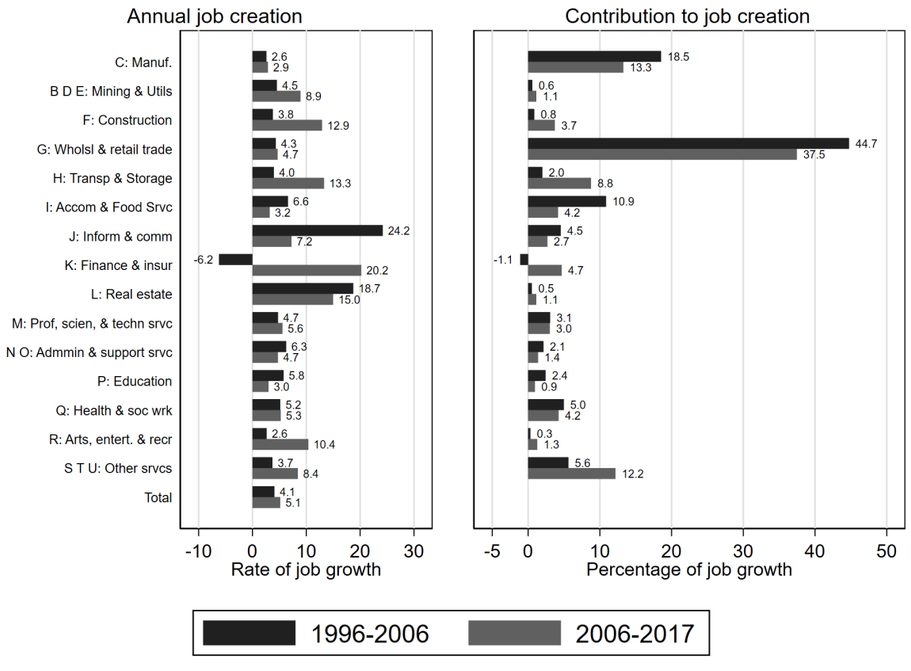


Source: Establishment Census 1996, 2006, 2017

The rapid growth of construction and real estate in the 2006-2017 period attest to the boom in high-end real estate that the country is experiencing, a boom that is probably not sustainable.

The health and social work industry section grew slightly faster than the national rate in both sub-periods, but had a fairly substantial contribution to job creation of about 4%. Finally, the finance and insurance industry section is one in which there was a dramatic and positive reversal of fortunes. It's employment actually shrank at a rate of 6.2% p.a. in the 1996-2006 sub-period, but made up this loss dramatically by growing at an explosive 20% p.a. in the 2006-17 sub-period. It contribution to job creation went from a negative 1.1% to a positive 5%.

Figure 8. Annual rate of job creation (percentage) and contribution to job creation (percentage of job creation) by industry section (1-digit level)



Source: Establishment Census 1996, 2006, 2017

Identifying the Top 10 Industry Groups (3-digit level) in Terms of Contribution to Job Creation in Private Establishments

We now turn to a more detailed industry analysis, going from a 1-digit level industry section to a 3-digit level industry group. As mentioned earlier, we were able to identify 136 3-digit industry groups whose codes could be harmonized from 1996 to 2017. Rather than analyze job creation in all 136 industry groups, we identify the top-10 industry groups in terms of contribution to job creation from 2006 to 2017. These top-10 industry groups are shown in Figure 9 and Figure 10, ranked from highest to lowest contribution to job creation from 2006 to 2017. Again, we will discuss both figures together. These top-10 industry groups together make up 53% of employment in 2017 and have contributed 65% of job creation in private establishments.

The largest single industry group and contributor to job creation was "other retail trade in specialized stores" (ISIC 475). This industry group comprises 18% of employment in 2017 and contributed 19% of job creation from 2006 to 2017. The next largest contributor to job creation in the 2006-17 period was warehousing and storage, contributing 4.4% to employment in 2017 and 8% to job creation over 2006-17. Employment growth in this industry accelerated a great deal in recent years, going from 4.2% p.a. from 1996 to 2006 to 15% p.a. from 2006 to 2017.

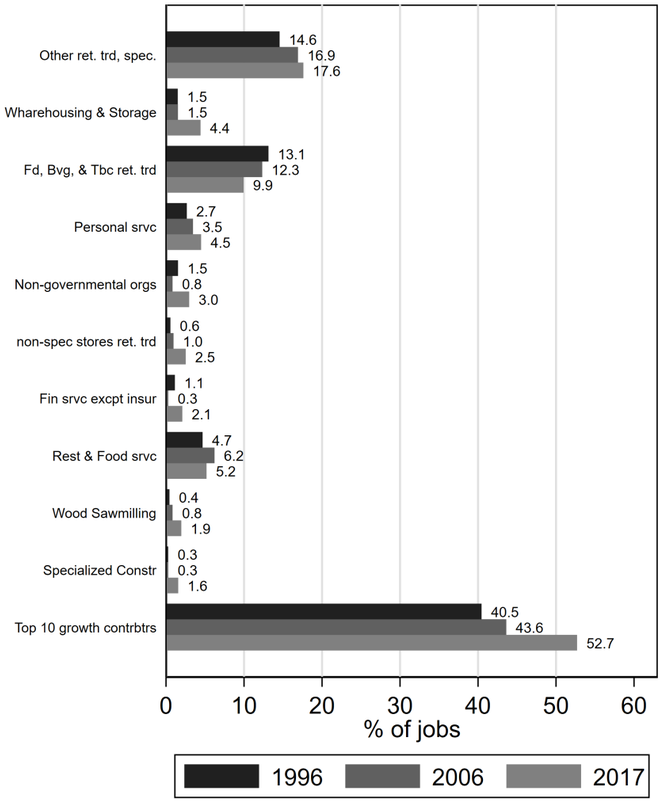
The third largest contributor to job creation over 2006-2017 was food, beverage, and tobacco stores. This is a relatively large industry group to start with, but one whose employment grew slower than average in both sub-periods, thus leading to a reduced share of total employment over time. It constituted 13% of private establishment employment in 1996, a share that dropped to 10% by 2017. Its contribution to job creation was 6% in 2006-17.

The next two largest contributors are "personal services" and "non-governmental organizations", both of which were part of the "other services" industry section. Personal services grew more rapidly than average in both sub-periods and contributed just under 6% of job creation in 2006-17. Non-governmental organizations actually saw a large reversal in growth, with a decline at the rate of 2% p.a. in the earlier period and an increase at a rate of 17% p.a. in the more recent period. This rapid growth rate resulted in a disproportionate contribution to job creation in 2006-17 of nearly 6%.

"Financial services except for insurance" is also an industry group that saw a major reversal in its fortunes across the two sub-periods. It shrank at 10% p.a. from 1996 to 2006, but expanding at an impressive 23% p.a. from 2006 to 2017. Its contribution to job creation went from a negative 1.1% in the first sub-period to over 4% in the second.

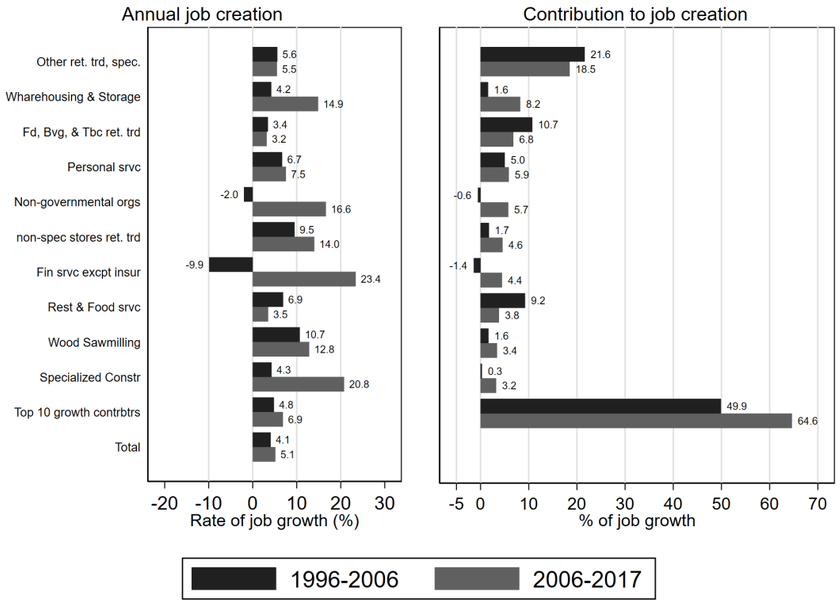
Rounding out the top 10, we have "retail sales in non-specialized stores", "restaurants and food service," sawmilling of wood", and "specialized construction activities." Thus, the top 10 industries are dominated by industries in the retail trade and distribution sectors. The only industry among them that involves a high proportion of formal jobs and a well-educated workforce, as we will see below, is financial services. Going deeper into the industry groups, "news and information services" industry, which is not shown in the figures is quite notable. Although small in terms of its contribution to job creation, "news and information services" grew very rapidly at an annual rate of 39% p.a. over 2006-2017. Because of its potential to create good jobs, this industry group could be very promising for future job growth.

Figure 9. Composition of jobs in Egypt by industry group (3-digit) (percentage of jobs), top-10 contributing industries to job growth in 2006-17, ranked in descending order



Source: Establishment Census 1996, 2006, 2017.

Figure 10. Annual rate of job creation (percentage) and contribution to job creation (percentage of job creation) by industry (three digit level), top 10 contributing industries to job growth in 2017, ranked in descending order



Source: Establishment Census 1996, 2006, 2017

Geographic patterns of job creation

We first examine in this section the pattern of job creation according the planning regions used by the Ministry of Planning, Monitoring and Admnistrative Reform for planning purposes. The planning regions include:

(1) Greater Cairo (Cairo, Giza and Qalyubia governorates)
(2) Alexandria (Alexandria, Buhaira and Matrouh governorates)
(3) Lower Egypt (Dakahliya, Gharbiya, Menufiya, Damietta, and Kafr El-Sheikh governorates)
(4) Suez Canal (Suez, Ismailiya, Port Said, Sharqiya, North and South Sinai governorates)
(5) North Upper Egypt (Beni Sueif, Fayyoum, and Minya governorates)
(6) Central Upper Egypt (Assiut and Wadi El-Gedid governorates)
(7) South Upper Egypt (Sohag, Qina, Luxor, Aswan and Red Sea governorates).

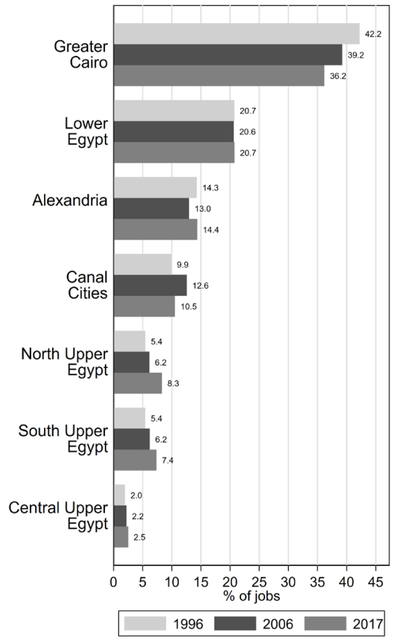
We then move to an examination of job creation at the governorate level, focusing in more detail on three governorates that experienced a large increase in poverty rates in recent years, namely Damietta, Port-Said and Suez.

Job Creation by Planning Region

As shown in Figure 11, the regional composition of employment in establishments has been shifting away from the Greater Cairo region over time. The region's share of private establishment employment went from 42% in 1996 to 36% in 2017. Lower Egypt maintained a constant share of about 21% of such jobs over the two-sub-periods, and so did the Alexandria region, which stayed at 13-14% from 1996 to 2017. Although the Canal Cities region increased its employment share from 10% in 1996 to 13% in 2006, it fell back to 11% in 2017. All the sub-regions of Upper Egypt had increasing shares of private establishment employment over time, altogether rising from 13% of employment in 1996 to 18% in 2017, with North Upper Egypt increasing the fastest from 2006 to 2017.

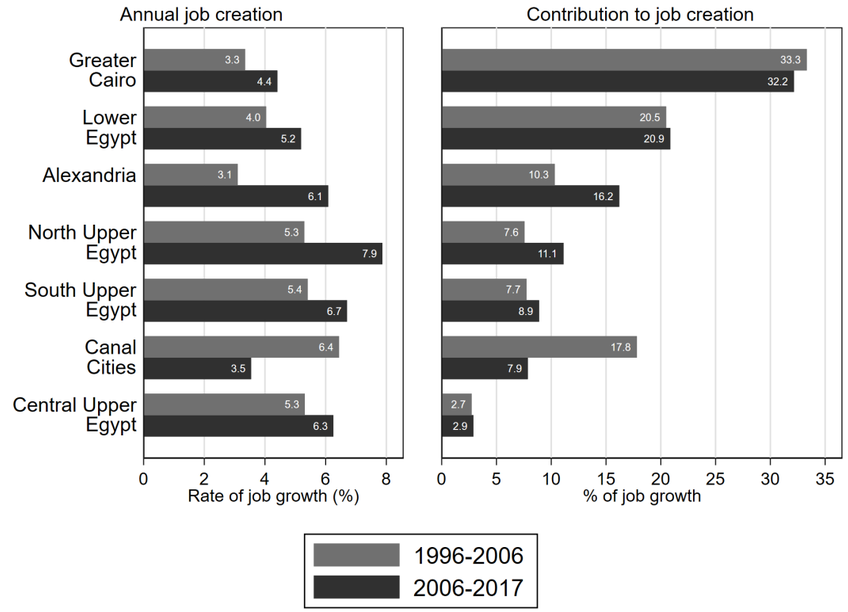
As shown in Figure 12, comparing 1996-2006 to 2006-2017, the rate of job creation rose over time in all regions except for the Canal Cities. The job creation rate was particularly high in the Upper Egypt sub-regions. Greater Cairo continued to contribute about one-third of job creation in the two-sub-periods, followed by Lower Egypt (21%). Alexandria contributed a particularly high share of job creation (16%) in 2006-2017.

Figure 11. Composition of jobs by region (percentage of jobs)



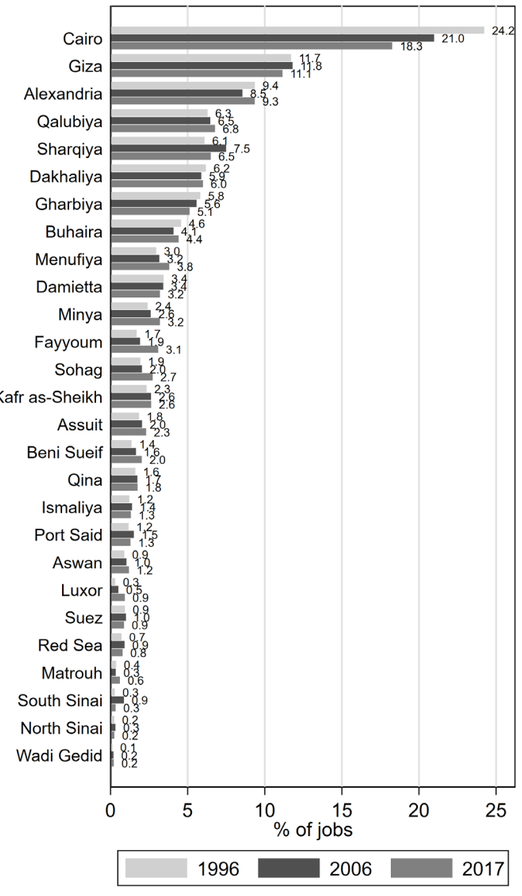
Source: Establishment Census 1996, 2006, 2017

Figure 12. Annual rate of job creation (percentage) and contribution to job creation (percentage of job creation) by region



Source: Establishment Census 1996, 2006, 2017.

Figure 13. Composition of jobs in Egypt by governorate (percentage of jobs)



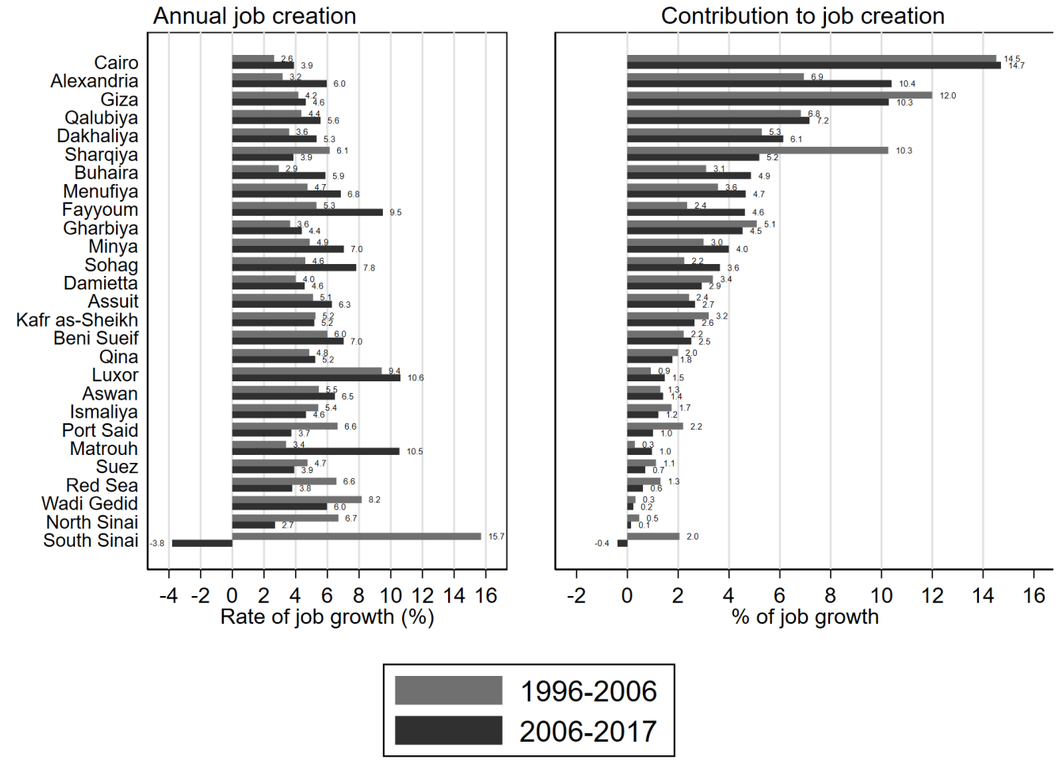
Source: Establishment Census 1996, 2006, 2017.

Job Creation by Governorate

Figure 13 further breaks down the geographic patterns of employment by governorate. Cairo governorate, as in the case of Greater Cairo, has a falling share of employment, going from 24% in 1996 to 18% in 2017. The next largest governorate in terms of employment is Giza, and its share remained fairly stable over time going from 12% in 1996 to 11% in 2017. Next comes Alexandria with stable share of 9% over the period.

Figure 14 shows the largest governorates (Cairo, Alexandria, and Giza) made the largest contributions to growth in 2006-2017. However, they did not necessarily have the fastest growth rates. Luxor, the fastest growing governorate in the 2006-17 period, grew rapidly in both sub-periods (9%-11% p.a.). Other fast growing governorates in 2006-17 include Matrouh, Fayyoum, Sohag, Minia and Beni Sueif, reflecting the rapid catch up occurring in Upper Egypt. The slowest growing governorates in the 2006-17 period are mostly in the Suez Canal region. They include South Sinai whose private establishment employment shrank in absolute terms (by 3.8% p.a.) after having grown rapidly in the 1996-2006 period. They also include North Sinai, Port-Said, Red Sea, Suez and Sharqiya. This reflects in part the decline of the tourism industry in the post-2011 period, but, as we will see below, in the case of Port-Said and Suez, it reflects the poor performance of the manufacturing sector in this region.

Figure 14. Annual rate of job creation (percentage) and contribution to job creation (percentage of job creation) by governorate



Source: Establishment Census 1996, 2006, 2017.

Job Creation in Damietta, Port-Said and Suez [20]

We focus in more detail on three governorates that experienced particularly steep drops in manufacturing employment, along with remarkable increases in poverty rates recently, namely Damietta, Port-Said and Suez. As shown in Figure 14, the growth rate of private establishment employment in both Port-Said and Suez decelerated substantially from 1996-2006 to 2006-17. In Port-Said, employment growth went from 6.6% p.a. in 1996-2006 to 3.7% p.a. in 2006-17, while in Suez, it went from 4.7% p.a. to 3.9% p.a., putting both among the slowest growing governorates in 2006-17. Employment in Damietta also grew somewhat slower than average (4.6% p.a. compared to the average of 5.1% p.a.), but it did not experience the deceleration that Port-Said and Suez did.

Starting with Damietta, an analysis of employment there shows that manufacturing jobs were hit particularly hard, with the share of manufacturing falling from 54% in 2006 to 42% in 2017. The only two sectors to substantially increase their shares were "transport and storage" and "other services." Manufacturing in Damietta grew at 2.2 p.a. from 2006 to 2017, less than half the rate of overall employment growth in Damietta. The share of manufacturing in job creation in Damietta fell by more than half, from 51% to 23%. In contrast, construction jobs within establishment grew rapidly in Damietta, reaching a growth rate of 31% p.a. in 2006-17, and contributing 8% of job creation during this period.

A deeper look inside the manufacturing sector in Damietta reveals that the manufacturing of furniture, the largest component of manufacturing in Damietta was hit especially hard. Its growth rate went from 4.4% p.a. to -0.4% p.a. from 1996-2006 to 2006-17. As a result the share of furniture manufacturing in all manufacturing jobs in Damietta went from 67% to 50%. Conversely, employment in the manufacturing of wood products other than furniture did increase in Damietta, with its share rising from 22% in 2006 to 31% in 2017.

In Port-Said, the manufacturing industry was also adversely affected in the 2006-17 period, after it had grown substantially in 1996-2006. The rate of growth in the earlier sub-period was 18% p.a., turning to a rate of decline of -2.9% p.a. Thus rather than contributing 66% of job creation in Port-Said as in the earlier period, manufacturing subtracted from job creation 21%. In contrast to the declining role of manufacturing in Port-Said, the construction sector boomed. Employment growth in construction rose from 5% p.a. in 1996-2006 to 13% p.a. in 2006-17, raising the contribution of construction to job creation fr om under 1% to 6%. Several other industry sections accelerated their growth in Port-Said to somewhat make up for the collapse of growth in manufacturing. These include wholesale and retail trade, transportation and storage, accommodation and food service. However, employment growth slowed substantially in finance and insurance.

Within manufacturing in Port-Said, it was the manufacturing of apparel that determined the fate of the sector. Its share of total manufacturing jobs increased from 29% in 1996 to 79% in 2006, only to collapse back to 46% in 2017. There was also a deceleration of growth in the manufacturing of chemicals and the manufacturing of textiles. The only manufacturing sector to have accelerated in Port-Said was the manufacturing of food products, whose growth went from -2% p.a. to +5% p.a.

