

## Occupational Structure in Egypt in 1848-1996

Mohamed Saleh



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## I. Introduction:

This chapter documents the evolution of the occupational structure of the Egyptian economy over the last one and a half century in 1848-1996. While there is a voluminous literature on the history of the Egyptian economy over the nineteenth and twentieth centuries (Al-Gritli 1952; Fahmy 1954; Issawi 1967; Al-Hitta 1967; Mabro 1974; Mabro and Radwan 1976; Marsot 1984; Owen and Pamuk 1998; Ghazaleh 1999; Owen 2002), there are a few distinguishing features of this chapter: (a) It makes use of a new data source: nationally representative individual-level samples of the Egyptian population censuses of 1848 and 1868 that I recently digitized from the Egyptian Archives. Being the earliest population censuses from Egypt and the Middle East, the census samples allow me to document the empirical facts about the labor force participation rate and the occupational structure of the Egyptian male and female active populations in the pre-Colonial nineteenth century Egypt, instead of relying on (mostly, impressionist) secondary historical sources. (b) It covers a long period of time (150 years) that is examined systematically in a unified framework using the long series of the Egyptian population censuses, which is quite unusual for countries outside the Western World. (c) It documents the facts on the structural shifts of the Egyptian economy from the demand side of the labor market, i.e. the occupational outcomes of the Egyptian male and female active populations. It thus allows us to put under close scrutiny what is known about the structural transitions that the Egyptian economy witnessed over the nineteenth and twentieth centuries. (d) Since the data include information from the pre-Colonial period, and extend until the end of the twentieth century, they allow me to conjecture on the effects on the

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occupational structure of several regimes/policies: a unique pre-Colonial state industrialization program in 1805-1882, colonization and a trend of de-industrialization in 1882-1922, industrialization led by the national private sector in 1922-1952, post-WWII state industrialization in 1952-1970, and a shift towards more openness to the world economy in 1970-2000. These shifts are presumably not confined to Egypt, and may have implications for the trajectories of many developing countries throughout the world.

## **II. Historical Background:**

Traditional historiography dates the beginning of the modern economic history of Egypt with Muhammad Ali Pasha's accession to power in 1805. Ali, the autonomous Ottoman viceroy of Egypt in 1805-1848, embarked on one of the earliest state industrialization programs in the world that focused on textiles and military industries, within a broader set of state-led modernization policies that spanned education, military reformation, agriculture, and irrigation. To fund his ambitious projects, Ali monopolized internal and external trade, and centralized the tax system (Owen 2002, pp. 65-6). Nonetheless, the program failed in transforming Egypt into an industrialized economy, and most of the state manufactories closed down by the end of Ali's era. Traditional accounts for this failure center around two causes: (1) the Anglo-Turkish commercial convention (1838) which abolished monopolies and reduced tariffs in the Ottoman Empire, and (2) the London treaty (1841) which limited the size of the Egyptian army, the *raison d'être* of the state manufactories (Owen 2002, pp. 75-6). Owen, however, suggests that there were structural causes for the failure of the program such as the fading centralized power of the state since 1837, the unqualified personnel, the fuel and power problems, and, perhaps most importantly, the failure to create an entrepreneurial class.

As Egypt became increasingly open to international trade, Ali's successors focused on transportation in the second wave of state industrialization (1848-1882). This period was

marked by projects such as railways (1853), telegraph (1854), steam navigation (1856 and 1863), tramways (1861), and, perhaps most remarkably, the Suez Canal (1869) (Al-Hitta 1967, pp. 215-91). The technology used in these projects was presumably more capital-intensive than the one used in Ali's projects (which relied on animal power). Both internal and external debts were used to fund the second wave, and the increased debt (especially for the Suez Canal) eventually led to the British Occupation in 1882. However, the second wave was perhaps more successful, and many of the transportation enterprises survived until today.

Although the two waves of the state industrialization program, which lasted from 1805 to 1882, failed to transform the Egyptian economy into an industrialized one, they created state industrial institutions that employed a significant share of the Egyptian active male population, especially in urban Egypt, and formed the nucleus of the Egyptian urban working class. While the first wave is usually credited for being an independent attempt of industrializing an agricultural economy, the second wave is viewed as a de-industrialization phase, or a backward shift from manufacturing to agriculture, and to some extent, services (in particular, transportation). This was part of a general trend in the Ottoman Empire towards more integration into the world economy, which was induced by the increased European influence in the region. For Egypt, the shift meant an increased emphasis on exporting raw long-staple cotton, which necessitated facilitating transportation.