In Suez, it is also the reversal of fortunes in the manufacturing sector that explains the relatively poor performance of the governorate. Manufacturing growth decelerated from 6% p.a. in 1996-2006 to less than 2% p.a. As a result, the share of manufacturing in job creation in Suez declined from 37% in 1996-2006 to 13% in 2006-17. The sector that made up for this reversal in manufacturing is wholesale and retail trade, whose employment growth rate doubled from 2.7% p.a. in 1996-2006 to 5.4% p.a. in 2006-17. Similarly, its contribution to job creation in Suez increased from 21% to 52%. Two other sectors to experience major decelerations in employment growth in Suez are the "accommodation and food service" and "information and communications" sectors. Employment growth in accommodation and food service decelerated from 9.5% p.a. to 1.8% p.a., cutting its contribution to job creation from 19% to 5%. Information and communications saw its employment growth rate decline from 30% p.a. to 4% p.a., more than halving its contribution to job creation from 6% to 2.4%.

Within manufacturing in Suez, the largest sub-sector in 1996 was the manufacturing of food products. That sub-sector suffered a major reversal, with employment growth going 5.5% p.a. in 1996-2006 to -1.9% in 2006-17, cutting its share of manufacturing employment from 22% in 2006 to 14% in 2017. In contrast, the manufacturing of other non-metallic mineral products maintained high rates of growth in both sub-periods (11-12% p.a.), leading its share of manufacturing employment in Suez to increase from 7% to 37%, this becoming the largest contributor to job creation within the manufacturing sector, ahead of food products manufacturing. Like in Damietta, furniture manufacturing suffered a major reversal in Suez and contracted by 3.5% p.a. from 2006 to 2017. Similarly, like in Port-Said, the manufacturing of apparel contracted by 5% p.a. after having grown at a rate of 9% p.a. The main difference, however, is that these industries did not make up as large a share of the manufacturing sector of Suez as they did in Damietta and Port-Said respectively.

[20] *To save on space, the job creation figures underlying the following analysis are shown in Appendix II.*

The Characteristics of Jobs and Workers in the Top 10 Industry Groups Contributing to Job Creation

Characteristics of the Top-10 Contributors to Employment Growth

We explore in this section the characteristics of firms and workers in the top-10 contributing industry groups to job creation from 2006 to 2017. We start by looking at average establishment size, firm formality, average labor productivity and total factor productivity in these industry groups, based on data for industry-size cells merged from the Economic Census of 2012-13. We then move to an examination of workforce and job characteristics in the top-10 contributors, such as education and age distribution, gender composition and the share of married women among female workers, and employment formality. In all cases, we also compare the top-10 industries as a group to the average for private establishment employment.

Establishment Size, Firm Formality and Labor and Total Factor Productivity

The average establishment size in the top-10 industry groups (3-digit level) contributing to job creation in 2006-17 is shown in Figure 15. The industry groups are ordered from top to bottom based on their contribution to job creation. The most striking result from the figure is that establishments in these industry groups tend to be generally small, although growing slowly over time from an average of 1.6 workers per establishment in 1996 to 2.0 in 2006 to 2.5 in 2017. In comparison, the average establishment sizes in private sector establishments in general went from 2.4 in 1996, to 2.7 in 2006, to 3.0 in 2017. The exception to this pattern is clearly establishments in financial services (excluding insurance), which are both much larger than average and growing substantially over time. Substantial growth can also be seen in the average establishment size among non-governmental organizations in recent years, which grew from an average of 2.0 workers per establishment in 2006 to 7.8 workers per establishment in 2017.

Because the average establishment size can mask distributional shifts, we show in Figure 16 the percentage of workers in each industry group in different size categories. Again, the top-10 contributors as a group tend to have a higher share of employment in micro establishments than average. The share in micro establishments among them was nearly 82% in 1996, compared to 62% for private establishments as a whole. Conversely, the share of workers in large firms is less than a third what it is on average. However, the share of small and medium firms rose rapidly among the top contributors to employment growth, much more so than for all private establishments. From 2006 to 2017, the share of small firms rose from about 13% to 22% in these top-10 contributors, when it only rose from 22% to 25% in all private establishments. The share of medium establishments grew even faster in the top-10 contributors, going from 3% in 2006 to 9% in 2017, compared to 10% to 13% for private establishments in general. Thus, the "emerging middle" phenomenon we noted earlier is one that is especially characteristic of these top-10 industries rather than private establishments as a whole.

Several of the top-10 industry groups experienced this growth of the emerging middle in 2006-17. We note in particular, non-governmental organizations, personal services, warehousing and storage, retail in non-specialized stores, restaurants and food service. In the financial services group, there is substantial growth in the share of large establishments during the 2006-17 period, at the expense of small and medium establishments. Two activities among the top-10 contributors went against the trend of a growing share of small and medium establishments. These are sawmilling and planning of wood and specialized construction activities, both of which saw an increase in the share of micro establishments.

We examine next the percentage of formal firms in the top-10 contributors to job creation compared to the private sector average. We define formality as having regular accounting books and legal commercial or industrial registration and base the information on data linked from the 2012-13 Economic Census. As shown in Figure 17, the share of formal establishments among top-10 contributors is 48%, lower than the private sector average of 54%. This share varies from a low of 28% among specialized construction activities to 99% among financial firms. The largest two contributors, "other retail sales in specialized stores" and "warehousing and storage" have a formality share of about 50%.

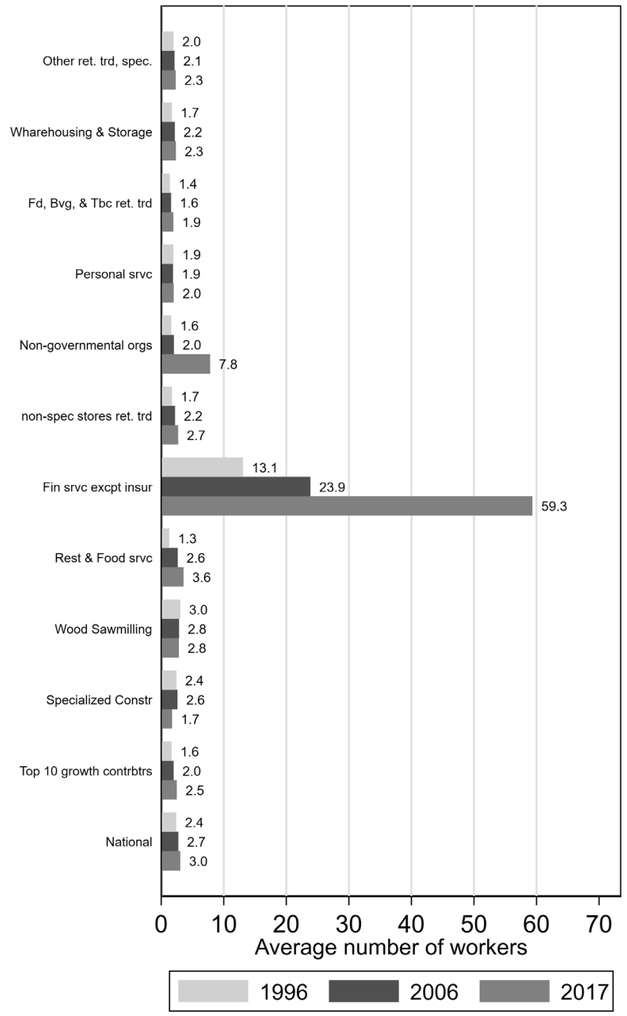
Figure 17 also shows the proportion of workers in the top-10 industries that have formal employment arrangements.[21] Again, it is clear from the figure that the top-10 industries as a group have a lower share of formal workers than the average for private establishments (28% vs 37%). The industries with the smallest share of formal employment are "food, beverage and tobacco stores" and "personal services" which rank third and fourth in terms of contribution to employment creation. Not surprisingly the most formal are "financial services", with nearly all their workers formally employed, followed by non-governmental organizations.

We move next to labor productivity and total factor productivity (TFP) (Figure 18). Jobs in the top-10 industries as a group tend to have somewhat lower labor productivity than the average in private establishments (EGP 50,000 per worker compared to EGP 80,000 per worker), but again this varies greatly across different industries, ranging from a low of EGP 10,000 per worker in specialized construction and non-governmental organizations to a high of EGP 520,000 per worker in financial services. None of the top-10 industries exceeds the average productivity in private establishments except for financial services, indicating than new jobs are being creating in industries with relatively low labor productivity.

With regard to TFP, which accounts for inputs of labor and capital, the top-10 contributors to job creation have the same TFP as the average for the private sector. Again, the highest TFP is in the financial services industry and the lowest is in non-governmental organizations.

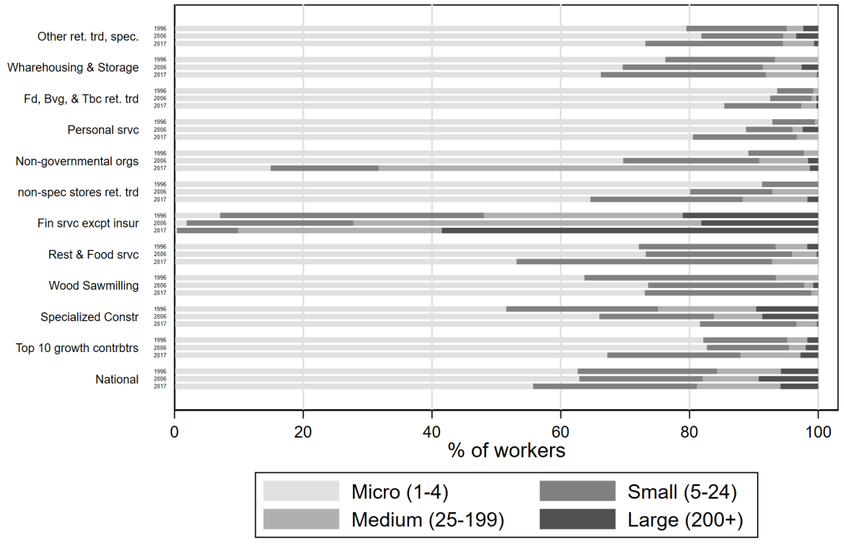
[21] *We define employment formality as either having social insurance coverage or a legal employment contract.*

Figure 15. Average size of establishment (number of workers) by industry (three digit level), top 10 contributing industries to job creation in 2017, ranked in descending order



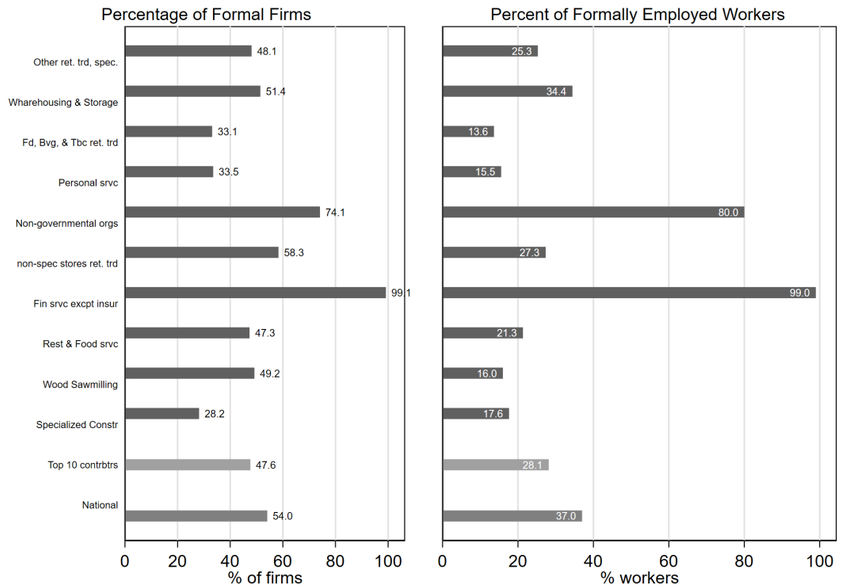
Source: Establishment Census 1996, 2006, 2017.

Figure 16. Percentage of workers in different establishment sizes by industry (three digit level), top 10 contributors to job creation in 2017, top 10 contributing industries to job creation in 2017, ranked in descending order



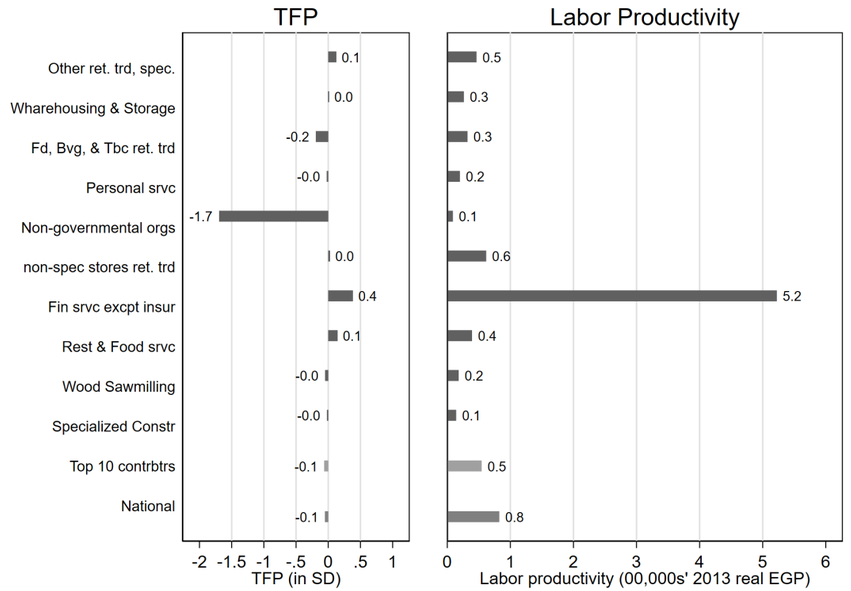
Source: Establishment Census 1996, 2006, 2017.

Figure 17. Share of formal firms and share of workers who are formally employed by industry (three digit level), top 10 contributing industries to job growth in 2017, ranked in descending order



Source: Left panel: Establishment Census data (2017) merged with data from Economic Census 2013. Right Panel:Establishment Census 1996, 2006, 2017 & Labor Force Survey 2010-2014.

Figure 18. Total factor productivity and labor productivity by industry (3-digit level), top 10 contributing industries to job growth in 2017, ranked in descending order



Source: Establishment Census data (2017) merged with data from Economic Census 2013.

Workforce and Job Characteristics

This section examines characteristics of the workforce (extracted and merged from the Labor Force Survey) in the top-10 contributing industry groups to employment creation in 2006-17. The data on worker characteristics in the LFS pools worker characteristics by industry-size cell from 2010 to 2014, capturing the bulk of the 2006-17 period. We start with an examination of the education mix, the age distribution of workers and the share of female workers and the extent to which these female workers are married.

Figure 19 shows the distribution of the workforce by educational attainment in the top-10 contributors to job creation in 2006-17. On average, the top-10 contributors employ workers who are relatively less educated than the overall average. For instance, the share of university graduates in the top-10 is 17% as compared to 21% in all private establishments. Conversely, they have a somewhat higher share of secondary school graduates (43% vs. 42%) and a higher percentage of workers with lower than secondary education (40% vs 37%).

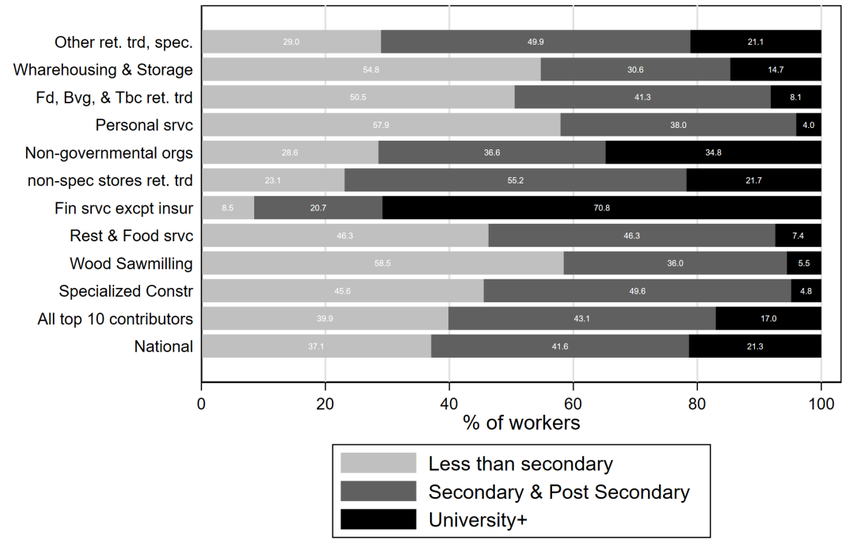
Thus, the industries that contributed nearly two-thirds of employment creation in the 2006-17 period are on average employing somewhat less educated workers. Again, the main exception is financial services, in which 71% of workers have university degrees, and, to a lesser extent, non-governmental organizations.

We further decompose the university graduates in each of the top-10 industries by specialization to determine the sort of specialization favored by these top-10 contributors. We find that these industries employ a higher share of commerce and humanities graduates than the private sector average (Figure 20) and a smaller share of science, engineering, and medicine graduates than the national average. This pattern is partly driven by the predominance of various retail industries in the top 10 contributors. The highest proportion of science, engineering and medicine graduates is in specialized construction activities and sawmilling and planning of wood. The highest proportion of commerce and law graduates is in financial services.

The age distribution of workers in the top-10 contributors to job creation is shown in Figure 21. Overall the top-10 contributors have a slightly lower share of young workers aged 15-29 than the average for private establishments (31% vs 34%), and a slightly higher percentage of 30-44 year olds and 45-64 year olds. However, the share of young workers varies significantly among them, from a low of 18-19% in non-governmental organizations and warehousing and storage to a high of 44% in personal services.

With regard to providing employment opportunities for women, the top-10 industries contributing to job creation are somewhat less likely to do so. As shown in Figure 22, the share of women in their workforces, on average, is 10%, compared to 12.5% for all private establishments. Again, the share of women varies quite a bit across individual top-10 contributors from 0.4% for sawmilling and planing of wood to 22% in financial services. The two top contributors, "other retails sales in specialized stores" and "warehousing and storage" have lower than average shares of female employment (6-7%), but the next highest, food and beverage stores, have a higher than average share (20%).

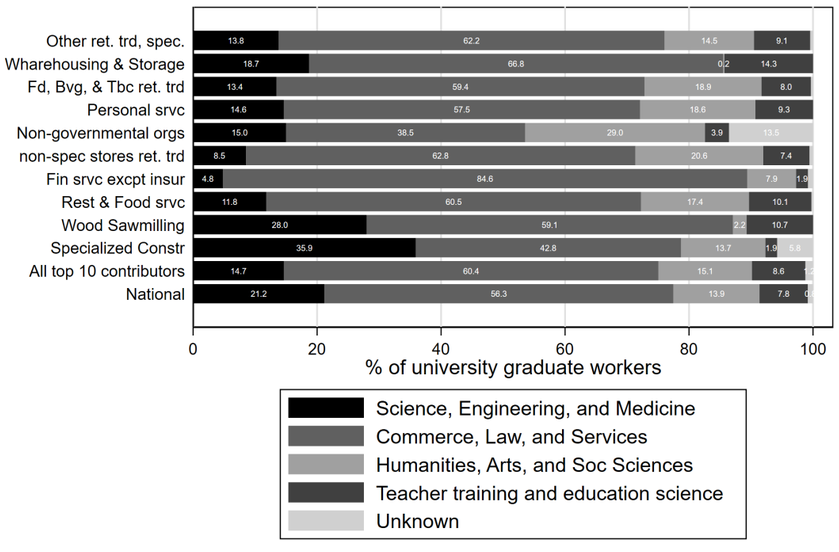
Figure 19. Percentage of workers by education and industry (3-digit level), top 10 contributing industries to job creation, 2017, ranked in descending order



Source: Establishment Census 1996, 2006, 2017 & Labor Force Survey 2010-2014.

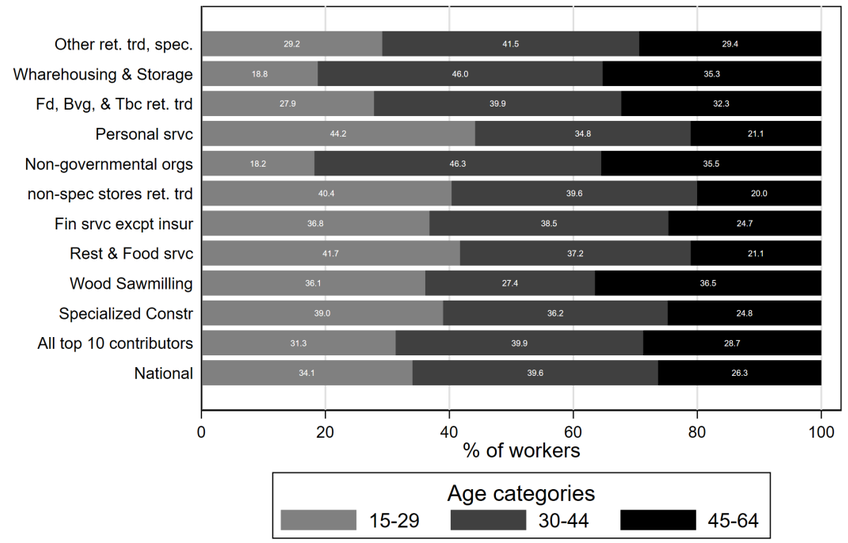
Another important characteristic is the extent to which large contributors to employment growth are hospitable to married women. We find that the share married among female workers is slightly higher in the top-10 contributors than in private establishments as a whole (58% vs 54%). Some of the least hospitable industries for married women among these industries include warehousing and storage and restaurants and food service. The industry that appear to have a very high share of married women are retail sales in specialized stores and personal services (discounting from consideration industry that have a very low share of women to start with).

Figure 20. Percentage of university graduate workers by specialization and industry (3-digit level), top 10 contributing industries to job creation, 2017, ranked in descending order



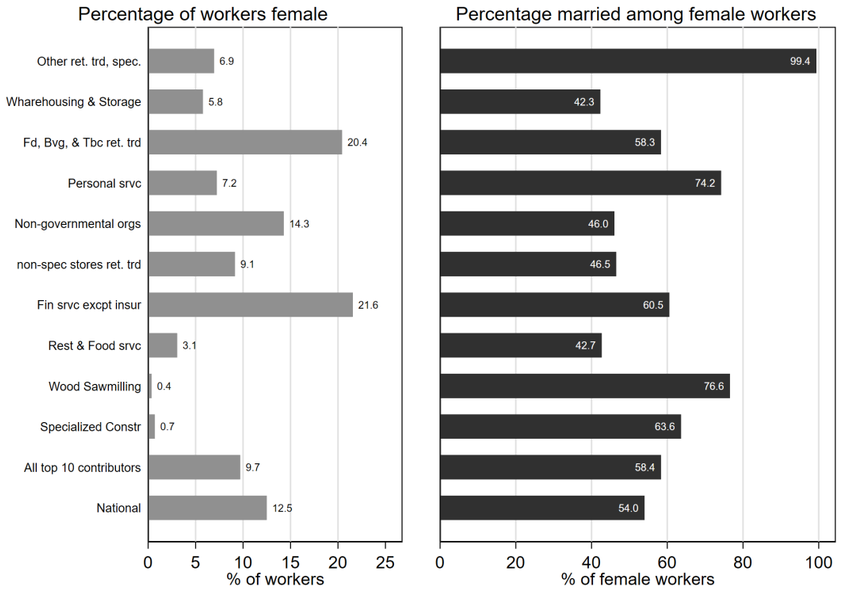
Source: Establishment Census 1996, 2006, 2017 & Labor Force Survey 2010-2014.

Figure 21. Percentage of workers by age group and industry (3-digit level), top 10 contributing industries to job creation, 2017, ranked in descending order



Source: Establishment Census 1996, 2006, 2017 & Labor Force Survey 2010-2014.

Figure 22. Percentage of workers who are female and percentage of female workers who are married by industry (3-digit level), top 10 contributing industries to job creation, 2017, ranked in descending order



Source: Establishment Census 1996, 2006, 2017 & Labor Force Survey 2010-2014.

To conclude this section, we find that the top-10 industries contributing to job creation are more likely to employ workers informally, hire a smaller share of workers with university degrees, fewer younger workers, and fewer female workers.

Job Creation in Small and Medium Enterprises

Given the substantial policy and programmatic focus in Egypt on supporting small and medium enterprises (SMEs) and given our finding that SMEs have grown faster than either micro or large establishments in the 2006-17 period, we focus in this section on the patterns of job creation in SMEs. We also noted above that the share of employment in SMEs has grown much more rapidly among the top-10 industries contributing to job creation than on average. These findings suggest the need of a deeper exploration of job creation in SMEs, so as to better understand the important phenomenon that we have dubbed the "re-emergence of the missing middle" in the Egyptian economy. As before, we define small establishments as those than have between 5 and 24 workers and medium establishments as those that have between 25 and 199 workers.

Job Creation by Industry in SME's

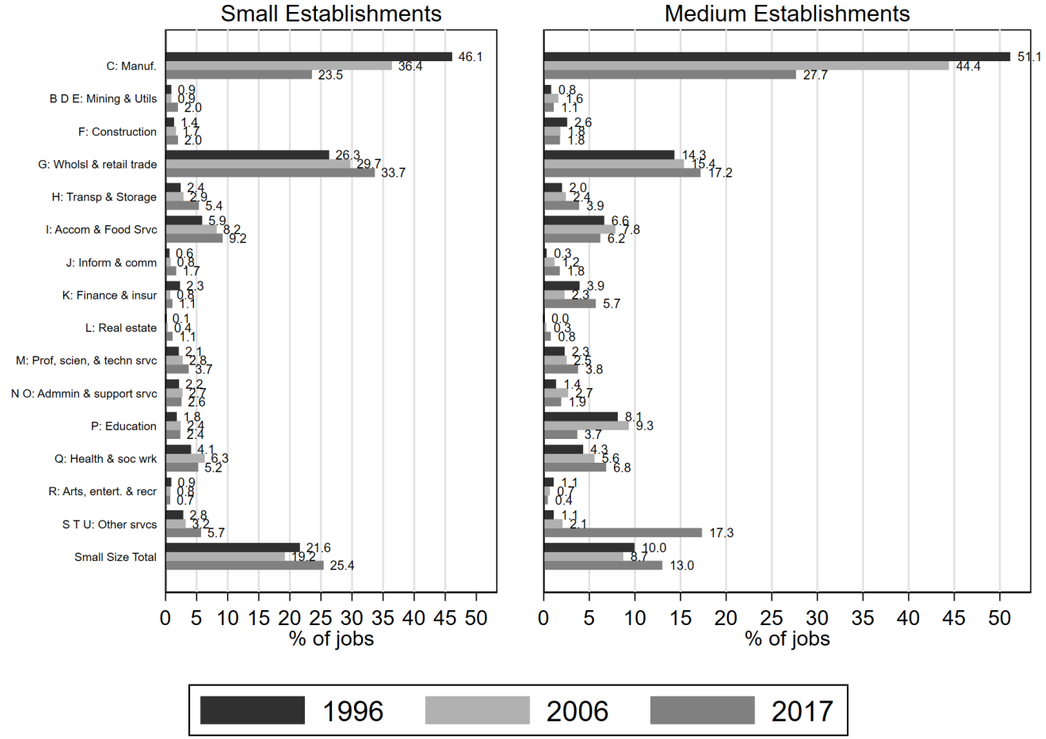
Figure 23 begins with the composition of jobs in small and medium establishments by industry section (1-digit level), over time. The most striking result is the extent of de-industrialization in both the small and medium segments of the firm size distribution. The share of manufacturing drops by almost half from 1996 to 2017 in both segments. It goes from 46% in 1996 to 36% in 2006 to 24% in 2017 in small establishments. In medium establishments it goes from 51% in 1996 to 44% in 2006 to 28% in 2017. Despite this decline in the manufacturing share, manufacturing's contribution to job growth in the small establishment segment increased from 7% to 14% over the two sub-periods (Figure 24). In the medium establishments segment, it contribution to job growth declined from 23% to 17% across the two sub-periods (Figure 25). One positive sign, however, is that in both the small and medium segments, the rate of employment growth in manufacturing increased from 1996-2006 to 2006-17, although it is still well below the overall growth rate of these two segments. In the small establishment segment, job growth in manufacturing accelerated from 0.5% p.a. to 3.8% p.a., which is still well below the 7.7% p.a., which was the average for the small establishment segment (Figure 24). In the medium segment, job growth in manufacturing accelerated from 1.3% p.a. to 4.5% p.a., but again significantly lower than the 8.8% p.a. average annual job growth in the medium segment (Figure 25).

The industry sections that increased their share in both the small and medium segments are "wholesale and retail trade", "transport and storage" and "professional, scientific and technical services," "information and communications," and "other services." "Accommodation and food service" steadily increased its share in the small segment, but the increase was reversed in the 2006-17 period in the medium segment, probably a reflection of the downturn in the tourism industry. The same is true of the education industry section, which grew in share from 1996 to 2006 in the medium segment, but then shrank appreciably from 2006 to 2017. In contrast, "health and social and social services" and especially "other services" constituted a growing share of the medium segment.

In terms of contribution to job creation, the most important industry section in the small segment was "retail and wholesale trade" which contributed 40% of net jobs in 1996-2006 and 37% of net jobs in 2006-17 (Figure 24). Despite the slight decline in its contribution, the rate of job growth in this section more than doubled from 4.1% p.a. to 8.8% p.a. In the medium establishment segment, the largest contributor to job growth used to be manufacturing, but its contribution is now exceeded by "wholesale and retail trade" (Figure 25).

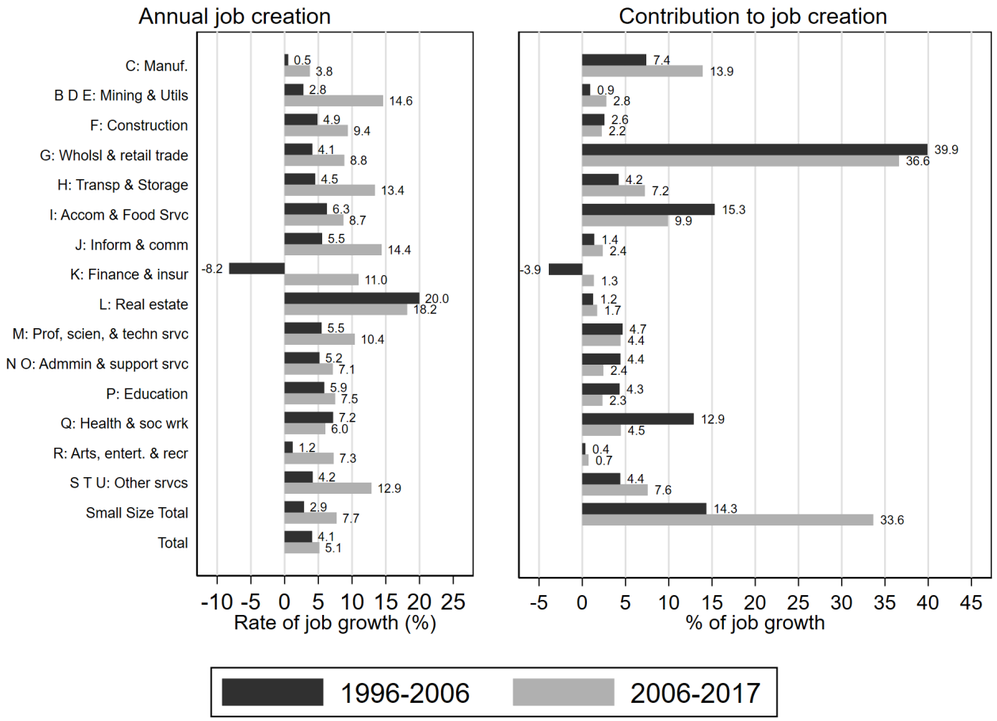
The "other services" industry section dramatically increased its contribution to job growth in the medium segment from 5.1% to 27%. This was also true of the "financials services" section, whose contribution went from a negative 4% to a positive 8%. The industry sections whose contribution to job growth in the medium segment declined were "accommodation and food service" and "education." The contribution of 'accommodation and food service" fell from 12% to 5% and that of "education" fell from 13% to 0.2%. This decline points to some distress in these industries, which we will revisit again when we examine the pattern of non-operating establishments.

Figure 23. Composition of jobs in small (5-24 workers) and medium (25-199 workers) establishments by industry section (one- digit level) (percentage of jobs)



Source: Establishment Census 1996, 2006, 2017.

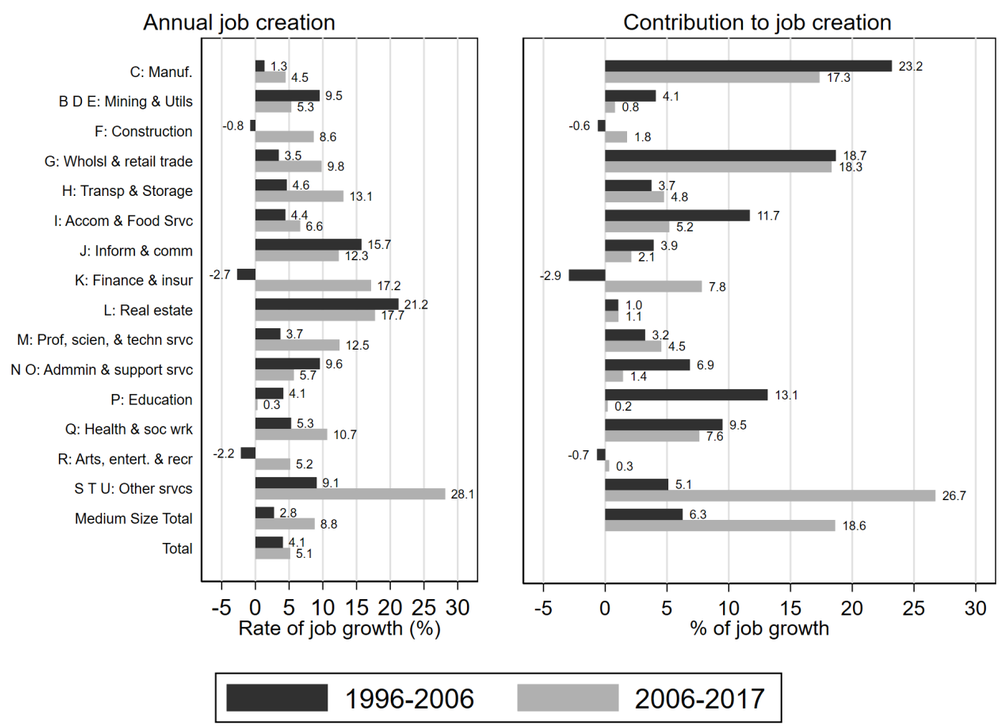
Figure 24. Annual rate of job creation (percentage) and contribution to job creation (percentage of job creation) in small firms (5-24 workers) by industry (one digit level)



Source: Establishment Census 1996, 2006, 2017.

We now move to a more detailed industrial analysis by examining the top-10 industry groups at the 3-digit level that contributed to job creation in each of the two segments and the rate of job growth in these industries. These are shown in Figure 26 for small establishments and Figure 27 for medium establishments. As shown in Figure 26, the top-10 contributors to job creation among small establishments had a declining overall contribution to the segment from 68% to 60% over the two sub-periods. The largest contributing industry group in small establishments was "other retail sales in specialized stores", the same industry that contributed the most at the aggregate level. This was followed by "restaurants and food service" and "warehousing and storage." The fastest growing industry groups in the 2006-17 period in this segment were "retail

Figure 25. Annual rate of job creation (percentage) and contribution to job creation (percentage of job creation) in medium firms (25-199 workers) by industry (1-digit level)

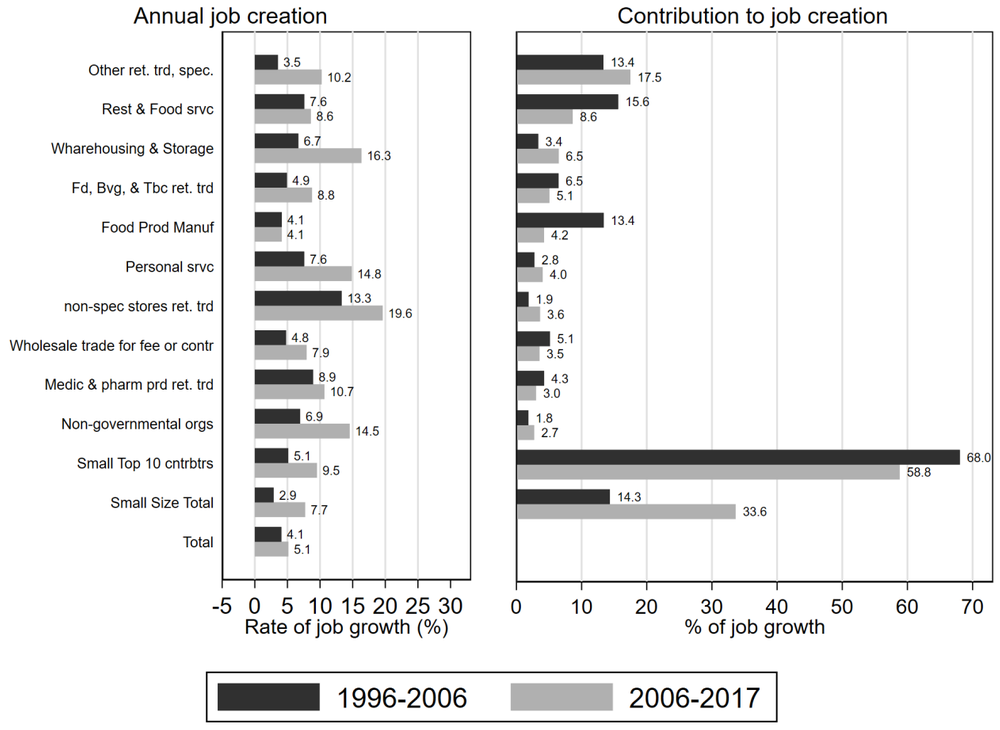


Source: Establishment Census 1996, 2006, 2017.

sales in non-specialized stores" and "warehousing and storage."

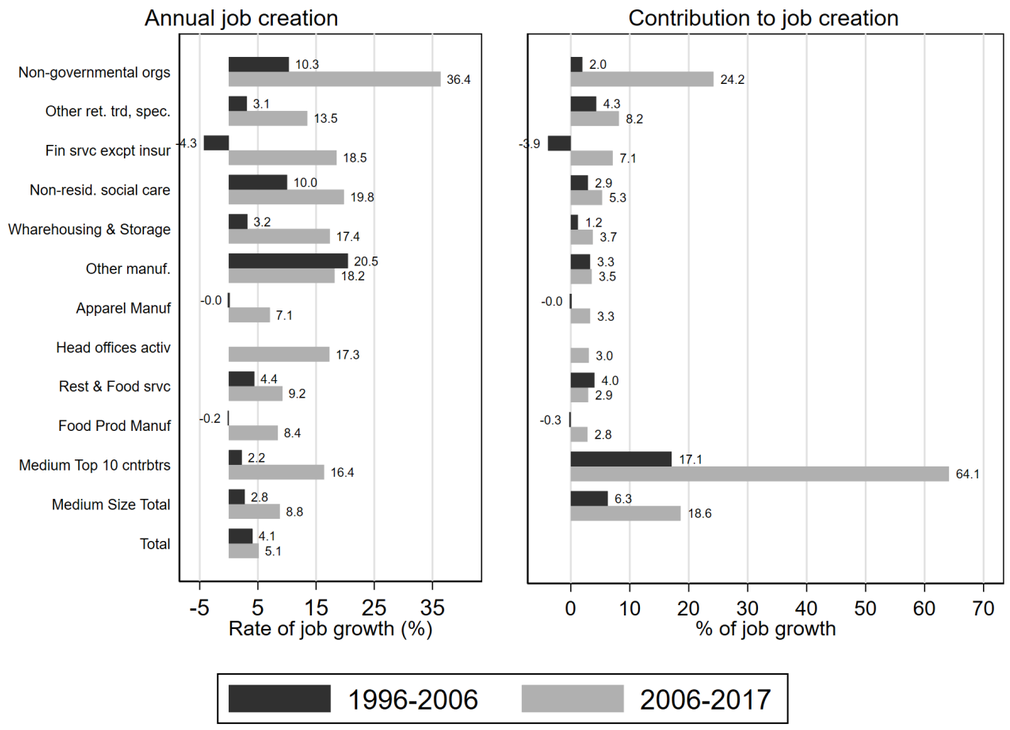
The pattern of job creation in medium establishments was somewhat different. The top-10 contributors in that segment substantially increased their contribution from 17% to 64%. The largest single contributor was non-governmental organizations, which increased its contribution from 2% to 24% of this segment's job creation. Other major contributors in this segment include "financial services" and "non-residential social care activities", which mostly consist of childcare centers. These are also among the fastest growing activities in this segment.

Figure 26. Annual rate of job creation (percentage) and contribution to job creation (percentage of job creation) in small firms (5-24 workers) by industry (3-digit level), top-10 contributing small industries to job creation, ranked in descending order



Source: Establishment Census 1996, 2006, 2017.

Figure 27. Annual rate of job creation (percentage) and contribution to job creation (percentage of job creation) in medium firms (25-199 workers) by industry (3-digit level) top 10-contributing medium industries to job creation, in descending order

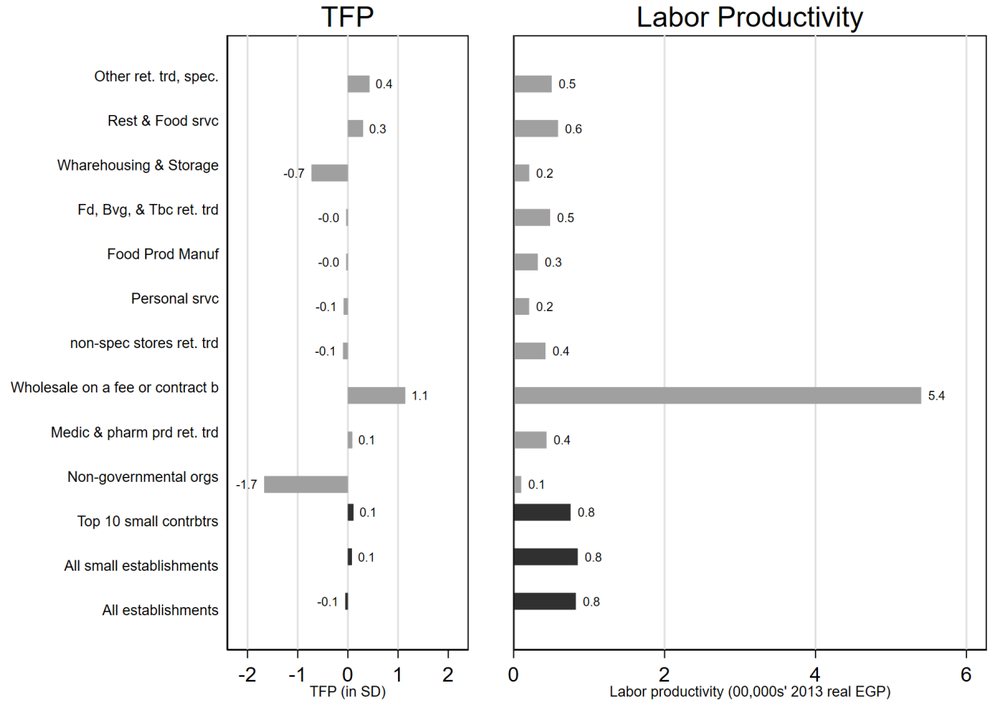


Source: Establishment Census 1996, 2006, 2017.

Figure 28 and Figure 29 examine with the labor productivity and TFP for small and medium establishment, respectively, for the top-10 contributing industry groups in each segment. As shown in Figure 28, labor productivity in small establishments is equal to the overall average and that is also true of the top-10 contributing industries within the small segment. Labor productivity is lowest for non-governmental organizations and largest for wholesale trade, but ranges from EGP 20,000 to 50,000 per worker in all other top-10 industry groups in the segment. TFP in the small establishment segment is slightly higher than the overall average, again showing its highest levels in wholesale trade and lowest levels in non-governmental organizations.