The de-industrialization trend continued under the British Occupation of Egypt (1882-1922), where the Egyptian economy became even more dependent on cotton exports. Following the (nominal) independence of Egypt in 1922, Egypt witnessed a period of growth of the share of the Egyptian private sector in manufacturing in 1922-52. However, the exportation of cotton continued to be the backbone of the Egyptian economy until the eruption of the 1952 military coup that overthrew Ali's dynasty from Egypt's rule.

The country witnessed a second ambitious attempt at state industrialization in 1952-1967 following the 1952 military coup. The socialist-inspired program focused on heavy industries and electrification via establishing the Aswan High Dam in 1960-70, but it essentially came to an end with Egypt's defeat in the 1967 Egyptian-Israeli War. However, the program remains highly controversial in the literature and most of the debates surrounding it are ideologically biased, with little known about the facts of the program.

The following decades (1970-1996) witnessed a shift in Egypt's economic policy towards openness to the world economy. This was accompanied by the growth of the share of the services sector, relative stagnation in the share of manufacturing, and increased withdrawal of the state from the economic realm.

### **III. Data Sources:**

Although the previous brief qualitative description is an old and to some extent agreed-upon account in the historical literature, relatively little is known on the long-run empirical quantitative facts on the occupational shifts from the primary to the secondary and the tertiary sectors that the Egyptian economy witnessed throughout the entire period. In order to establish the empirical facts over such a long period of time, one needs to dig through various data sources, and some of these are not digitized. The chapter attempts to fill in this gap in the historical literature using several new census data sources: (a) individual-level census samples from 1848 and 1868, which I recently digitized from the original manuscripts at the Egyptian Archives, and which include information on occupational titles and the place of work; the latter being available mainly for workers who are employed by the state, and (b) the decennial published census reports of 1897, 1907, 1917, 1927, 1937, 1947, 1960, 1976,

1986, and 1996 that were digitized by a French research center in Egypt, the *Centre d'Études et de Documentation Économiques, Juridiques et Sociales* (henceforth, CEDEJ).<sup>2</sup>

Following the evolution of the labor force participation rates by gender and the occupational structure at the national level in 1848-1996 requires merging the occupational information that is reported in each census. Basically, the 1848 and 1868 census samples report occupational titles at the individual-level, while the census reports of 1897 to 1996 classify occupations into a few aggregate categories that vary from one census to the other on an ad hoc basis. I resorted to the most aggregated occupational structure classification in order to build a consistent time series of the variables of interest.

#### **IV. Labor Force Participation Rate in 1848-1996:**

Figures I and II depict the evolution of the male and female labor force participation rates in 1848-1996. Given the data limitations and to ensure the internal consistency across the censuses, I define labor force participation rate as the number of individuals with stated occupations divided by the (male or female) population size in working age. Two notes are in order: First, the working-age population differs from one census to the other. I defined it as those who are 15 years old and above in 1848 and 1868, since I have the individual-level census samples. But it is defined as the entire population in 1897, 1907, 1917, and 1927, the population that is 5 years old and above in 1937 and 1947, the population that is 6 years old and above in 1960, 1976, and 1986, and the population that is 15 years old and above in 1996. Second, the concept of individuals with stated occupations also differs from one census to the other, a problem that is perhaps more problematic for females, where the enumeration of