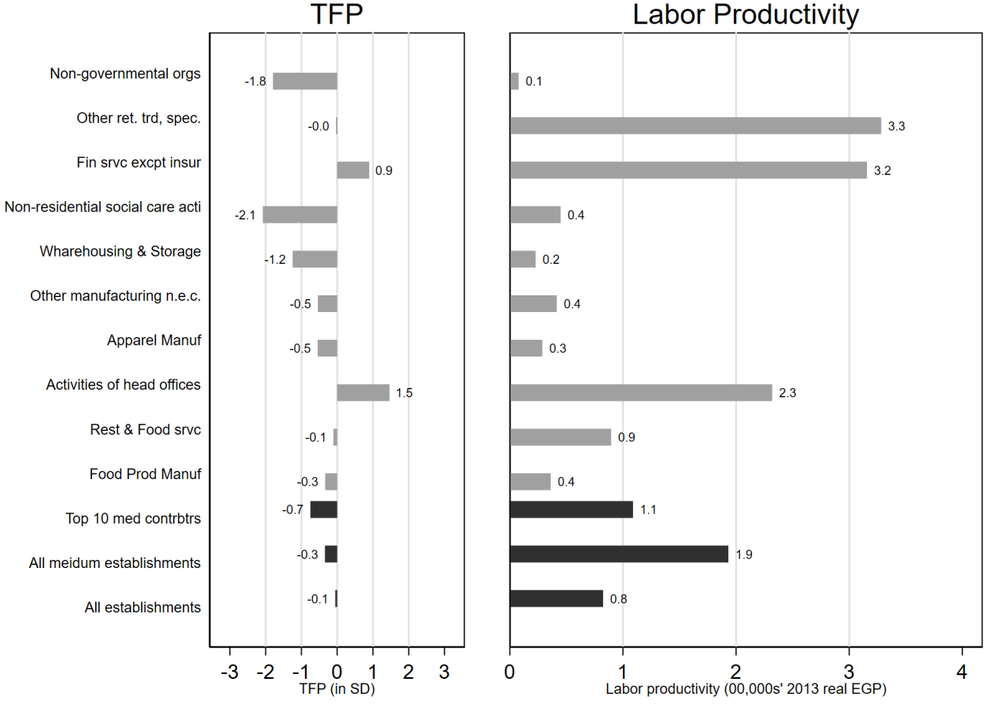
Labor productivity in the medium establishment segment is substantially above the national average, reaching EGP 190,000 per worker compared to EGP 80,000 per worker nationally (Figure 29). However, labor productivity among the top-10 contributors in the segment is lower at EGP 110,000 per worker. Labor productivity in this segment is highest for "other retail trade in specialized stores" and "financial services", but it is also high in activities of head offices." TFP is somewhat lower in the medium segment compared to the national average, probably because they use more capital per worker. It is high however in the "financial services" and "activities of head offices" industry groups that also had high labor productivity. "Non-residential social care", "non-governmental organizations" and "warehousing and storage" are three top -10 contributors to job creation in this segment that have both low labor productivity and low TFP.

Figure 28. Total factor productivity and labor productivity for small firms (5-24 workers) by industry (3-digit level), top 10 contributing small industries to job creation, ranked in descending order



Source: Establishment Census data (2017) merged with data from Economic Census 2013.

Figure 29. Total factor productivity and labor productivity for medium firms (25-199 workers) by industry (3- digit level), top 10 contributing medium industries to job creation, ranked in descending order

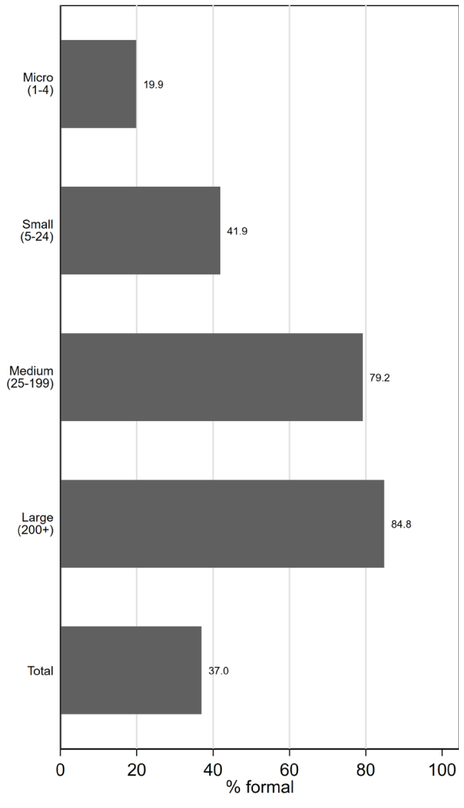


Source: Establishment Census data (2017) merged with data from Economic Census 2013.

Job and Worker Characteristics in SMEs

If the rapid growth of employment in small and medium establishments is sustained over the long term, it can potentially shape the type of jobs created in the Egyptian economy. As we have already shown in Figure 6, total factor productivity is highest for small establishments and labor productivity increases steadily with establishment size category, which bodes well for productivity in the Egyptian economy if employment in small and medium establishments continues to grow faster than average. As we will show below, SME's also have a higher rate of employment formality than average, employ more educated workers and a larger fraction of female workers, on average.

Figure 30. Percentage of workers who are formally employed by establishment size category.



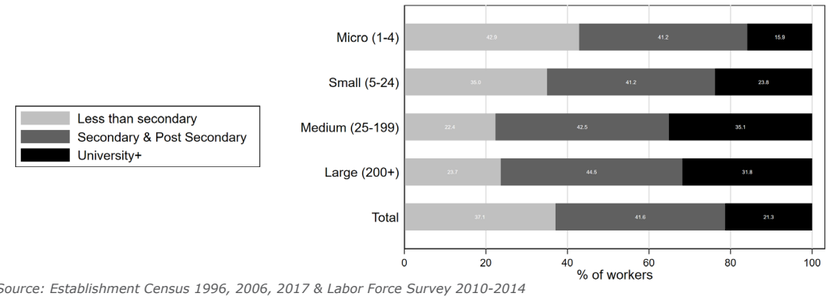
Source: Establishment Census 1996, 2006, 2017.

As shown in Figure 30, the proportion of formally employed workers rises steadily with firm size category. Small establishments hire, on average, about 42% of their workers formally, which is substantially higher than for micro establishments (20%) and also higher than the overall average for private sector establishments of 37%. The share of formally employed works in medium establishments is almost as high as in large establishments (79% vs 85%). Thus, a sustained expansion of medium establishments would bode very well for the formalization of employment in Egypt.

Figure 31 shows the distribution of employment by educational attainment for different establishment size categories. As shown in the figure, although the proportion of secondary educated workers is about the same in small and micro establishments, the proportion of university graduates in small establishments is substantially higher (24% vs 16%). The proportion of university graduates increases even more in medium establishments to 35%, which is in fact higher than it is in large establishments at 32%. Thus, the disproportionate growth of employment in small and, especially, medium establishments bodes well for the employment of university graduates in Egypt, a group that has traditionally suffered from high unemployment rates.

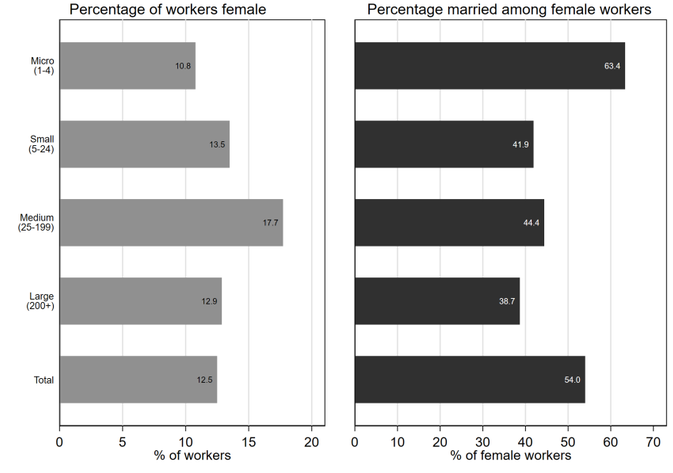
Finally, as shown in Figure 32, small and medium establishments hire a higher proportion of female workers than either micro or large establishments. The proportion of female workers in small establishments is 13.5%, higher than the overall average of 12.5% in private sector establishments. The proportion of female workers in medium establishments is even higher at 17.7%, substantially higher than large establishments, where it is about 13%. While the highest proportion married among female workers is in micro establishments, medium and small establishments both have a higher proportion married among their female workers than large establishments. Again the expansion of the share of employment creation in small and medium establishments, if sustained, bodes well for the employment prospects of women, another hard to employ group of workers, and particularly so for married women.

Figure 31. Percentage of workers by educational attainment and establishment size, 2017



Source: Establishment Census 1996, 2006, 2017 & Labor Force Survey 2010-2014

Figure 32. Percentage of workers who are female and percentage of female workers who are married by establishment size, 2017



Source: Establishment Census 1996, 2006, 2017 & Labor Force Survey 2010-2014

Non-operating establishments

Is the presence of non-operating establishments a signal of struggle or prosperity?

The existence of a non-operating establishment could indicate that it is either a location that is being readied for starting an activity or an establishment that was previously operating and then closed. Thus, non-operating establishments could be a sign of growth and expansion in case of the former, or a sign of decline in the case of the latter. Thus, the main purpose of this section is to examine whether a high share of non-operating establishments in a specific industry or region is an indicator for prosperity or struggle for this specific industry or region, and to pinpoint the struggling versus expanding industries.

In doing so, this section first shows the distribution of non-operating establishments across industries at the one digit and three digit levels, and across regions/governorates. Then, we show how the share of non-operating establishments is associated with employment growth by industries, in order to see if expanding industries in terms of employment have a higher or lower share of non-operating establishments. The analysis is done separately for private establishments and public enterprise establishments.

Patterns of growth in non-operating establishments by industry

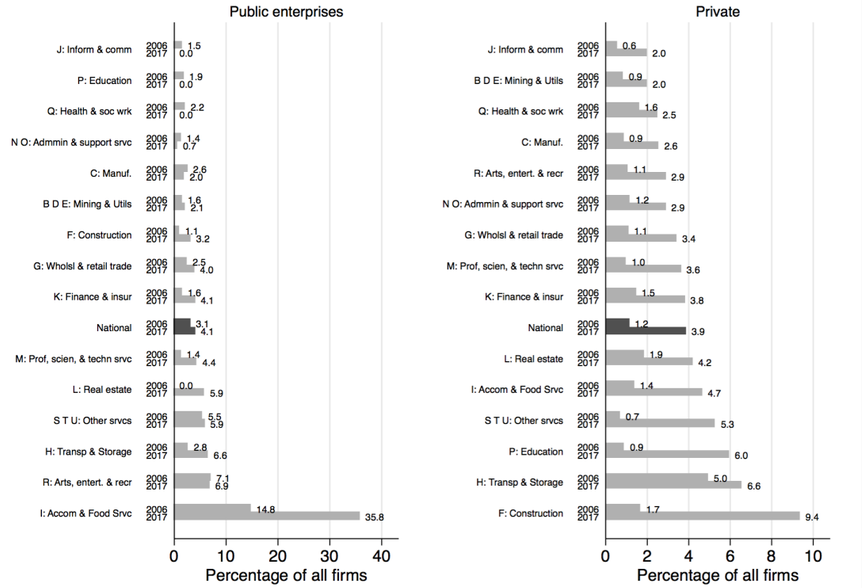
Over 2006-2017, Egypt has experienced an increase in the share of non-operating establishments among all establishments. Such an increase was more pronounced among private establishments where the share of non-operating establishments increased from 1.2% to 3.9% of all private establishments, but less so among public enterprises where the share increased from 3.1% to 4.1% of all public enterprise establishments (Figure 33).

Among the private establishments, construction, transportation and storage, education, other services, accommodation and food services, and real estate had a higher than average share of non-operating establishments (Figure 33). By far, construction had the highest share of non-operating establishments reaching around 9.4% of all its establishments in 2017 (which is a substantial increase from 1.7% in 2006). The next highest sector in terms of the share of non-operating establishments was transportation and storage (6.6% in 2017 rising from 5% in 2006), followed by education (growing substantially to 6.0% in 2017 from 0.9% in 2006), other services (growing substantially to 5.3% in 2017 from 0.7% in 2006), accommodation and food services (rising to 4.7% in 2017 down from 1.4% in 2006), and real estate (rising to 4.2% in 2017 from 1.9% in 2006).

As for the public enterprise establishments, the large sectors in terms of non-operating establishments are similar to those in the private sector, except for construction and education. Accommodation and food services, transportation and storage, other services, real estate, in addition to arts, entertainment and recreational activities and professional, scientific, and technical activities, all had higher than average share of non-operating establishments among public enterprises in 2017.

While a substantial share of public sector establishments in accommodation and food services had been non-operating in 2006 (16.0%), this share grew substantially in 2017 to reach 35.8% of establishments in this sector. The next largeer sector in terms of non-operating establishments is arts, entertainment, and recreational activities (slightly declining to 6.9% in 2017 up from 7.1% in 2006), followed by transportation and storage (rising to 6.6% in 2017, down from 2.8% in 2006), other services

Figure 33. Percentage of non-operating establishments by industry (1- digit level) in public and private establishments, in 2006 and 2017



Source: Establishment Census 2006, 2017.

Notes: The share (in %) of non-operating establishment in a specific industry is calculated as the number of non-operating establishments divided by the total number of establishments in this industry, multiplied by 100.

(slightly rising to 5.9% in 2017, from 5.6% in 2006), and real estate where the share of non-operating establishments grew substantially from nearly 0% in 2006 to 5.9% in 2017. Finally, professional, scientific and technical activities experienced an increase in their share of non-operating establishments from 1.4% in 2006 to just slightly above (4.4%) the national average of 4.1% in 2017.

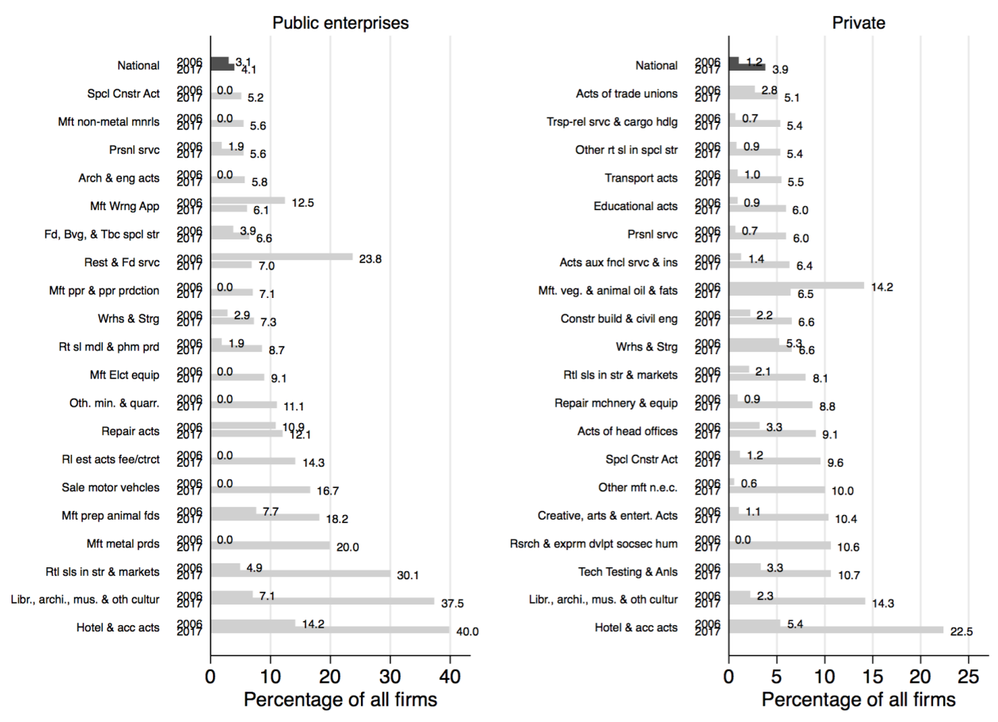
In order to shed light on the particular industries that experienced a substantial growth in the share of non-operating establishments, we focus on the top 20 industries at the three digit level with the highest share of non-operating establishments in 2017 (Figure 34). Overall, there was a rapid increase in the share of non-operating establishments over 2006-2017 across almost all these top 20 industries. In the private sector, the only two exceptions are manufacture of vegetables, animal oils, and fats where the share of non-operating establishments in this sector declined from 14.3% in 2006 to 6.5% in 2017; and warehousing and storage experiencing a slight increase in

its share of non-operating establishments from 5.4% in 2006 to 6.6% in 2017. In the public sector, the share of non-operating establishments declined in two sectors: the restaurants and food services (from 23.8% in 2006 to 7% in 2017), and manufacture of wearing apparels (from 12.5% in 2006 to 6.1% in 2017).

Yet, for both public enterprises and private establishments, the share of non-operating establishments was highest (and rapidly increasing) in the hotel and accommodation activities sector, reaching around 40.0% of public sector enterprises in this sector in 2017 (from 15.4% in 2006) and around 22.5% of all private sector firms in this industry (from 5.7% in 2006). The next large sector in terms of non-operating establishments is libraries, archives, museums and other cultural activities in both public enterprises (37.5% in 2017 from 7.1% in 2006) and in private establishments (14.3% in 2017 from 2.4% in 2006).

In the private sector, around a tenth of establishments in the following industries

Figure 34. Percentage of non-operating establishments in the top 20 industries with highest share of non-operating establishments (3-digit level), 2017 rank, in public and private establishments, in 2006 and 2017



Source: Establishment Census 2006, 2017.

were non-operating in 2017: technical testing and analysis (10.7%), research and experimental development on social sciences and humanities (10.6%), creative, arts and entertainment activities (10.4%), and other manufacturing n.e.c. (10%). Among the public enterprises, retail sales in stores and markets comes in the third placement in terms of non-operating establishments, where around a third of its establishments in this sector became non-operating in 2017 (rising from 4.9% in 2006), followed by manufacturing of metal products (20% in 2017 rising from nearly 0% in 2006).

It is worth noting that, in 2017, the share of non-operating establishments in the top 20 industries in public enterprises is higher on average than that in private establishments.

Dynamics of job creation and existence of non-operating establishments

In order to understand whether the existence of non-operating establishments in an industry is negatively or positively associated with its job creation dynamics, we show how the share of non-operating establishments (and its growth rate) varies with the annual rate of job creation across industries.

A positive association between the share of non-operating establishments (or the growth rate in this share) and annual rate of job creation in a specific industry indicates that when an industry exhibits a high annual rate of job creation, the share of non-operating establishments in this industry is likely to be high/growing, as a signal for expansion. In this case, non-operating establishments would potentially represent locations under construction and preparation to be opened. However, when a high/growing share of non-operating establishments is observed when an industry is shrinking or experiencing a low annual rate of job creation, this potentially indicate that such non-operating establishments designate establishments that were operating and then closed. Hence, this is a signal for struggle and decline.

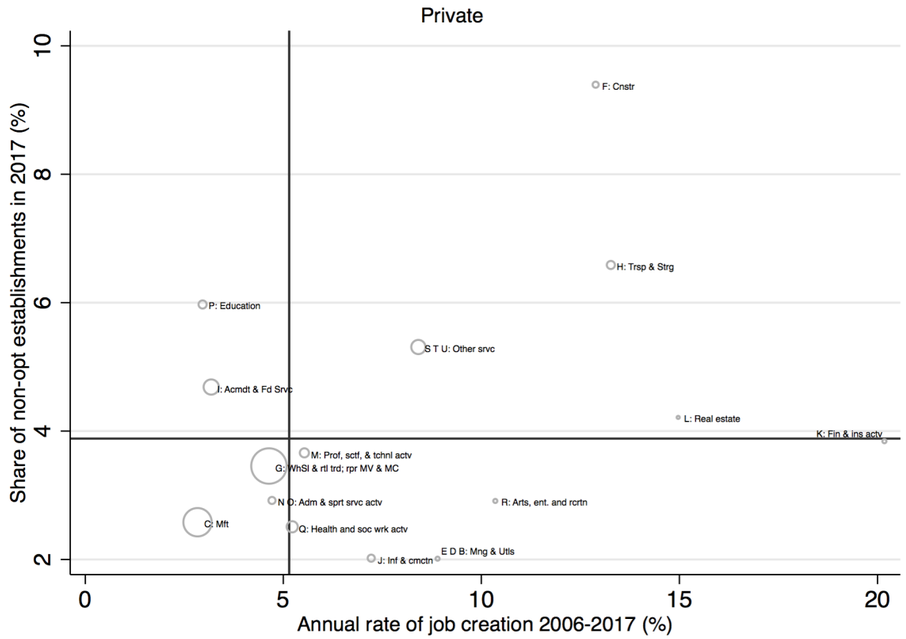
Private Establishments

Figure 35 shows how the share of non-operating establishments in 2017 is associated with the annual rate of job creation over 2006-2017 at the one digit level. The top left quadrant points out the potentially struggling industries, which exhibit a low annual rate of job creation (below average) simultaneously with a high share of non-operating establishments in 2017. As for the top right quadrant, it consists of those industries with high annual job creation rate and high share of non-operating establishments, thus expanding ones. The bottom right quadrant, consisting of industries with a high rate of employment growth and low share of non-operating firms, is a signal for stable and already expanded industries, whereas the bottom left quadrant shows the shrinking industries, that have both a low annual rate of job creation and low share of non-operating establishments.

In order to determine the potentially struggling industries, we focus on the top left quadrant. Both education and accommodation and food services have lower than average annual rates of job creation (each around 3% p.a. between 2006-2017) combined with a higher than average share of non-operating establishments in 2017 (6% and 4.7%, respectively, as shown in Figure 33). To understand which particular industry is potentially struggling in greater detail, Figure 36 shows the association between the share of non-operating establishments in 2017 and the annual rate of job creation, at the three digit level, among the top 20

industries with highest share of non-operating establishments. Creative, arts and entertainment activities is the slowest sector in terms of employment growth (around -8% p.a.) and is among the top industries with highest share of non-operating establishments (10.4%). Moreover, among the struggling industries, the hotel and accommodation activities sector was slowly growing in terms of employment at 3% p.a., which is below the average, and had a substantial share of non-operating establishments in 2017 (see Figure 34). Also, manufacture of vegetable, animal oil, and fats, transportation activities, education activities, retail sales in stores and markets, and construction of building and civil engineering were observed to have lower than average annual rate of job creation and higher than average share of non-operating establishments in 2017.

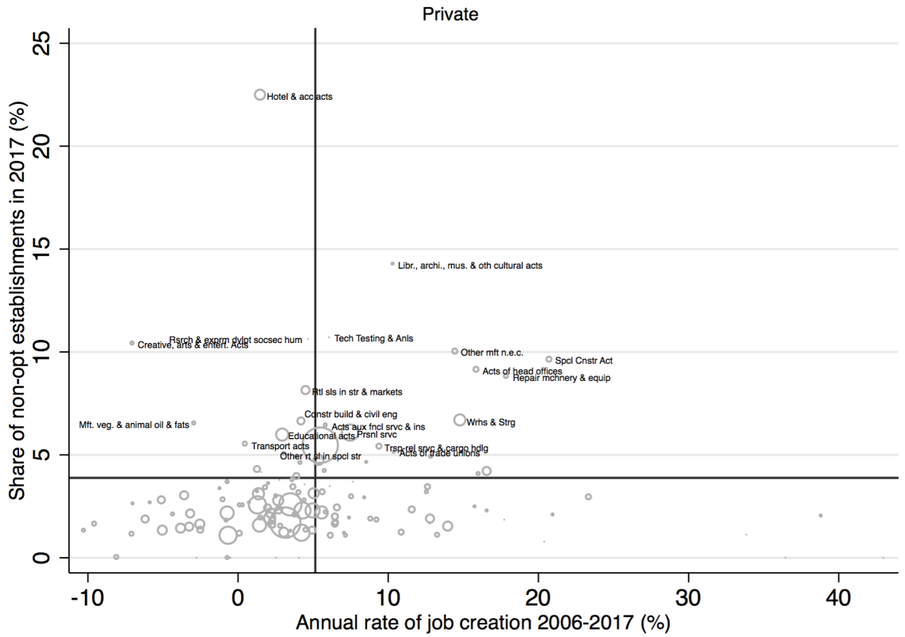
Figure 35. Percentage of non-operating establishments in 2017 and annual rate of job creation by industry (1- digit level), private establishments



Source: Establishment Census 2006, 2017.