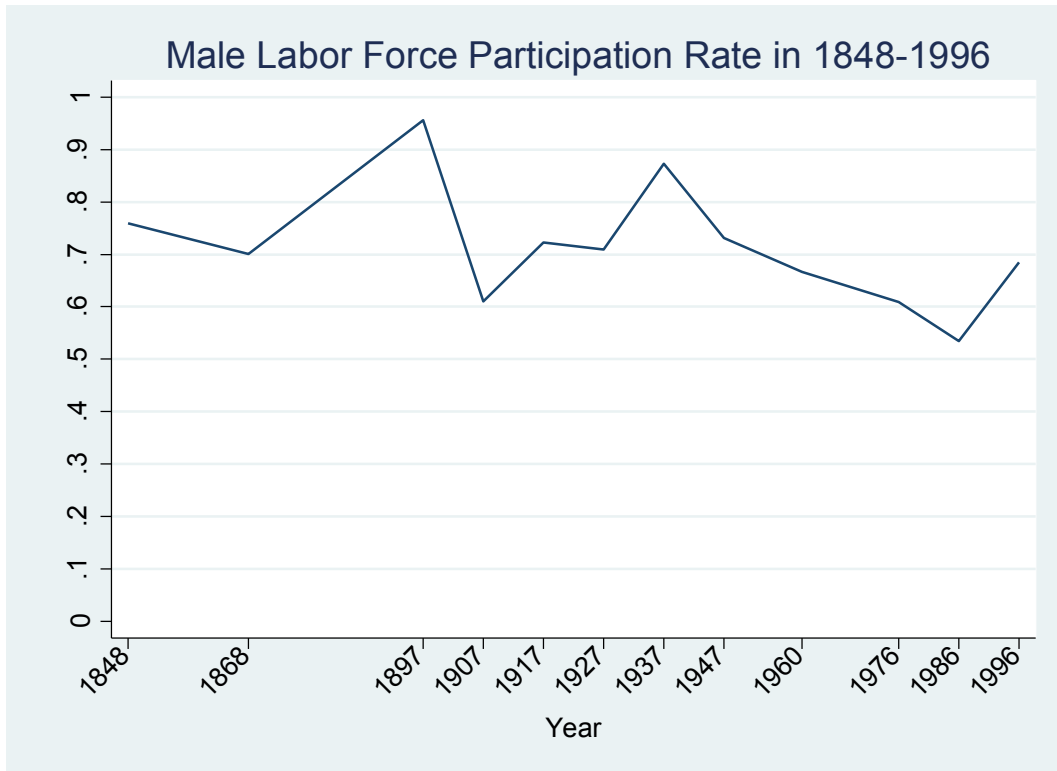
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<sup>2</sup> The published CD-ROM that CEDEJ produced digitized all variables in the published census reports from 1882 to 1996 that were available at the lowest administrative level in Egypt: the village/urban quarter-level, but did not digitize any variable that was only available at a higher administrative level in the census reports (district, province, and national). Since the census reports of 1927 to 1996 included the occupational information at the village-urban quarter-level, I could find this information in the CEDEJ CD-ROM. However, it turned out that the earlier census reports of 1897 to 1917 include occupational information at the district-level, thus they are not digitized in the CEDEJ CD-ROM, and so I resorted to the original census reports to document the occupational structure in 1897-1917. Finally, the 1882 census report does not include any occupational information.

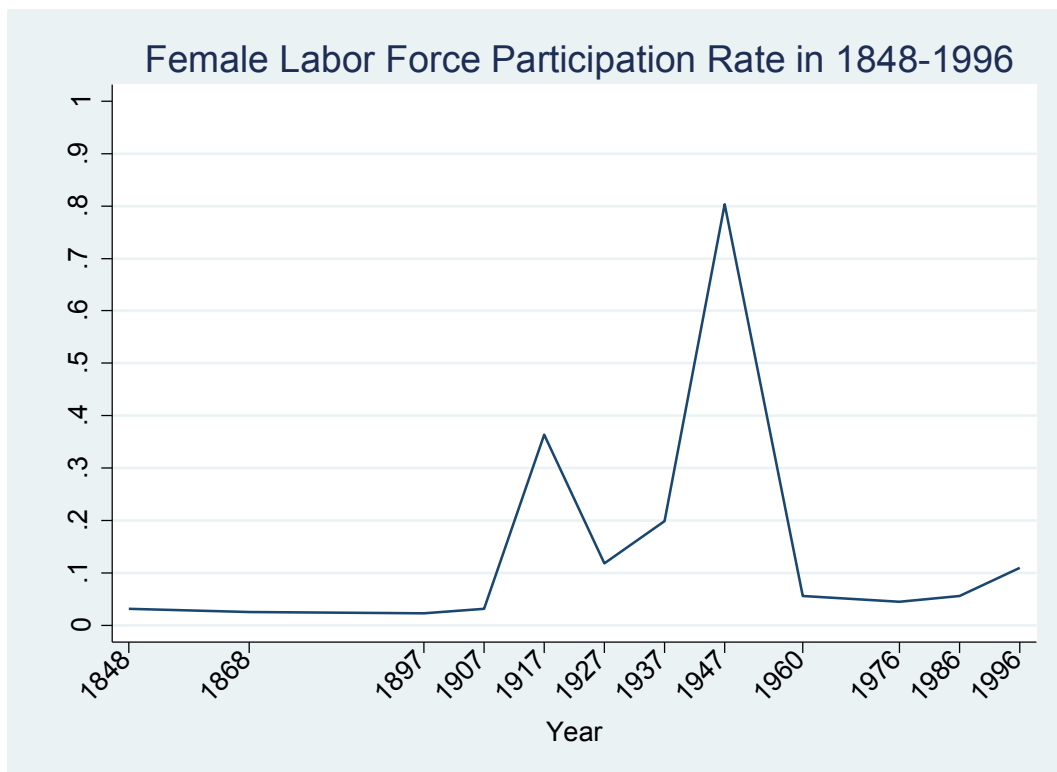
active females varies widely across censuses. On the one hand, students and retirees are considered “with occupations” and hence part of the labor force in 1848 to 1947, but not afterwards. This results in a spurious decline in the male labor force participation rate in 1960-1996. On the other hand, many females residing in rural areas are considered as employed in agriculture or “with occupations” and hence part of the labor force, in 1917 to 1947, differentially more than the earlier censuses of 1848-1907 and the later censuses of 1960-1996. This also results in a spurious increase in the female labor force participation rate in 1917-1947.