Notes: (i) the vertical line represents the average annual rate of job creation between 2006-2017 while the horizontal line represents the average share of non-operating establishments in 2017, for private establishments. (ii) Each marker represents an industry and is sized by average employment in 2006 for that specific industry. For instance, wider (small) circles indicate large (small) sectors in terms of number of employed in 2006.

Figure 36. Percentage of non-operating establishments in 2017 and annual rate of job creation by industry (3-digit level), top 20 industries with highest share of non-operating establishments (2017 rank), private establishments

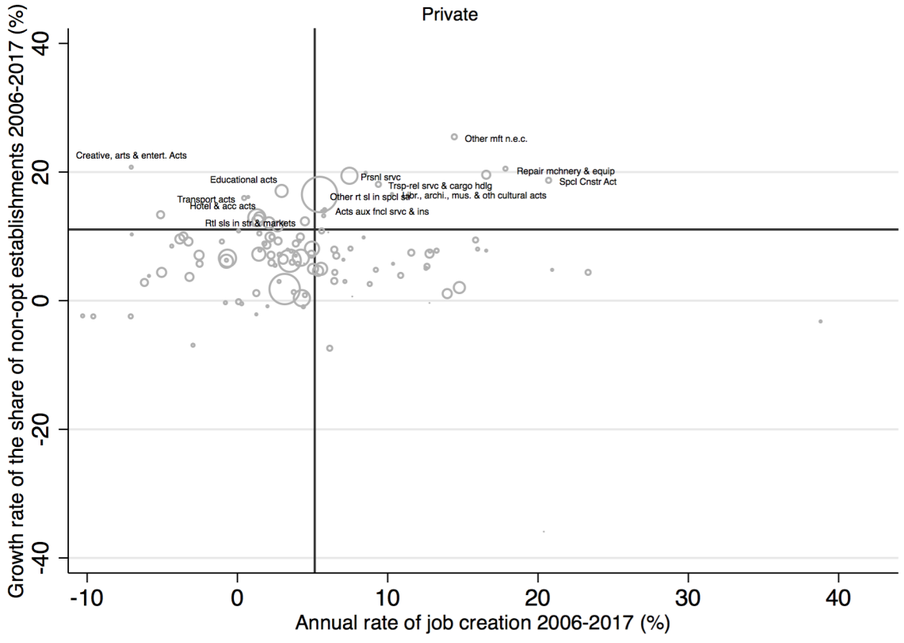


Source: Establishment Census 2006, 2017.

Notes: (i) the vertical line represents the average annual rate of job creation between 2006-2017 while the horizontal line represents the average share of non-operating establishments in 2017, for private establishments. (ii) Each marker represents an industry and is sized by average employment in 2006 for that specific industry. For instance, wider (small) circles indicate large (small) sectors in terms of number of employed in 2006. (iii) Labeled dots indicate the 20 industries with highest share of non-operating establishments.

Another aspect that sheds more light on the dynamics between job creation and non-operating establishments is to examine how the growth in the share of non-operating establishments varies with job creation. Figure 37 confirms that some of the seemingly struggling industries which had a low annual rate of job creation over 2006-2017 and a high share of non-operating establishments also experienced fast growth in this share. These particular industries are again: Creative, arts and entertainment activities, hotel and accommodation activities, transportation activities, education activities, and retail sales in stores and markets. The fast growing industries both in terms of employment and non-operating establishments are: personal services, other manufacturing non-elsewhere classified, specialized construction activities and repair of machinery and equipment.

Figure 37. Annual growth rate of closed firms (2006-2017) and growth rate of employment (2006-2017) by industry (3- digit level), top 20 industries with highest share of non-operating establishments (2017 rank), private establishments



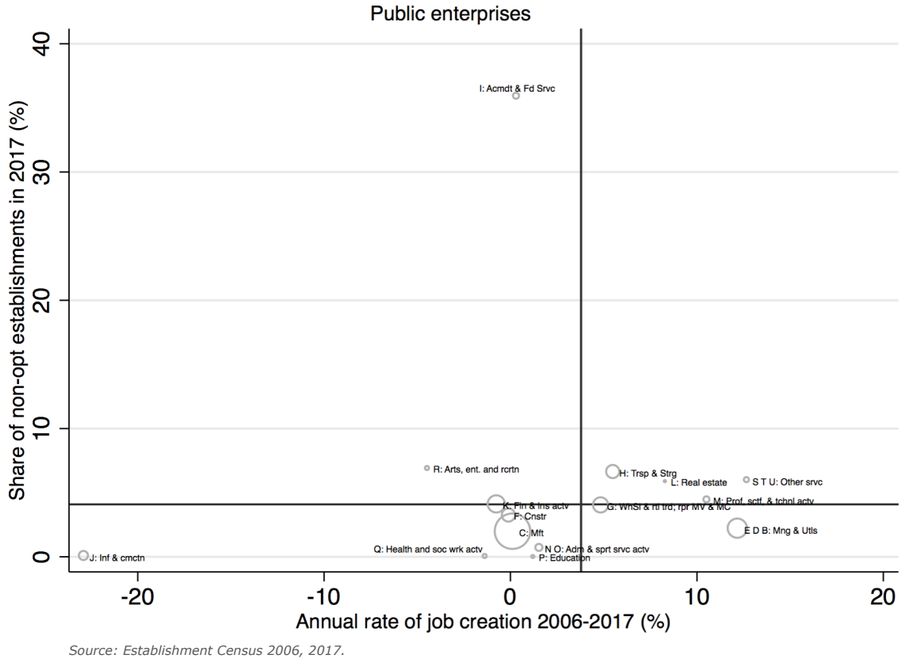
Source: Establishment Census 2006, 2017.

Notes: (i) the vertical line represents the average annual rate of job creation between 2006-2017 while the horizontal line represents the average annual growth of the share of non-operating establishments in 2017, for private establishments. (ii) Each marker represents an industry and is sized by average employment in 2006 for that specific industry. For instance, wider (small) circles indicate large (small) sectors in terms of number of employed in 2006. (iii) Labeled dots indicate the 20 industries with highest share of non-operating establishments.

Public enterprises

The two largest sectors in terms of share of non-operating establishments, namely accommodation and food services and arts, entertainment, and recreational activities, seem to experience a slow job creation rate, thus signaling their potential decline (Figure 38). On the 3-digit level, these industries are particularly hotel and accommodation activities and libraries, archives, museums, and other cultural activities (Figure 39). Other struggling industries include manufacture of prepared animal feeds, real estate activities on a fee or contract basis, other mining and quarrying, and retail sale of pharmaceutical and medical goods, cosmetic and toilet articles in specialized stores. On the expanding industries front, warehousing and storage, manufacture of metal products and retail sales in stores and markets experienced a fast growth in employment as well as a high share of non-operating establishments. Finally,

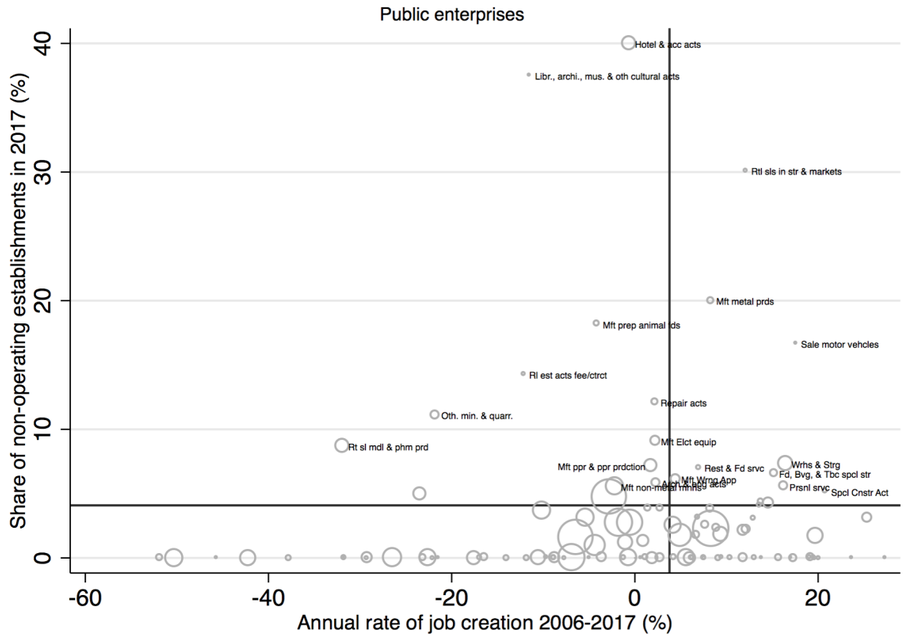
Figure 38. Percentage of non-operating establishments in 2017 and annual rate of job creation by industry (1-digit level), public enterprises



Source: Establishment Census 2006, 2017.

Notes: (i) The vertical line represents the average annual rate of job creation between 2006-2017 while the horizontal line represents the average share of non-operating establishments in 2017, for public enterprises establishments. (ii) Each marker represents an industry and is sized by average employment in 2006 for that specific industry. For instance, wider (small) circles indicate large (small) sectors in terms of number of employed in 2006.

Figure 39. Percentage of non-operating establishments in 2017 and annual rate of job creation by industry (3-digit level), top 20 industries with highest share of non-operating establishments (2017 rank), public enterprises

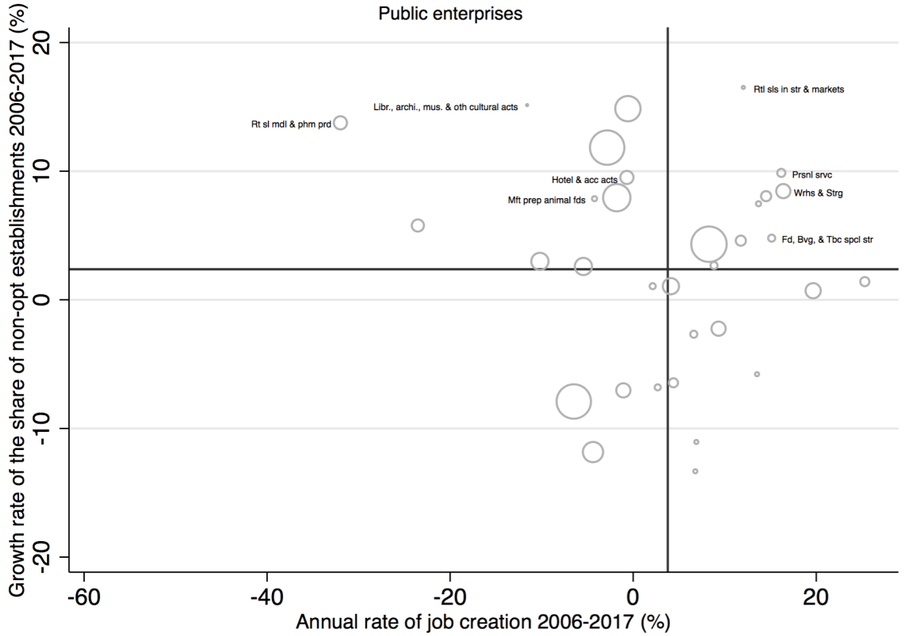


Source: Establishment Census 2006, 2017.

Notes: (i) The vertical line represents the average annual rate of job creation between 2006-2017 while the horizontal line represents the average share of non-operating establishments in 2017, for public enterprises establishments. (ii) Each marker represents an industry and is sized by average employment in 2006 for that specific industry. For instance, wider (small) circles indicate large (small) sectors in terms of number of employed in 2006. (iii) Labeled dots indicate the 20 industries with highest share of non-operating establishments.

Figure 40 confirms that the potentially struggling industries (namely, hotel and accommodation activities, libraries, archives, museums, and other cultural activities, Retail sale of pharmaceutical and medical goods, cosmetic and toilet articles in specialized stores, and manufacture of prepared animal feed) also experience a fast growth in their share of non-operating establishments during the period 2006-2017.

Figure 40. Annual growth rate of closed firms (2006-2017) and growth rate of employment (2006-2017) by industry (3-digit level), top 20 industries with highest share of non-operating establishments (2017 rank), public enterprises



Source: Establishment Census 2006, 2017.

Notes: (i) the vertical line represents the average annual rate of job creation between 2006-2017 while the horizontal line represents the average annual growth of the share of non-operating establishments in 2017, for public enterprises. (ii) Each marker represents an industry and is sized by average employment in 2006 for that specific industry. For instance, wider (small) circles indicate large (small) sectors in terms of number of employed in 2006. (iii) Labeled dots indicate the 20 industries with highest share of non-operating establishments.

Regional patterns of non-operating establishments

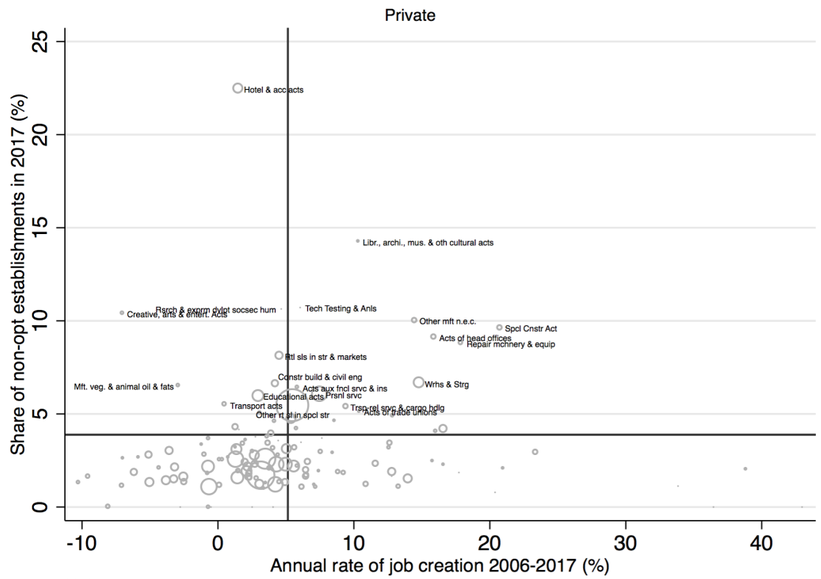
The regional distribution of non-operating establishments reveals that South Upper Egypt and Greater Cairo became more likely to host non-operating private establishments than the national average (3.9%) (Figure 41). Specifically, in 2017, non-operating establishments increased to 6.0% of all South Upper establishments (down from 1.7% in 2006) and 4.6% of Greater Cairo (down from 1.2%, in 2006). This is because of the dominance of hotel and accommodation activities in South Upper Egypt, primarily Luxor, Aswan, and Red Sea governorates (Figure 42).

As for the public enterprises, it is Alexandria (mainly Beheira and Alexandria) and Canal Cities (Suez and Port Said) that include a relatively higher share of non-operating establishments (6.4% and 5.8%, respectively) than the national average (4.1%).

Over 2006-2017, the increase in non-operating private establishments cut across all regions. However, for the public enterprises, South Upper Egypt and Lower Egypt both experienced a decline in the share of non-operating establishments, with the former declining from 8% in 2006 to 3.1% in 2017 and the latter declining from 3.4% in 2006 to 2.3% in 2017

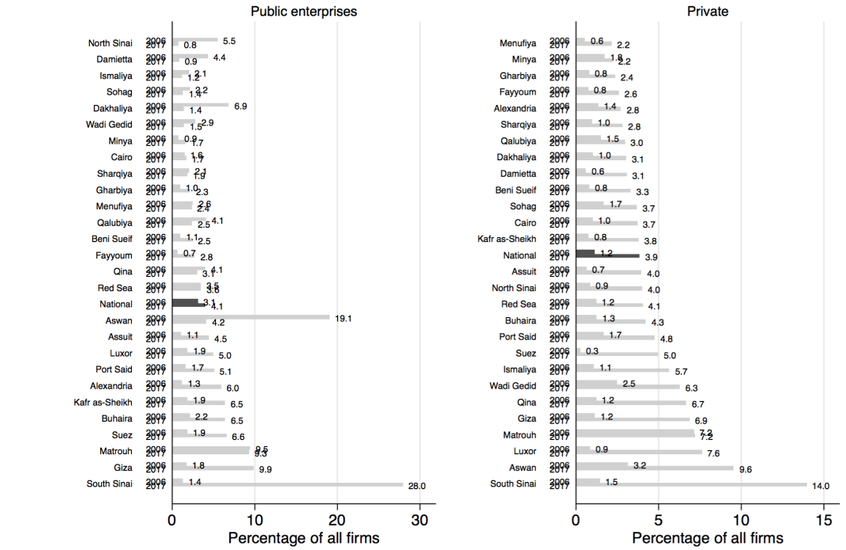
In order to understand which particular industries are likely to struggle or to grow in each region, Table 2 shows the ranking, from largest to smallest, of industries according to their share in non-operating establishments for each region, highlighting whether each industry is above (light shaded cells) or below (dark shaded cells) the regional average annual job creation rate. For the private establishments,

Figure 41. Percentage of non-operating establishments by region in public and private establishments, in 2006 and 2017



Source: Establishment Census 2006, 2017.

Figure 42. Percentage of non-operating establishments by governorate in public and private establishments, in 2006 and 2017



Source: Establishment Census 2006, 2017.

education (mainly educational activities) seem to be declining in Cairo and Alexandria in terms of job creation rate, while having a high share of non-operating establishments (ranked second and third, respectively). As for the second struggling industry, accommodation and food services are basically regressing in South Upper Egypt (ranked first), followed by Central Upper Egypt (ranked third), followed by Canal cities (ranked fourth). Fast growing industries in terms of employment, with a high share of non-operating establishments, likely to be in expansion are mostly the same across all regions, including construction (ranked first), except Canal cities (ranked second) and South Upper Egypt (ranked third). The second strategic industry is transportation and storage, which is ranked second in Cairo and Central Upper Egypt, third in Alex, Lower Egypt, Canal cities, and North Upper Egypt, and fourth in South Upper Egypt.

Looking more in-depth at the struggling industries on the 3-digit level and their regional distribution (Table 3), Cairo includes creative, arts and entertainment activities, research and experimental development on social sciences and humanities, and hotel and accommodation activities. Libraries, archives, museums and other cultural activities, technical testing & analysis, processing and preserving of fish, crustaceans and molluscs seem to be the most struggling ones in Alexandria. Manufacturing of beverages, manufacturing of coke oven and refined petroleum products, and transport activities are mostly declining in North Upper Egypt. In South Upper Egypt, hotel and accommodation activities, research and experimental development on social sciences and humanities, transport activities, and retail sales in stores and markets are potentially slowing down.

Table 2 Ranking of industries (1-digit level) in terms of share of non-operating establishments by region, private establishments, in 2017

Rank	National	Cairo	Alex	Lower Egypt	Canal Cities	North Upper Egypt	Central Upper Egypt	South Upper Egypt
01	F: Cnstr	F: Cnstr	F: Cnstr	F: Cnstr	P: Education	F: Cnstr	F: Cnstr	I: Acmdt & Fd Srvc
02	H: Trsp & Strg	H: Trsp & Strg	K: Fin & ins actv	S T U: Other srvc	F: Cnstr	P: Education	H: Trsp & Strg	L: Real estate
03	P: Education	P: Education	H: Trsp & Strg	H: Trsp & Strg	H: Trsp & Strg	H: Trsp & Strg	I: Acmdt & Fd Srvc	F: Cnstr
04	S T U: Other srvc	M: Prof, sctf, & tchnl actv	P: Education	P: Education	I: Acmdt & Fd Srvc	G: WhSl & rtl trd; rpr MV & MC	P: Education	H: Trsp & Strg
05	I: Acmdt & Fd Srvc	L: Real estate	S T U: Other srvc	K: Fin & ins actv	S T U: Other srvc	L: Real estate	C: Mft	S T U: Other srvc
06	L: Real estate	G: WhSl & rtl trd; rpr MV & MC	L: Real estate	L: Real estate	M: Prof, sctf, & tchnl actv	S T U: Other srvc	L: Real estate	P: Education
07	K: Fin & ins actv	K: Fin & ins actv	M: Prof, sctf, & tchnl actv	M: Prof, sctf, & tchnl actv	G: WhSl & rtl trd; rpr MV & MC	I: Acmdt & Fd Srvc	R: Arts, ent. and rcrtn	G: WhSl & rtl trd; rpr MV & MC
08	M: Prof, sctf, & tchnl actv	N O: Adm & sprt srvc actv	R: Arts, ent. and rcrtn	I: Acmdt & Fd Srvc	K: Fin & ins actv	N O: Adm & sprt srvc actv	S T U: Other srvc	R: Arts, ent. and rcrtn
09	G: WhSl & rtl trd; rpr MV & MC	C: Mft	N O: Adm & sprt srvc actv	C: Mft	N O: Adm & sprt srvc actv	R: Arts, ent. and rcrtn	G: WhSl & rtl trd; rpr MV & MC	N O: Adm & sprt srvc actv
10	N O: Adm & sprt srvc actv	Q: Health and soc wrk actv	I: Acmdt & Fd Srvc	Q: Health and soc wrk actv	E D B: Mng & Utls	C: Mft	E D B: Mng & Utls	K: Fin & ins actv
11	R: Arts, ent. and rcrtn	I: Acmdt & Fd Srvc	E D B: Mng & Utls	R: Arts, ent. and rcrtn	L: Real estate	M: Prof, sctf, & tchnl actv	M: Prof, sctf, & tchnl actv	Q: Health and soc wrk actv
12	C: Mft	R: Arts, ent. and rcrtn	C: Mft	G: WhSl & rtl trd; rpr MV & MC	C: Mft	E D B: Mng & Utls	N O: Adm & sprt srvc actv	M: Prof, sctf, & tchnl actv
13	Q: Health and soc wrk actv	J: Inf & cmctn	Q: Health and soc wrk actv	N O: Adm & sprt srvc actv	R: Arts, ent. and rcrtn	J: Inf & cmctn	Q: Health and soc wrk actv	C: Mft
14	E D B: Mng & Utls	E D B: Mng & Utls	G: WhSl & rtl trd; rpr MV & MC	J: Inf & cmctn	Q: Health and soc wrk actv	Q: Health and soc wrk actv	J: Inf & cmctn	J: Inf & cmctn
15	J: Inf & cmctn	S T U: Other srvc	J: Inf & cmctn	E D B: Mng & Utls	J: Inf & cmctn	K: Fin & ins actv	K: Fin & ins actv	E D B: Mng & Utls
Annual job creation rate	5.2	4.4	6.7	4.9	3.2	7.4	5.8	6.0

Source: Establishment Census 2006, 2017

Notes: Industries are ranked from largest (ranked 1st) to smallest (ranked 15th) share of non-operating firms. Dark shaded cells marked with bold show industries that had below than average job creation rate between 2006-2007, while light shaded cells show those that had above than average job creation rate between that period.