Having these caveats in mind, the figures shed some light on the levels and evolution of the labor force participation rate by gender in 1848-1996. Both male and female labor force participation rates are relatively stable over the whole period. Male labor force participation rate in 1996 is not much different from that in 1848 and ranges about 70-80 percent, although it witnessed considerable fluctuations that are most likely due to the aforementioned changes in definitions. Interestingly, the female labor force participation rate is extremely low over the whole period (ignoring the aforementioned spurious increase in 1917-47) despite the very modest increase in 1960-1996. The rate in 1996 is about 11 percent compared to 3 percent in 1848. This implies that Egyptian women made modest progress in their participation in the labor market over the last one and a half centuries, although the figures in 1960-1996 are likely biased downwards since students are not counted as part of the labor force over this period.

**Figure I: Male Labor Force Participation Rate in 1848-1996**



**Figure II: Female Labor Force Participation Rate in 1848-1996**





## **V. Occupational Structure in 1848-1996: Overview:**

How did the occupational structure of the Egyptian active labor force evolve in 1848-1996? Did the occupational shifts that Egypt witnessed over the period reflect the policy changes that are documented in the historical literature? In order to simplify the exposition, I classify the occupational categories in the Egyptian censuses into primary, secondary, and tertiary sectors. The specific industries that lie within each sector are defined by the data limitations in each census report, and are in order to ensure internal consistency between the censuses. In particular, the primary sector includes agriculture, animal breeding, fishing, and hunting, the secondary sector includes mining, manufacturing, and construction, while the tertiary sector includes transportation, commerce, and services.<sup>3</sup>

Figures III and IV depict the evolution of the occupational structure across the three sectors for the active males and female populations (i.e. those with stated occupations) in 1848-1996. For males, the share of the primary sector out of the active male labor force is generally stable, albeit with a few fluctuations, lying with the range of 59 to 68 percent of the active male labor force in 1848-1960. There is one exception, however, that is worth mentioning: The share of the primary sector is remarkably lower in 1868 at 46 percent. This, however, seems to stem from a statistical problem rather than from a real drop in the share of agriculture. In particular, the 1868 census was not a complete census: Most of the rural provinces in the Nile Delta are totally missing, besides about half of the rural provinces in the Nile Valley.<sup>4</sup> The decline in the share of rural provinces in the census, besides a large missing occupational title problem for about 30 percent in the enumerated rural provinces, may explain the artificial decline in the share of the primary sector out of the active male labor force in 1868. Interestingly, the share of the primary sector out of the active male labor force

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<sup>3</sup> In principle, mining is usually classified within the primary sector. However, in the 1927 census, mining is not separated from manufacturing and so I chose to classify mining under the secondary sector in order to ensure internal consistency.

<sup>4</sup> I partially correct for this problem by increasing the relative weights of the surviving rural provinces.

did not start to decline until after 1960. It dropped from 59 percent in 1960 to 50 percent in 1976, and then continued its gradual decline to 44 percent in 1986, and further to 34 percent in 1996, i.e. about half of its initial share in 1960.