Table 3 Ranking of top 20 industries (3-digit level) with the highest share of non-operating establishments by region, private establishments, in 2017

Rank	National	Cairo	Alex	Lower Egypt	Canal Cities	North Upper Egypt	Central Upper Egypt	South Upper Egypt
01	Hotel and accommodation activities	Creative, arts and entertainment activities	Libraries, archives, museums and other cultural activities	Inland water transport	Mining of iron ores and non-ferrous metals	Manufacturing of beverages	Activities of extraterritorial organizations and bodies	Hotel and accommodation activities
02	Libraries, archives, museums and other cultural activities	Research and experimental development on social sciences and humanities	Tech Testing & Anls	Tech Testing & Anls	Mft Sports Gd	Manufacturing of coke oven and refine petroleum products	Other manufacturing n.e.c.	Research and experimental development on social sciences and humanities
03	Tech Testing & Anls	Hotel and accommodation activities	Processing and preserving of fish, crustaceans and molluscs	Libraries, archives, museums and other cultural activities	Libraries, archives, museums and other cultural activities	Transport activities	Manufacturing of rubber products	Transport activities
04	Research and experimental development on social sciences and humanities	Repair of machinery and equipment	Hotel and accommodation activities	Spcl Cnstr Act	Data processing, hosting, and web portal activities	Hotel and accommodation activities	Mft Elct Eqm	Retail sales in stores and markets
05	Creative, arts and entertainment activities	Activities of trade unions	Retail sales in stores and markets	Hotel and accommodation activities	Hotel and accommodation activities	Manufacture of vegetable and animal oils and fats	Other mining and quarrying	Real estate activities with own or leased property
06	Other manufacturing n.e.c.	Activities of head offices	Manufacture of vegetable and animal oils and fats	Repair of machinery and equipment	Manufacture of vegetable and animal oils and fats	Manufacture of other chemical products n.e.c.	Manufacturing of special purpose machinery	Actv relg, pol, & othr
07	Spcl Cnstr Act	Extraction of crude petroleum and natural gas	Mining of hard coal and lignite	Activities auxiliarty to financial services and insurance	Other manufacturing n.e.c.	Publishing	Manufacturing of basic chemicals, fertilizers, primary plastic and rubber	Libraries, archives, museums and other cultural activities
08	Activities of head offices	Spcl Cnstr Act	Spcl Cnstr Act	Prsnl srvc	Educational activities	Libraries, archives, museums and other cultural activities	Hotel and accommodation activities	Transportation-related services and cargo handling
09	Repair of machinery and equipment	Libraries, archives, museums and other cultural activities	Fin srvc excp insr	Installation of industrial machinery and equipment	Publishing	Manufacturing of general purpose machinery	Manufacturing of coke oven and refine petroleum products	Spcl Cnstr Act
10	Retail sales in stores and markets	Other manufacturing n.e.c.	Insurance activities	Retail sales in stores and markets	Installation of industrial machinery and equipment	Retail sales in stores and markets	Libraries, archives, museums and other cultural activities	Manufacture of basic iron and steel
11	Wrhs & Strg	Tech Testing & Anls	Wrhs & Strg	Wrhs & Strg	Manufacturing of coke oven and refine petroleum products	Spcl Cnstr Act	Manufacturing of beverages	Creative, arts and entertainment activities
12	Construction of buildings & civil engineering projects	Construction of buildings & civil engineering projects	Repair activities	Extraction of crude petroleum and natural gas	Spcl Cnstr Act	Activities of employment placement agencies	Management consultancy activities	Real estate activities on a fee or contract basis

Table 3 Ranking of top 20 industries (3-digit level) with the highest share of non-operating establishments by region, private establishments, in 2017

Rank	National	Cairo	Alex	Lower Egypt	Canal Cities	North Upper Egypt	Central Upper Egypt	South Upper Egypt
13	Manufacture of vegetable and animal oils and fats	Other rt sl in spcl str	Manufacturing of rubber products	Research and experimental development on natural sciences and engineering	Management consultancy activities	Mft Elct Eqm	Spcl Cnstr Act	Activities auxiliary to financial services and insurance
14	Activities auxiliary to financial services and insurance	Wrhs & Strg	Activities of head offices	Mft Elct Eqm	Residential social care activities	Motion picture related services	Collection, treatment, disposal, and recovery of waste	Activities of head offices
15	Prsnl srvc	Manufacturing of transport equipment	Real estate activities with own or leased property	Manufacturing of electronic and optical equipment	Activities of head offices	Other rt sl in spcl str	Support activities for mining and quarrying	Air transport
16	Educational activities	Retail sales in stores and markets	Activities auxiliary to financial services and insurance	Manufacture of other chemical products n.e.c.	Repair of machinery and equipment	Activities of head offices	Activities of head offices	Other rt sl in spcl str
17	Transport activities	Inland water transport	Repair of machinery and equipment	Educational activities	Activities of business, employers, and professional membership organizations	Repair of machinery and equipment	Retail sales in stores and markets	Other manufacturing n.e.c.
18	Other rt sl in spcl str	Activities auxiliarty to financial services and insurance	Activities of employment placement agencies	Residential social care activities	Other mining and quarrying	Manufacturing of basic chemicals, fertilizers, primary plastic and rubber	Manufacture of pharmaceuticals, medicinal chemical and botanical products	Activities of business, employers, and professional membership organizations
19	Transportation-related services and cargo handling	Mft Mus Istrm	Residential social care activities	Activities of head offices	Research and experimental development on natural sciences and engineering	Educational activities	Manufacturing of paper and paper products	Management consultancy activities
20	Activities of trade unions	Educational activities	Educational activities	Manufacture of man-made fibres	Architectural and engineering activities and related technical consultancy	Manufacture of plastics products	Wrhs & Strg	Repair of machinery and equipment
Annual job creation rate	5.2	4.4	6.7	4.9	3.2	7.4	5.8	6.0

Source: Establishment Census 2006, 2017

Notes: The 20 top industries with the highest share of non-operating establishments are ranked from highest (rank 1) to smallest (rank 20) share of non-operating firms. Dark shaded cells marked with bold show industries that had below than average job creation rate between 2006-2007, while light shaded cells show those that had above than average job creation rate between that period.

Conclusions and Policy Recommendations

We examined in this policy paper job creation in private establishments in Egypt from 1996 to 2017, dividing the period into two sub-periods 1996-2006 and 2006-2017. Although employment in private establishments constituted only one third of total employment in Egypt in 2017, it is the most dynamic segment of the Egyptian economy. Its share of total employment grew from about 22% in 2000 to 33% in 2017, mostly at the expense of government and public enterprise employment. Although private employment outside of establishments, such as in construction sites, fields, homes and vehicles, is still an important component of the Egyptian labor market (~45% over the past decade), it is outside the scope of our analysis. Since such employment constitutes the majority of employment in agriculture, mining, construction, and transportation and storage, our findings about these industries refer to the fairly small component that is located within establishments.

Main Findings

The first major finding of this paper is what we call "the re-emergence of the missing middle." The "missing middle" refers to the tendency for small and medium enterprises in developing economies to be under-represented in the firm size distribution of employment relative to micro and large enterprises (Krueger, 2007; Tybout, 2014). Our findings show that employment in small and medium establishments is finally growing must faster than in either micro or large establishments. In 1996, small establishments (5-24 workers) and medium establishments (25-199 workers) contributed 22% and 10% of employment in private establishments, respectively, while micro enterprises (1-4 workers) contributed 63% and large establishments (200+ workers) contributed 6%. The 2017 Establishment Census revealed that the contribution of small and medium establishments increased to 25% and 13%, respectively. It also shows that this growth took place exclusively in the 2006-17 period. In fact, the share of small and medium establishments had declined from 1996 to 2006.

The increasing importance of the small and medium establishments in the firm size distribution of Egypt is positive news, because these establishments tend to create more productive and more formal jobs. They are also more likely than micro establishments to hire educated workers and women.

The second major finding of this paper is that the top-10 industry groups (among 136 possible groups) in terms of contribution to job creation in private establishments in the 2006-17 period are concentrated in the trade and distribution sectors. Besides several retail sub-sectors, they include warehousing and storage, personal services and restaurants and food service. Outside these trade and service-related activities, they include financial services and non-governmental organizations, one manufacturing sub-sector (sawmilling of wood) and specialized construction activities. As a group, these top-10 industries contributed nearly two-thirds of job creation in the 2006-17 period (65%). The fastest growing among these top-10 industry groups in 2006-17 was financial services, which was recovering from negative growth in the 1996-2006 period. Specialized construction also grew fast, but this probably represents a relocation of jobs from outside establishments to within establishments, since this sector is dominated by jobs outside establishments. Employment in non-governmental organizations also grew rapidly in the 2006-17 period, also recovering from a decline in the previous sub-period.

Because they tend to be concentrated in trade, distribution and personal services, the top-10 industries tend to have somewhat smaller establishments than average, although these establishment sizes are growing over time. While their share of micro establishment was higher than average, they experienced a much larger increase in the share of small and medium establishments than the average for the private sector as a whole in the 2006-17 period. The employment share of medium establishments in these top-10 industries tripled from 2006 to 2017 (3% to 9%), while the share of small establishments nearly doubled (13% to 22%).

The third major finding of the paper is continuous and large decline of the contribution of manufacturing to employment creation in the private sector. The share of manufacturing declined from about a third of private establishment employment (32%) in 1996 to nearly a fifth of such employment (21%) in 2017. Its contribution to job growth also declined from 18.5% in the 1996-2006 period to 13% in the 2006-17 period. Although the rate of employment growth in manufacturing increased slightly from 2.6% p.a. in 1996-2006 to 2.9% p.a. in 2006-17, it grew more slowly than average in both periods and saw a smaller increase in growth than average.

When we examined the geographic patterns of employment creation, we found that the worst performing region in terms of growth rates in recent years was the Suez Canal region, which saw its employment growth rate cut from 6.4% p.a. in 1996-2006 to 3.5% p.a. in 2006-17, at a time when overall growth rates accelerated from 4.1% p.a. to 5.1% p.a. It also turns out that two of the governorates in the region, Port-Said and Suez, had the highest increases in poverty in recent years, together with the neighboring governorate of Damietta, which led us to examine these three governorates more carefully. This examination revealed that the fate of these governorates is intimately tied to developments in the manufacturing sector. All three governorates had disproportionately high shares of manufacturing in their employment mix, and all three saw a substantial drop in the share of manufacturing in job creation across the 1996-2006 period and the 2006-17 period. The contribution of manufacturing to employment growth fell from 51% to 23% in Damietta, from 66% to 21% in Port-Said, and from 37% to 13% in Suez. In Damietta, it was the fate of the furniture manufacturing industry that determined this downward trend. In Port-Said, it was the manufacturing of apparel, and to a lesser extent chemicals and textiles, and, in Suez, it was the manufacturing of food products. In all three governorates, the dominant manufacturing industry did not only experience a deceleration in growth, but an absolute decline in employment between 2006 and 2017. Employment in furniture manufacturing declined at a rate of 0.4% p.a. in Damietta, employment in apparel manufacturing declined by 2.9% p.a. in Port Said, and employment in food products manufacturing declined by 1.9% p.a. in Suez.

A potential silver lining is that employment growth rates in manufacturing in small and medium establishments are accelerating, although they remain below the overall average for the small and medium segments. With employment growth of manufacturing accelerating from 0.5% p.a. to 3.8% p.a., manufacturing has actually nearly doubled its share of employment creation in small

establishments (from 7% to 14%). A similar acceleration in manufacturing employment growth occurred in medium enterprises, but this actually led to a reduction in the contribution of manufacturing to employment creation in this segment because the segment as a whole was growing much more rapidly.

A fourth finding of the paper is that employment in private establishments is deconcentrating from the Greater Cairo region to the benefit of the Alexandria and the three sub-regions of Upper Egypt. The Cairo region accounted for 32% of job creation in the 2006-17 period, down from 33% in the 1996-2006 period, but the contribution of the Alexandria region increased from 10% to 16% and that of the combined Upper Egypt sub-regions increased from 18% to 23%. The only region to reduce its share of employment creation besides Greater Cairo is the Canal cities region. This region appears to have been hit especially hard by the decline in the contribution of manufacturing to job creation as well as by the shocks affecting the tourism industry.

A fifth and final finding of the paper is that a high proportion of temporarily non-operating establishments is not necessarily a sign of industry distress. This indicator must be combined with the overall growth rate of employment in the industry to determine whether the non-operating establishments are ones that are being readied for production in a growing sector or ones that have shut down to industry distress. In the private sector, we found that there was a higher than average and rising share of non-operating establishments in real estate, accommodation and food service, other services, education, transport and storage, and construction. However, we had previously found that only accommodation and food service and education were growing slower than average, whereas the other industries listed were growing faster than average. The distress in the accommodation and food service industry in the 2006-17 period is well-known due to its connection to the tourism industry, which was adversely affected post 2011 and was just beginning to recover by 2017. This is also the industry section with by far the highest rate of non-operating establishments in the public enterprise sector. The high and increasing rate of non-operating establishments in the education sector is less expected.

At a more detailed level, the industry groups (at 3-digit level) that had the highest non-operating rates in the private sector include "hotels and accommodation", "libraries, archives, museums and other cultural institutions", "creative arts and entertainment activities", "other manufacturing" , "education", and some technical services such as "technical testing and analysis" and "research and experimental development in the social sciences and the humanities." Again the ones that are associated with below average employment growth rates are "hotels and accommodation", "creative arts and entertainment activities", "research and experimental development", "education" and "manufacturing of vegetable and animal fats."

The regional pattern of non-operating establishments revealed that the tourism dominated governorates of Luxor, Aswan and South Sinai had the highest and most rapidly increasing shares of non-operating establishments, followed by Matrouh, Giza, Qina, Wadi el-Gedid, the three Canal cities, Red Sea and North Sinai. Among industry sections growing more slowly than average (in terms of employment growth), education topped the list nationally and in the Cairo and Alexandria regions. Accommodation and food service was second on the list nationally and topped the list of slow growing industries in the Canal Cities region (which includes North and South Sinai govenorates), Central Upper Egypt and South Upper Egypt (which includes Luxor, Aswan and Red Sea governorates), all of which are major tourist destinations.

Policy Recommendations

Given the main findings laid out above, our policy recommendations will focus on (1) supporting the growth of small and medium establishments, (2) reversing or slowing the decline of manufacturing, (3) identifying and promoting promising sectors for job creation.

Supporting the Growth of SMEs

The emergence of the missing middle is a major and fairly recent development in the Egyptian economy. A number of policy actions have already been adopted to support SMEs in Egypt the establishment of Micro, Small and Medium Enterprises Development Agency (MSMEDA) by merging together the Social Fund for Development and the Industrial Modernization Center of the Ministry of Trade and Industry. This new agency is tasked with coordinating efforts to support SMEs including the provision of management and skills training. The adoption of the Small Enterprise Law (No. 141 of 2004) greatly simplified the rules and procedures for registering new businesses, lowered registration fees and reduced the minimum capital requirements. According to the World Bank's Doing Business Report, Egypt's rank in terms of the ease of starting a business improved substantially from 125 in the world in 2007 out of 175 countries to 109 in 2019 out of 190 countries, with the number of procedures declining from 10 to 6.5, the number of days needed going from 19 to 11.5, and the cost falling from 69% of per capita income to 40% (World Bank, 2006, 2019).

There was also significant improvement in the availability and ease of obtaining credit, a key component of SME development. Egypt's rank in the Doing Business Report on this dimension improved even more from 159 in the world in 2007 to 60 in 2019 (World Bank, 2006, 2019). The initiatives of the Central Bank of Egypt to expand financing to SMEs and provide resources for credit at concessionary rates though national public sector banks is partly responsible for the improvement in the financing environment. As part of its 2008-11 banking reform plan, the Central Bank exempted facilities extended by banks to SMEs from reserve requirements. In 2016, the Central Bank established the SME initiative, a comprehensive program to provide guidelines and incentives to banks to finance SMEs. The SME initiative would inject EGP 200 billion over four years to be lent at interest rates of no more than 5% to qualifying firms (Reuters, 2016). By the end of 2018, the credit extended by Egyptian banks to SMEs had reached EGP 136 billion, benefitting 522 thousand firms (Negm, 2019).

There remains some key policy areas related to SMEs where reforms are still necessary. This includes the ease of paying taxes. According to the 2019 Doing Business Report, Egypt ranks 159 in the world in this dimension, 15 places behind where it ranked in 2007 (World Bank, 2006, 2019). This is an area where reforms that dramatically simplify the tax system for small and medium enterprises are critically necessary.

Another area where reform is necessary is the ease of enforcing contracts, a dimension on which Egypt ranks 160 in the world in 2019, three places behind where it was in 2007. The Doing Business report estimates the number of days to resolve a claim was 1,010 days in 2019, exactly what it was in 2007. The cost to

resolve a claim was 26% of the value of the claim, up from 18% in 2007 (World Bank, 2006, 2019).

In effect, reform are necessary to reduce the overall cost of being formal in Egypt. The high and discrete cost of formality forces firms to remain small in order to stay invisible to the regulators and not have to bear the cost of formality. Reducing these costs and making them more gradual as firms increase in size would allow firms to transition from the micro to the small segment more easily. This would not only entail simplifying tax administration by reducing and making more predictable what can sometimes seem like arbitrary tax assessments, but also streamlining health and safety regulations, licensing requirements, and digitizing all dealings with the bureaucracy. The general idea is to make the business environment more predictable and rule-based and less subject to the discretion of officials at all levels of government.

The final area where reforms are absolutely necessary is in the area of trading across borders. According to the Doing Business Report, Egypt ranks 171 out of 175 on this dimension in 2019, 88 places behind where it ranked in 2007 (World Bank, 2006, 2019). High costs of trading across borders loom large for smaller firms, resulting in a situation where only large players are able to participate in international trade.

Reversing or Slowing the Decline of Manufacturing

Our analysis has shown that manufacturing is ailing in Egypt, declining from about a third of employment in private establishments in 1996 to a fifth of such employment in 2017. Only one manufacturing sub-sector, sawmilling and planning of wood, made it to the top-10 list of industry groups that contributed to employment growth between 2006 and 2017. We also saw how the decline of manufacturing was a large factor in the decline of the three governorates that experienced the highest increase in poverty in recent years, Damietta, Port-Said and Suez.

As a tradable industry manufacturing was likely hurt by the overvalued exchange rate policy pursued in Egypt prior to the floatation of the pound in November 2016. The adjustment in the exchange rate that occurred since then has probably helped the manufacturing sector, but it is a necessary but not sufficient condition for the revival of manufacturing. Obstacles to such revival include high energy prices and the lack of availability and high cost of industrial land.

Manufacturing around the world is now increasingly governed by global value chains. To make it possible for small and medium manufacturers to integrate into these global value chains, these needs to be substantial improvement in the business climate for foreign investors and an intermediation role by government agencies and trade councils.

Identifying and Promoting Promising Sectors for Job Creation

While slowing the decline of manufacturing is necessary, manufacturing is unlikely to play the major role it played among early industrializers in job creation. Scholars who focus on employment creation in Africa are now advocating promoting "industries without smokestacks." (Page, 2012). These include industries such as horticulture, agro-industry, and tradable services, such as information technology services, business process outsourcing, including customer services, accounting, human resources, etc. The success of these industries will depend on the extent to which they can be integrated in global value chains, whether agglomeration economies can be created, and whether the appropriate managerial and labor capacities can be developed.

Egypt has a dynamic information and communication industry that can potentially grow into a major purveyor of tradable services. International rankings of countries in terms of competitiveness in business process outsourcing place Egypt close to the top. For instance, the Ryan Strategic group ranked Egypt 4th out of 55 countries included as the most favored offshore contact center after the Philippines, South Arica, and Malaysia (Ryan Strategic Advisory, 2019). The 2017 A.T. Kearney Global Services Location Index ranks Egypt 14th in the world in terms of attractiveness for business process outsourcing, up two spots from where it ranked the previous year (A. T. Kearney, 2017). In fact, Egypt ranked first in the world in terms of the financial attractiveness sub-component of the index. It ranks 23rd on the people and skill availability component of the index, and it ranks almost at the bottom on the business environment component of the index. This is a clear illustration that efforts to improve the business environment for global and domestic firms in Egypt can have a very high payoff in terms of attracting investments into this industry, with a potential to create good jobs for an increasingly educated workforce.

A recent case study of the call centers industry in Egypt concludes that the call center industry is facilitating women's entry into professional jobs (Ahmed, 2013). The industry hires recent university graduates, a group that suffers from high unemployment in Egypt. The call center industry in Egypt is quite new and has therefore experienced very high rates of growth. In 2010, Egypt's offshore services industry grew by about 50% with a workforce of 28,400 (Ibid.). Buyers for the industry come from a large number of sectors, including government services, tourism, manufacturing, banking and information technology (Ibid.). The study states that Egypt offers an attractive location for call centers because of its low-cost workforce of young educated workers, many of whom speak foreign languages. Moreover, time zone similarities with Europe add to the attractiveness of the Egypt as a location for customer service and technical support activities.

Although not adequately cover in this report because most of its employment is outside fixed establishments, the horticulture sector has a high potential for job growth if properly integrated in global value chains. Over the past five years, Egypt has become the largest world exporter of oranges. The increase in orange exports happened even prior to the floatation of the Egyptian pound and was probably boosted by the increased competitiveness this provided. The success in the orange sector can and should be reproduced in other products such as strawberries, grapes, and vegetables directed to the European market. This industry has the potential to create jobs in production and harvesting, but also in post-harvest processing and handling.

The care economy, which consists of residential and non-residential social care, health and education services is a potentially important source of job growth. The care economy has attracted attention in the development literature because of its potential to contribute to human development, through child development and improved health and education, but also to women's economic empowerment, by both allowing women to substitute market activities for domestic activities

and through their direct employment effects (The World Bank, 2018). While many of the care economy activities often take place in the public sector, such is the case of public schools, universities, hospitals and community health clinics, these activities are increasingly taking place in the private and non-profit sectors as well. The Economic Census of 2012/13 demonstrated that more than a third of female employment in private establishments is in the care economy (health, education and social care) and that the industries that constitute the care economy have a very high proportion of female employment and are quite hospitable to married women.[22] We have also seen in this analysis that the health and social work sector grew faster than average in private establishments in both the 1996-2006 and 2006-17 periods and contributed 4-5% of job creation. While employment growth in the education industry section slowed in the 2006-17 period, it had grown at nearly 6% p.a. from 1996 to 2006. We also noted that one of the top-10 contributors to employment growth among medium establishments was non-residential social care, which grew at nearly 20% p.a. within this segment. A related source of job creation to the care economy is non-governmental organizations. We found that this industry group was among the top-10 contributors to job creation in the 2006-17 period and it could continue to do so in the foreseeable future. The ability of civil society organizations to maintain their dynamism and growth depends, however, on an enabling legal and institutional framework governing this sector.

Finally, the recovery and expansion of the tourism industry has the potential of igniting job creation for workers of various education and skill levels. The difficulties experienced by the tourism industry were apparent in the performance of the hotels and accommodation sector, but the industry creates jobs much more widely in the economy, including travel agencies, transportation, restaurants, retail trade. It also has important backward linkages to suppliers in food and beverage manufacturing, textiles and handicrafts, among others.

[22] *As shown in Appendix I, Figure A.1.8, the education and health and social work industry sections have by far the highest share of female employment. The female share is 66% in Education, of whom 56% are married. The female share is 65% in health and social work, of whom 58% are married.*

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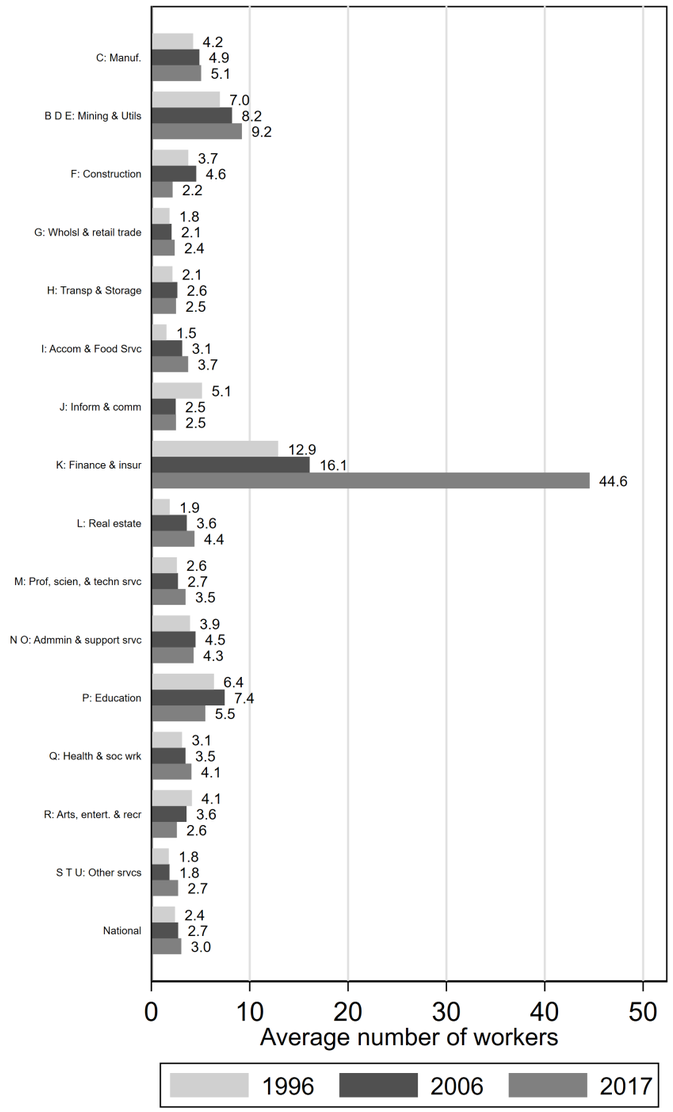
Appendix I

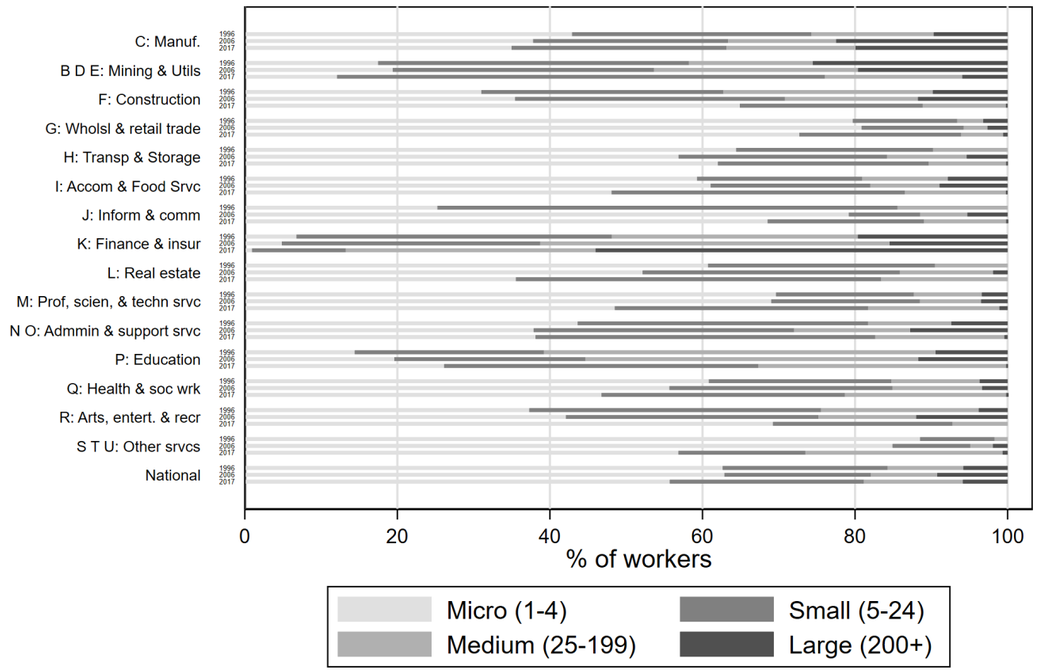
Characteristics of Establishments, Jobs and Workers by Industry Sections (1-digit level)

Figure A.I. 1. Average size of establishment (number of workers) by industry section (1- digit), all establishment sizes



Source: Establishment Census 1996, 2006, 2017.

Figure A.I. 2. Percentage of workers in different establishment sizes by industry section (1-digit level), all establishment sizes

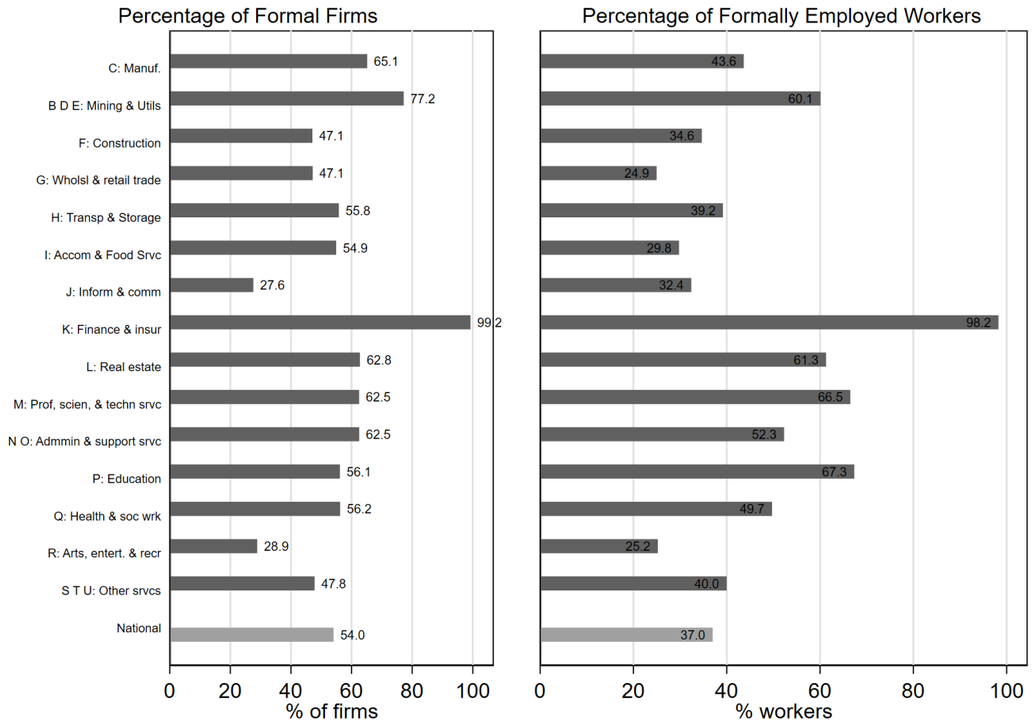


Source: Establishment Census 1996, 2006, 2017.

Appendix I

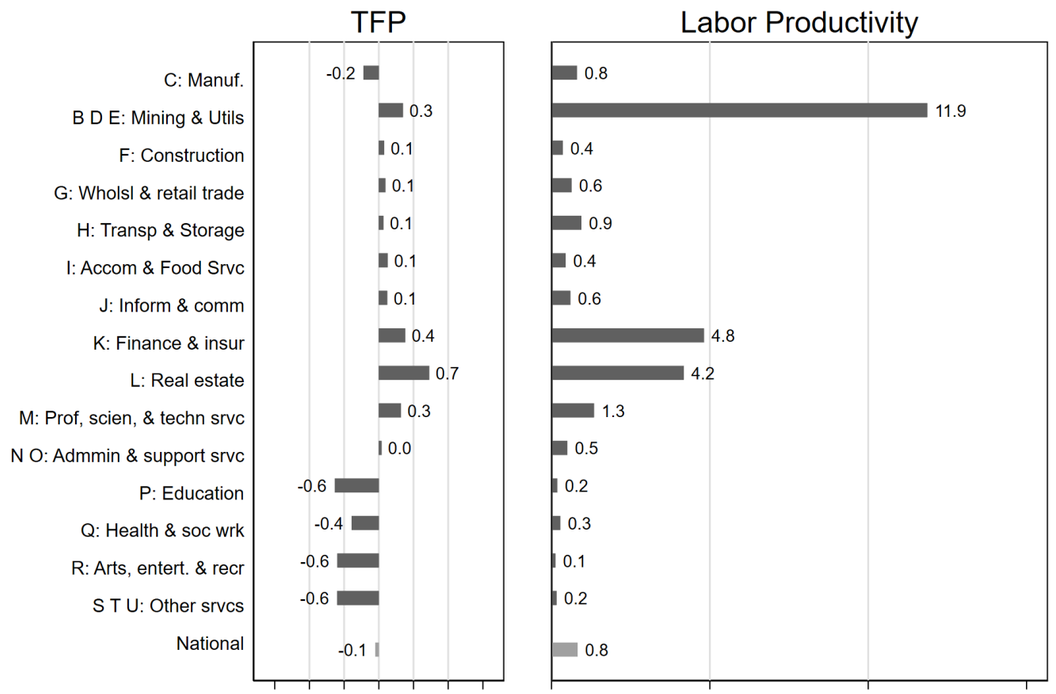
Characteristics of Establishments, Jobs and Workers by Industry Sections (1-digit level)

Figure A.I. 3. Percentage of formal firms and percentage of workers who are formally employed by industry section (1-digit level), all establishment sizes



Source: Left panel: Establishment Census data (2017) merged with data from Economic Census 2013. Right Panel:Establishment Census 1996, 2006, 2017 & Labor Force Survey 2010-2014.

Figure A.I. 4. Total factor productivity and labor productivity by industry section (1-digit level), all establishment sizes.

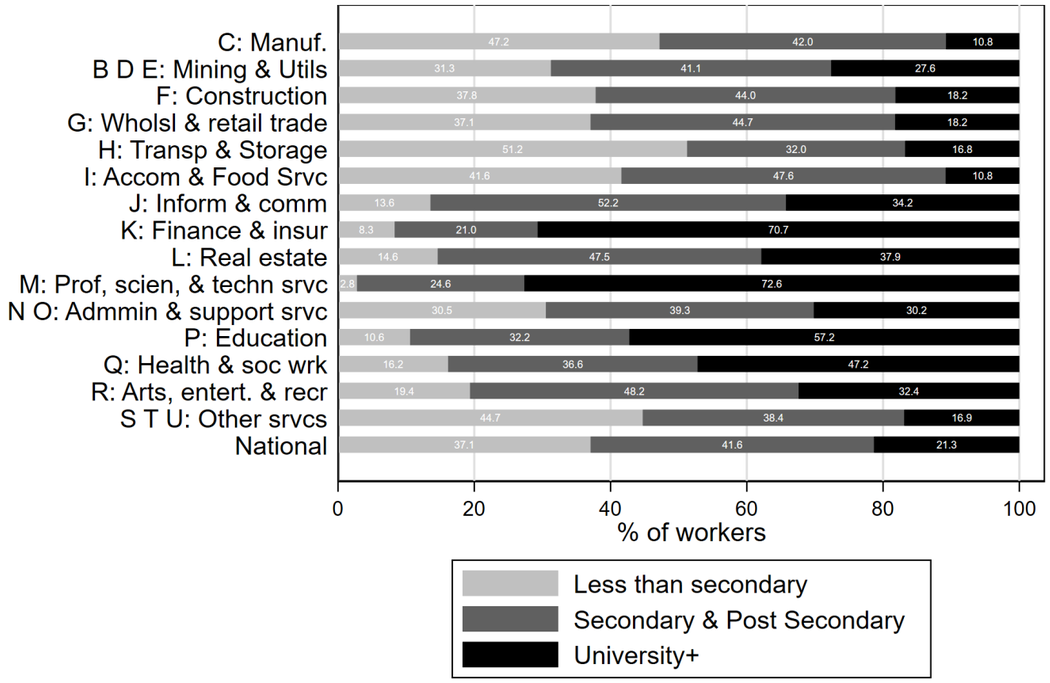


Source: Establishment Census data (2017) merged with data from Economic Census 2013.

Appendix I

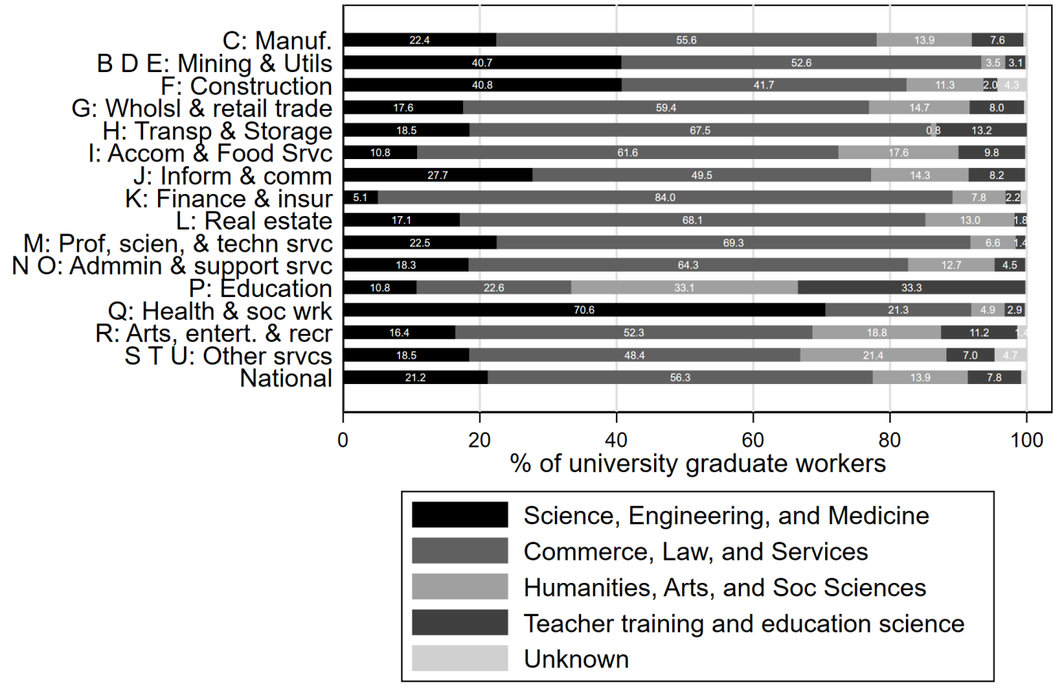
Characteristics of Establishments, Jobs and Workers by Industry Sections (1-digit level)

Figure A.I. 5. Percentage of workers by educational attainment and industry section (1-digit level), all establishment sizes



Source: Establishment Census 2017 & Labor Force Survey 2010-2014.

Figure A.I. 6. Percentage of workers with university degrees by specialization and industry section (1-digit level), all establishment sizes.



Source: Establishment Census 2017 & Labor Force Survey 2010-2014

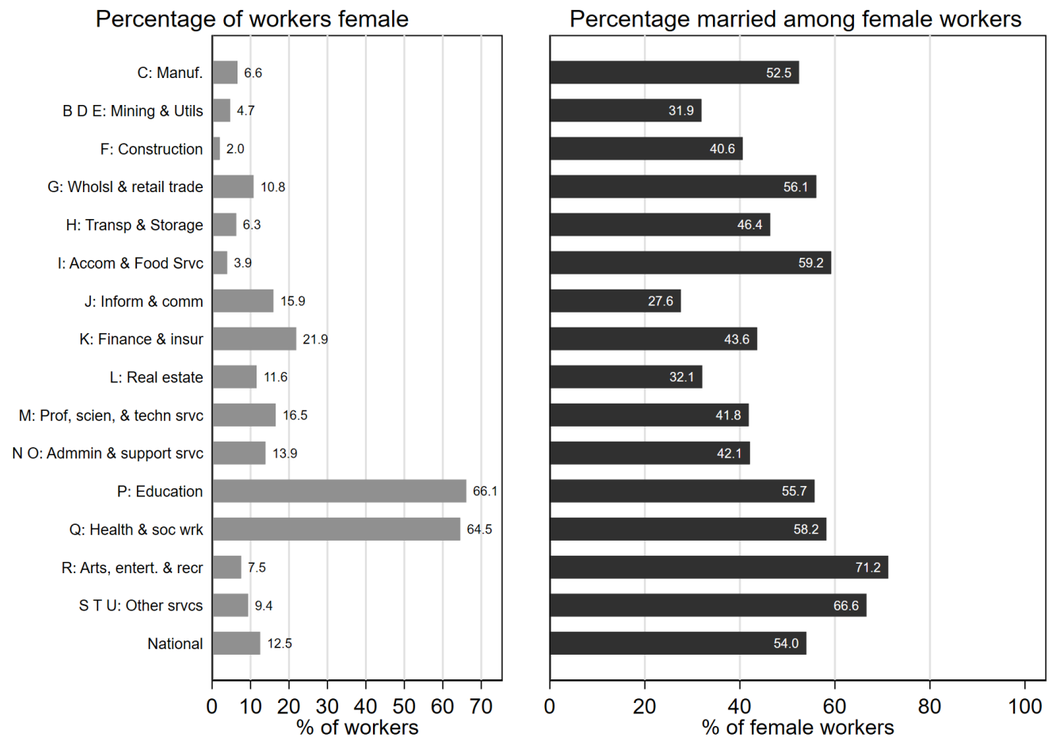
Appendix I

Characteristics of Establishments, Jobs and Workers by Industry Sections (1-digit level)

Figure A.I. 7. Percentage of workers by age group and industry section (1-digit level), all establishment sizes

Source: Establishment Census 2017 & Labor Force Survey 2010-2014.

Figure A.I. 8. Percentage of workers who are female and percentage of female workers who are married by industry section (1-digit level), all establishment sizes.

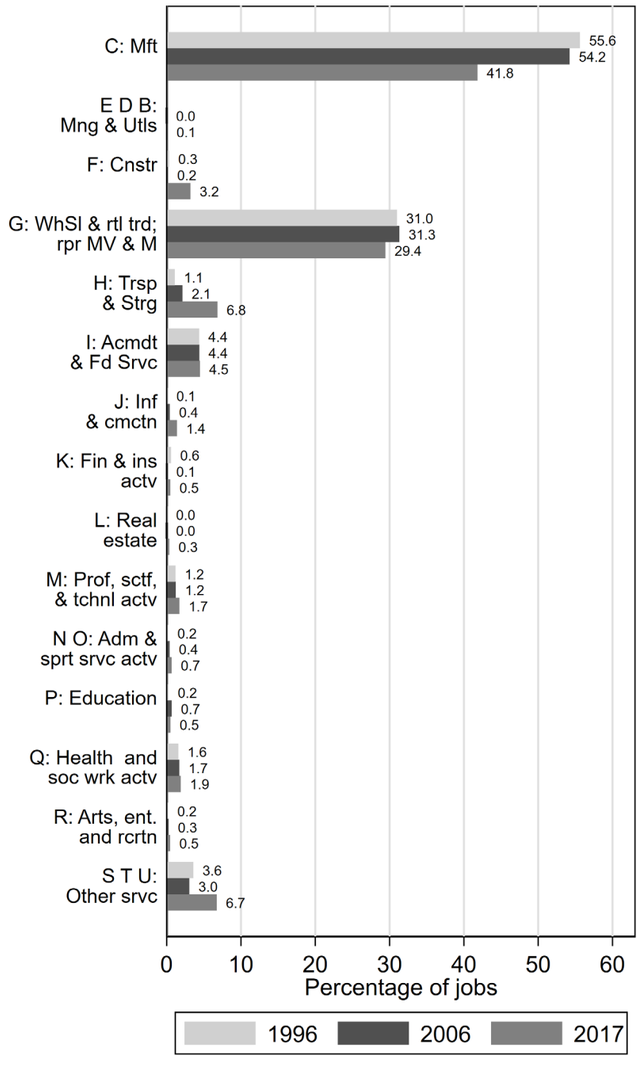


Source: Establishment Census 2017 & Labor Force Survey 2010-2014.

Job Creation Figures for Damietta, Port-Said and Suez Governorates.