Corresponding to the observed trend of the stable share of the primary sector in 1848-1960, the share of the secondary sector remained stable around 10-12 percent of the active male labor force during that period. This spans various episodes: the period of the first wave of state industrialization under Muhammad Ali Pasha in 1805-1848, the second state industrialization wave under Ali's successors in 1848-1882, the de-industrialization under the British Occupation in 1882-1922, the rise of the Egyptian private sector after Egypt's nominal independence in 1922-1952, and the first half of the Egyptian Republic regime in 1952-1960. This might suggest that the documented historical episodes of the rise and fall of Egypt's industrialization may not in fact reflect an aggregate structural change in the composition of the labor force from agriculture to manufacturing. Instead, these episodes were perhaps shifts in the mode of production in which the existing active male labor force in manufacturing was employed. In particular, these episodes were arguably shifts from the artisanal workshop mode of production towards the factory system (or vice versa), but without generating a steady immigration of the labor force from agriculture to manufacturing.

Interestingly, the share of the secondary sector witnessed a gradual increase in 1960-1996. It witnessed an increase from 12 percent in 1960 to 18 percent in 1976, which corresponds to the period of state industrialization under Nasser in 1960-67. The share of the secondary sector continued to increase gradually to 22 percent in 1986 and to 25 percent in 1996, i.e. double its initial share in 1960.

Similarly, the share of the tertiary sector was also generally stable, with a few fluctuations, around 22-31 percent of the male active labor force in 1848-1960. Again, the 1868 census represents an exception because of the over-representation of urban provinces in

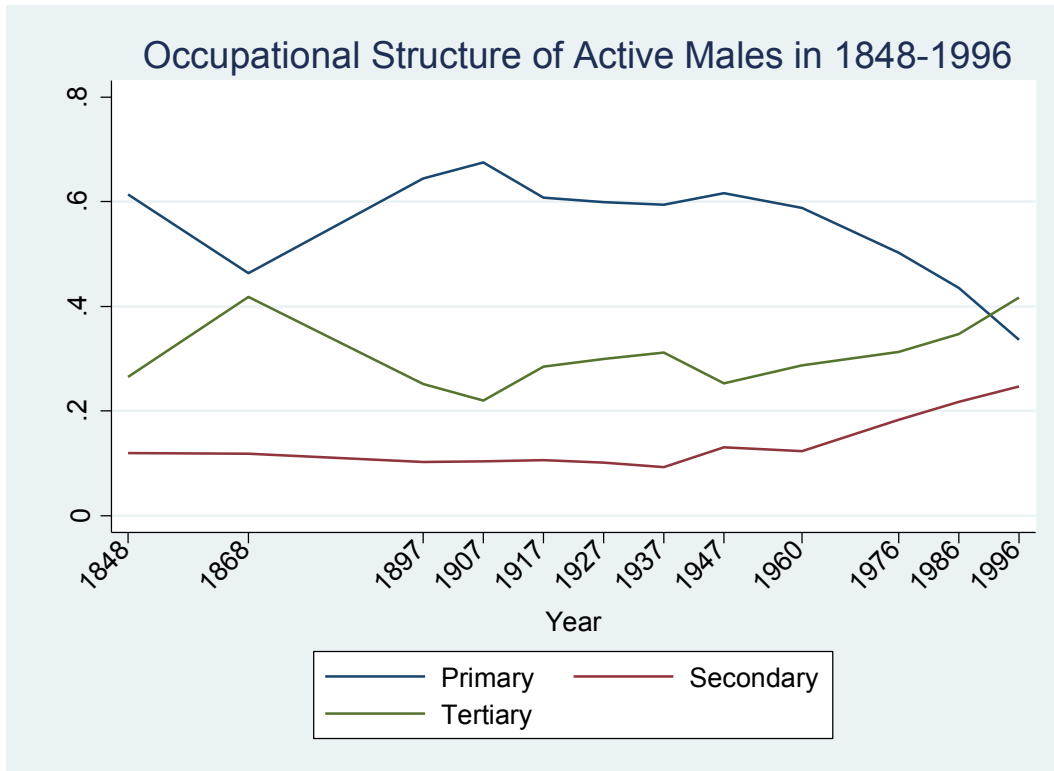
the census. But the rise of the share of the tertiary sector appears to have only started after 1976, i.e. a decade later than the rise of the share of the secondary sector. After 1976, and corresponding to the steady decline in the share of the primary sector in 1976-1996, the share of the tertiary sector rose gradually from 31 percent in 1976 to 34 percent in 1986 and then further to 42 percent in 1996.

Overall, figure 3 suggests that Egypt was highly stable for more than a century in 1848-1960 with respect to the aggregate occupational structure of its active male labor force. It only witnessed its first occupational structure shift in 1960-1996 with the decline of the share of the primary sector from 59 percent in 1960 to 34 percent in 1996. This shift was accompanied by both an increase in the share of the secondary sector that started after 1960 and continued gradually until 1996, and an increase in the share of the tertiary sector that started after 1976 and continued gradually until 1996.

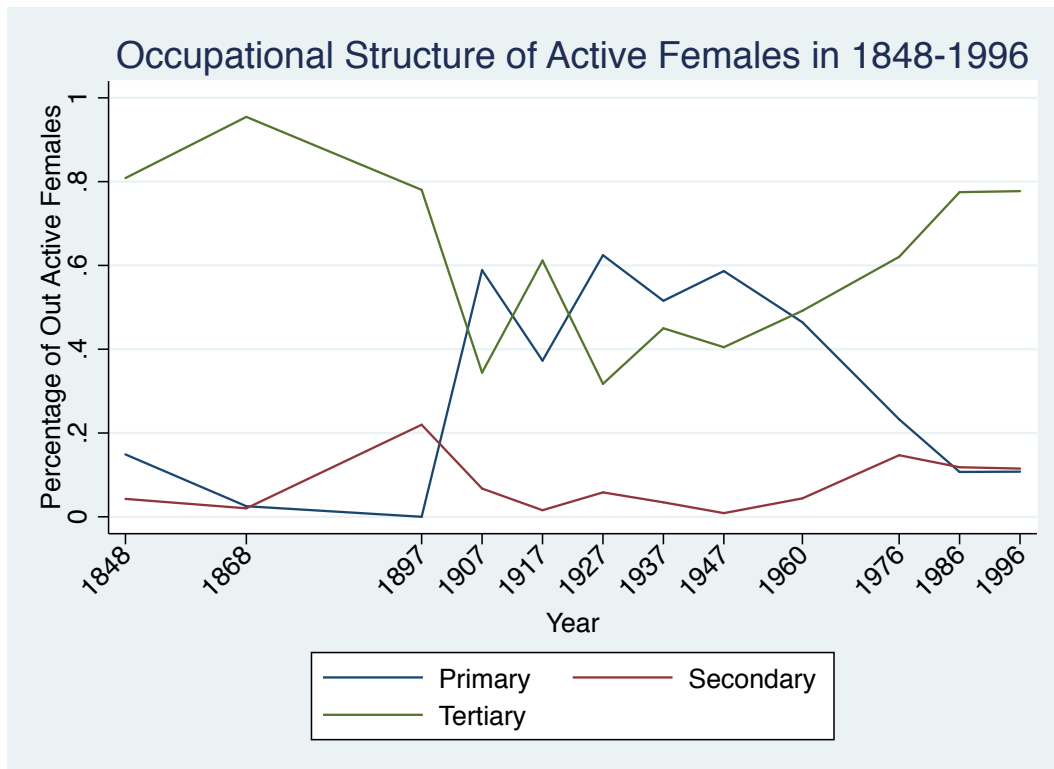
Figure 4 depicts the evolution of the occupational structure of the active female labor force in 1848-1996. The figures here should be interpreted with caution because of the differences across censuses in enumerating the active female labor force. Active females were overwhelmingly (about 80-90 percent) working in the tertiary sector (mostly reported as domestic servants or slaves) in 1848-1897. The share of females working in the primary or secondary sectors was almost negligible during this period. Starting from the 1907 census report, however, it appears that the census reports increasingly recorded females in rural provinces as actively engaged in agriculture. This, however, appears to be a reporting artifact rather than a real increase in the share of females employed in the primary sector. If the figures in 1907-1996 are consistent in enumerating active females across sectors, it appears that there was a shift from the primary sector to the secondary and tertiary sectors after 1947. The share of the primary sector dropped from 59 percent of active females in 1947 to 46 percent in 1960 and then to 23 percent in 1976. It continued to decline to 11 percent in 1986

and 1996. This decline was mirrored by an increase in the share of the tertiary sector from 40 percent in 1947 to 78 percent in 1996. Interestingly, the share of the secondary sector out of the active female labor force remained negligible until 1947, and then it started to increase gradually from 1 percent in 1947 to 4 percent in 1960 and then to 12 percent in 1996.