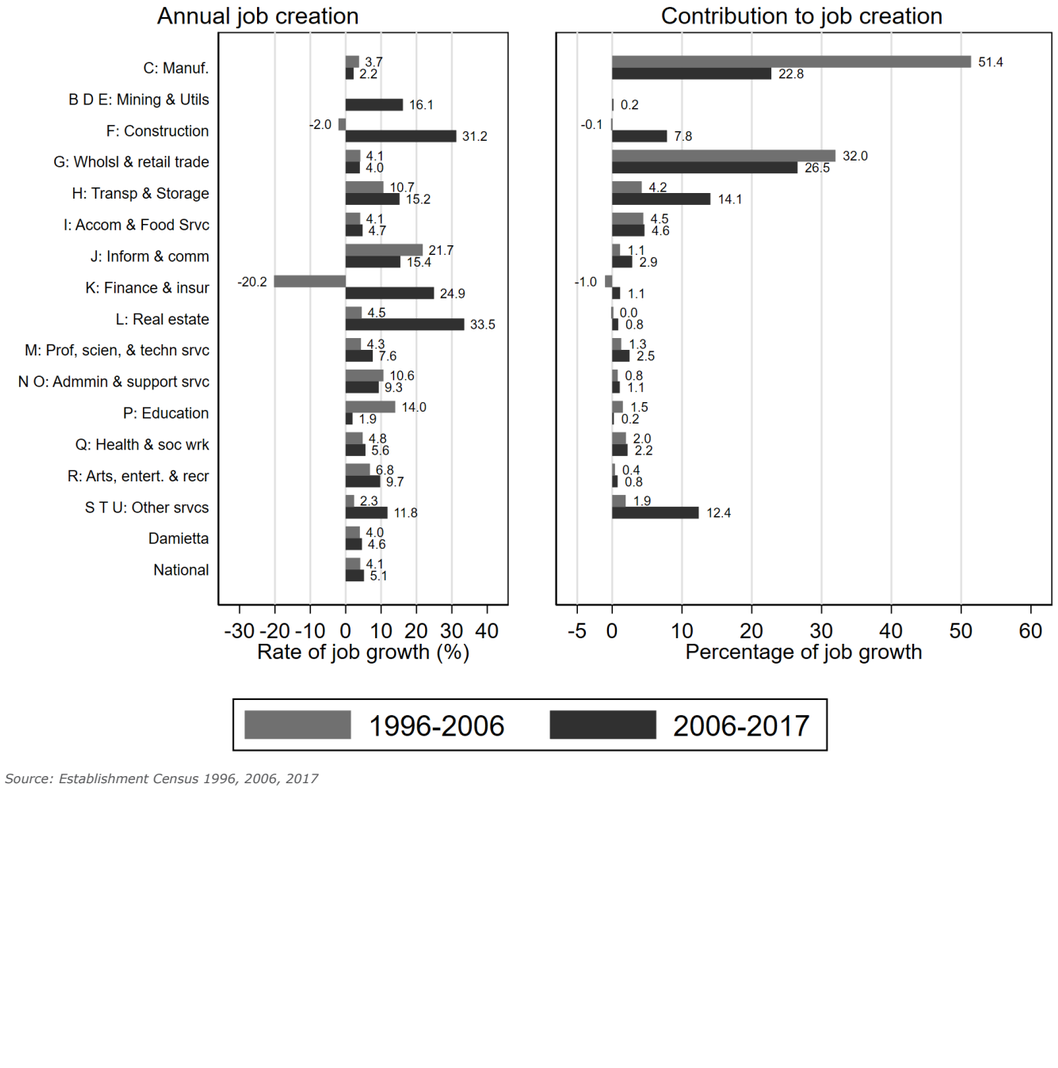
Damietta Governorate

Figure A II. 1. Composition of jobs by industry section (1-digit level) in Damietta governorate (percentage of jobs)



Source: Establishment Census 1996, 2006, 2017.

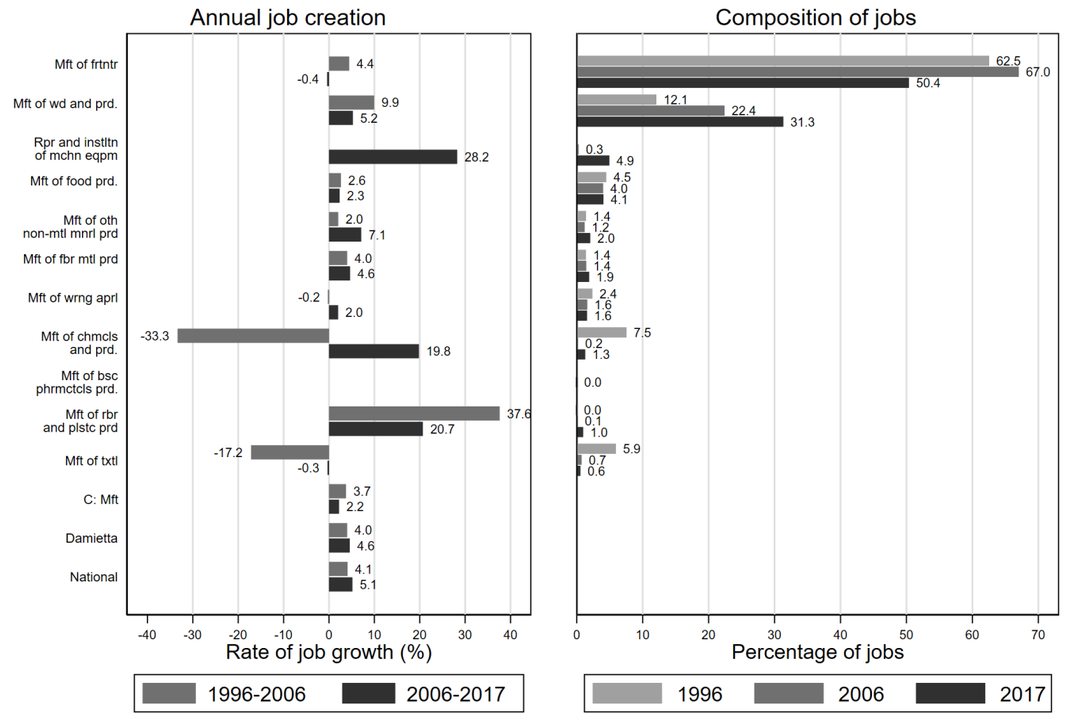
Figure A II. 2. Annual rate of job creation (percentage) and contribution to job creation (percentage of jobs created) by industry section (1-digit level) in Damietta governorate



Source: Establishment Census 1996, 2006, 2017

Job Creation Figures for Damietta, Port-Said and Suez Governorates.

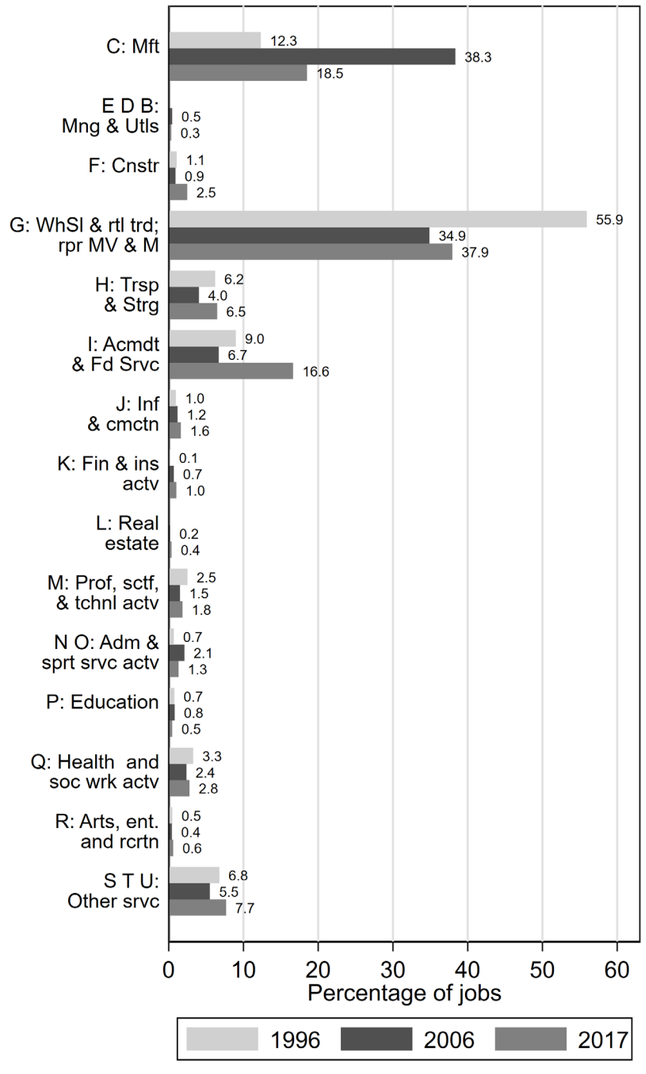
Figure A II. 3. Annual rate of job creation (percentage) and composition of jobs (percentage of jobs) in manufacturing sub-sectors (2-digit level) in Damietta governorate



Source: Establishment Census 1996, 2006, 2017.

Port-Said Governorate

Figure A II. 4. Composition of jobs by industry section (1-digit level) in Port Said governorate (percentage of jobs)

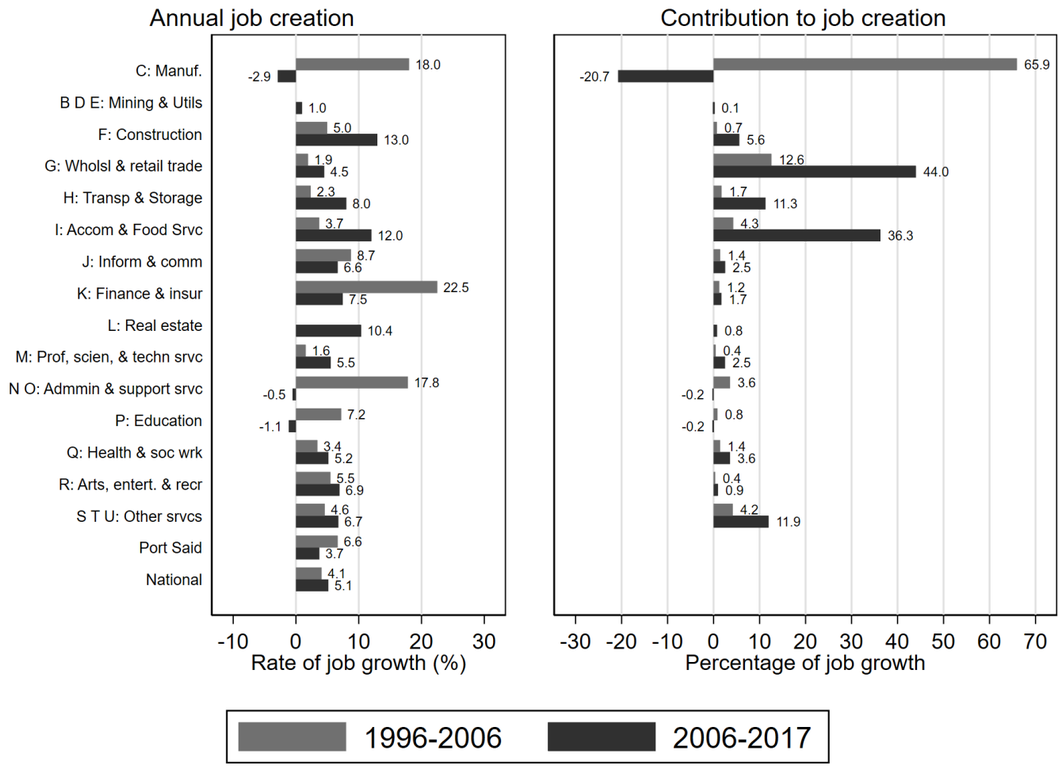


Source: Establishment Census 1996, 2006, 2017

Appendix II

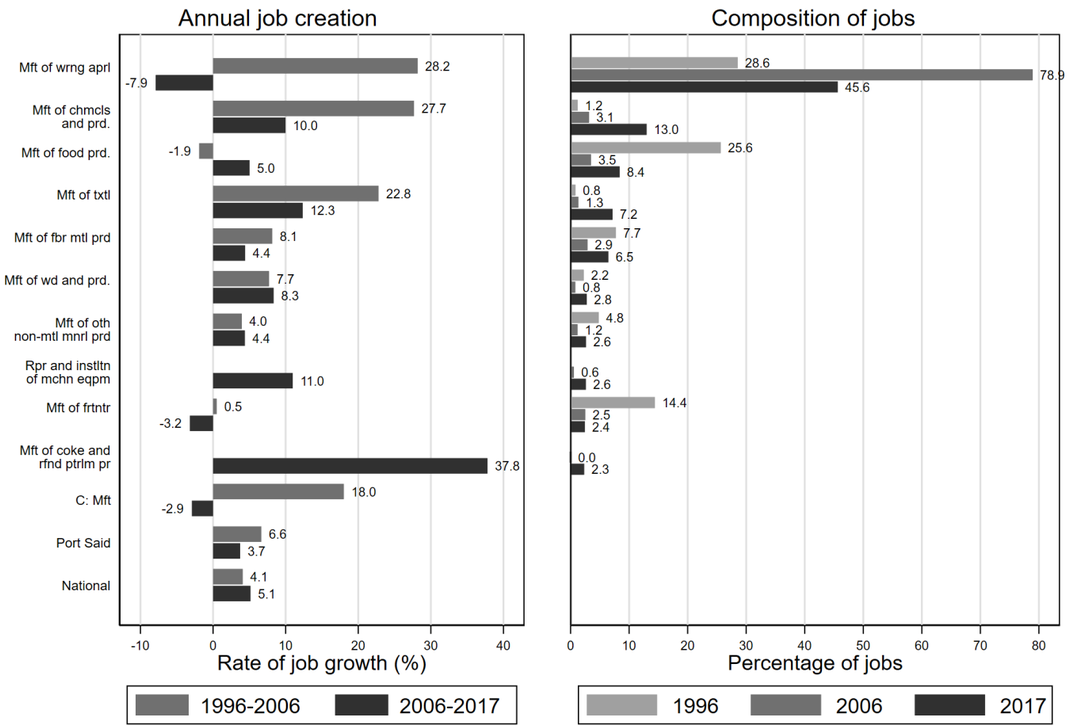
Job Creation Figures for Damietta, Port-Said and Suez Governorates.

Figure A II. 5. Annual rate of job creation (percentage) and contribution to job creation (percentage of jobs created) by industry section (1-digit level) in Port Said governorate



Source: Establishment Census 1996, 2006, 2017

Figure A II. 6. Annual rate of job creation (percentage) and composition of jobs (percentage of jobs) in manufacturing sub-sectors (2-digit level) in Port Said governorate

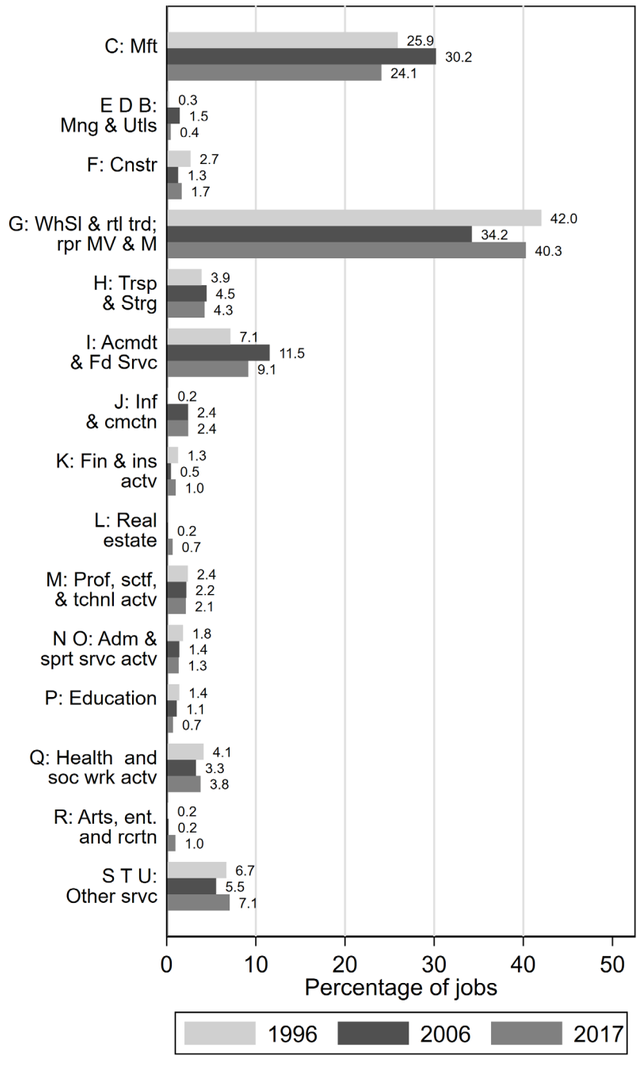


Source: Establishment Census 1996, 2006, 2017

Job Creation Figures for Damietta, Port-Said and Suez Governorates.

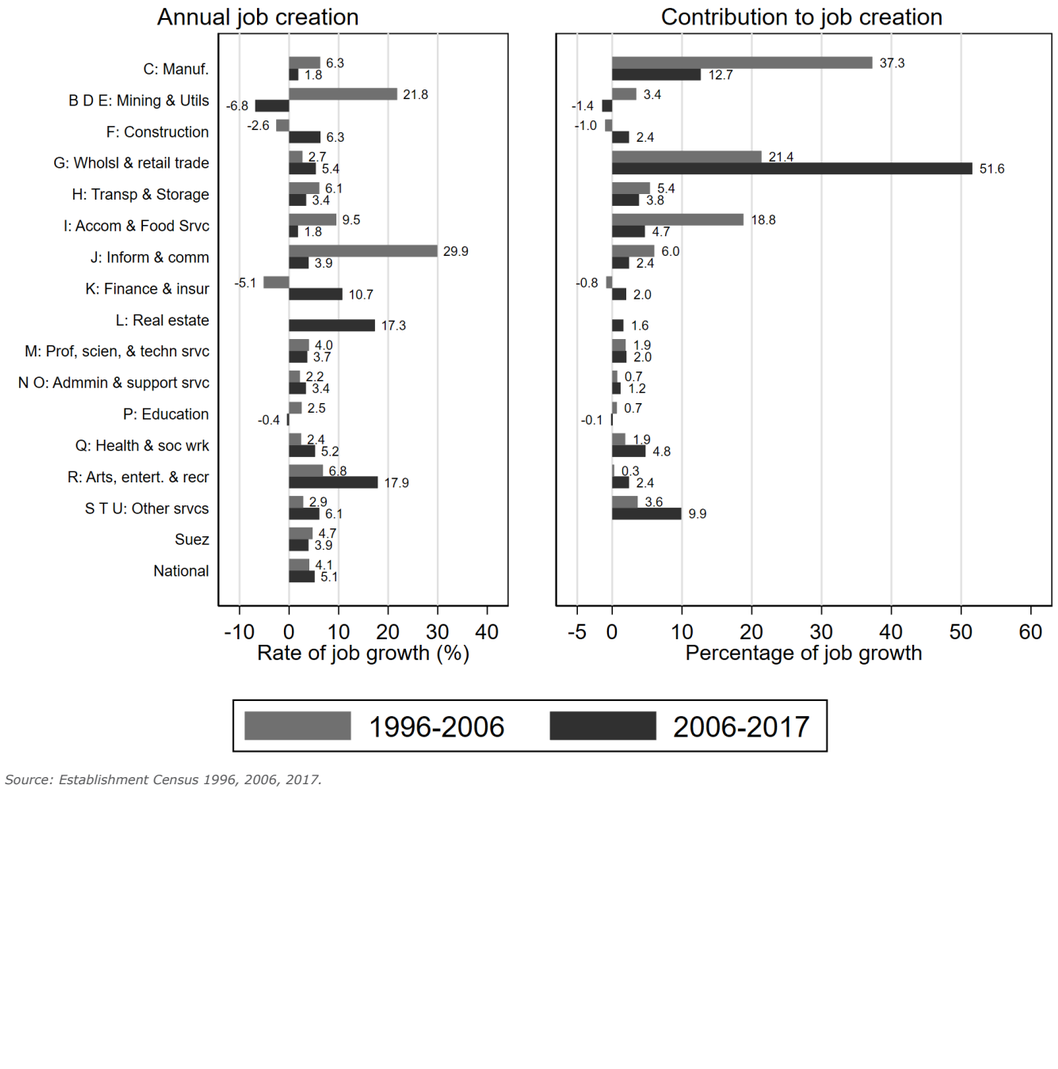
Suez Governorate

Figure A II. 7. Composition of jobs by industry section (1-digit level) in Suez governorate (percentage of jobs)



Source: Establishment Census 1996, 2006, 2017.

Figure A II. 8. Annual rate of job creation (percentage) and contribution to job creation (percentage of jobs created) by industry section (1-digit level) in Suez governorate

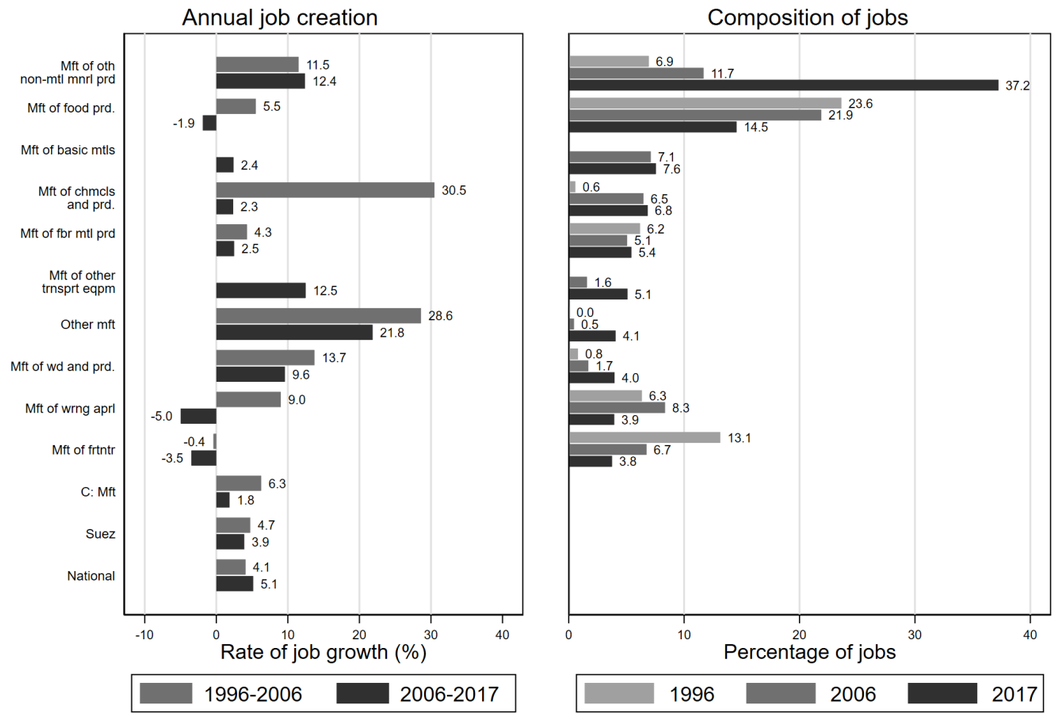


Source: Establishment Census 1996, 2006, 2017.

Appendix II

Job Creation Figures for Damietta, Port-Said and Suez Governorates.

Figure A II. 9. Annual rate of job creation (percentage) and composition of jobs (percentage of jobs) in manufacturing sub-sectors (2-digit level) in Suez governorate



Source: Establishment Census 1996, 2006, 2017.

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