**Figure III: Occupational Structure of Active Males in 1848-1996**



**Figure IV: Occupational Structure of Active Females in 1848-1996**



## **VI. Active Male Occupational Structure in 1848-1996: Closer Analysis:**

The previous interpretations are confirmed if one looks at tables I-IV, which show a more detailed analysis of the evolution of the active male occupational structure in Egypt in 1848-1996 under the successive economic regimes. Overall, similar to what has been documented from the general trend in figure III, there is high persistence of the active male occupational structure in 1848-1960, contrary to what has been suggested by the historical literature. However, table IV shows a more interesting result, beyond what has been shown in the previous section. Basically, the observed increase in the share of the secondary sector in 1960-1996 is largely due to a rise in the share of the construction sector, rather than the manufacturing sector, which actually witnessed a relatively modest increase over the period. This is an important result because it suggests that the occupational shift that Egypt witnessed in the second half of the twentieth century is mainly one from the primary sector towards the tertiary sector and the construction sector. Industrialization does not seem to have taken place in Egypt despite the presumably large push at state industrialization in 1952-1967.

## **VII. Conclusion:**

This chapter documented the evolution of the occupational structure of the male and female active labor force in Egypt in the last one and half century in 1848-1996. Contrary to traditional historiography, the documented trends suggest a high degree of persistence and stability in the male occupational structure in 1848-1960, which spans various economic regimes. The first occupational shift took place in 1960-1996 from the primary sector to the secondary sector (mainly, construction) and the tertiary sector. The underlying causes behind these trajectories are subject to further research.

**Table I: Male Occupational Structure Under Muhammad Ali and Ismail (1848-1868)**

	1848	1868
<b>Primary</b>	61.45%	46.31%
• Agriculture, Animal Breeding, Fishing		
<b>Secondary</b>	12.00%	11.89%
• Manufacturing	9.97%	8.57%
➤ <i>Including: Textiles</i>	3.78%	2.53%
• Construction	2.03%	3.32%
<b>Tertiary</b>	26.55%	41.79%
• Transportation	3.70%	3.69%
• Commerce	3.14%	5.55%
• Services	19.72%	32.56%
<b>Total</b>	100.00%	100.00%

**Table II: Male Occupational Structure Under the British Occupation (1897-1917)**

	1897	1907	1917
<b>Primary</b>	64.50%	67.54%	60.81%
• Agriculture, Animal Breeding, Fishing			
<b>Secondary</b>	10.21%	10.42%	10.65%
• Manufacturing, Mining, and Quarrying			
<b>Tertiary</b>	25.20%	22.04%	28.54%
• Transportation		2.92%	3.76%
• Commerce		4.44%	6.08%
• Services		14.67%	18.70%
<b>Total</b>	100.00%	100.00%	100.00%

**Table III: Male Occupational Structure Under the Egyptian Kingdom (1927-1947)**

	1927	1937	1947
<b>Primary</b>	59.95%	59.51%	61.61%
• Agriculture, Animal Breeding, Fishing			
<b>Secondary</b>	10.13%	9.29%	13.08%
• Manufacturing, Mining, and Quarrying			11.19%
• Construction			1.89%
<b>Tertiary</b>	29.92%	31.21%	25.31%
• Transportation		2.28%	3.40%
• Commerce	8.29%	6.60%	9.17%
• Services			12.74%
<b>Total</b>	100.00%	100.00%	100.00%

**Table IV: Male Occupational Structure Under the Egyptian Republic (1960-1996)**

	1960	1976	1986	1996
<b>Primary</b>	58.88%	50.26%	43.55%	33.65%
• Agriculture, Animal Breeding, Fishing				
<b>Secondary</b>	12.35%	18.40%	21.76%	24.69%
• Manufacturing, Mining, and Quarrying	10.10%	13.95%	13.66%	15.36%
• Construction	2.25%	4.45%	8.09%	9.33%
<b>Tertiary</b>	28.77%	31.34%	34.69%	41.66%
• Transportation	3.67%	4.96%	5.89%	6.48%
• Commerce	8.58%	8.64%	7.57%	9.86%
• Services	16.53%	17.74%	21.23%	25.32%
<b>Total</b>	100.00%	100.00%	100.00%	100.00%



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