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Amirah El-Haddad

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GENDER AND WORK IN THE MENA REGION
WORKING PAPER SERIES

Poverty, Job Quality and Labor Market Dynamics

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Amirah El-Haddad

Population Council

Amirah El-Haddad is an Associate Professor at the Faculty of Economics and Political Science, Cairo University, and a Research Associate of the Economic Research Forum, Cairo, Egypt.
Email: Amirah.elhaddad@gmail.com

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Abstract

Analysis of the wage gap has most usually been carried out across the formal sector as a whole, missing nuances of differences in pay in specific occupations. This paper analyzes data from a new survey of firms and workers in the textiles and clothing sector collected in 2009. These data allow for the explanation of the sector's gender wage gap by poorer endowments, relegation of women to low–paying firms and occupations, and by within-firm and within-occupation differential in returns. There is a pay gap in this sector, with men receiving an hourly wage 29 percent higher than that of women. This gap arises partly as women are concentrated in the lower paid occupations and the lower–paying firms. There is clear glass ceiling in effect with women least represented in the highest paying management positions. Somewhat surprisingly, differences in returns favor women, and the intra-occupational pay gap is reversed once characteristics, including firm characteristics, are controlled for. Failure to control for firm characteristics (as in most studies) will over-estimate the gap. Outright discrimination is the sole reason for discrimination within the sector and could be partially explained by the difference between the role society expects of men and that it expects of women, the former being the main bread earner. The largest of the pay gap (more than 70 percent)is attributable to differences in endowments, such as worker education and experience. Thus, closing the pay gap is not just a matter of equal pay for equal work, as is now being discussed in Egypt, but of enhancing women's capabilities to ensure equality of opportunity upon entering the labor force.

1. Introduction

Textiles and clothing play an important role in Egypt's economy, notably their contribution to employment, value added, and foreign exchange earnings. Textile and clothing enterprises account for one-fifth of all industrial sector firms, being the largest single employer with over 400,000 workers, that is almost a quarter of the industrial labor force (Industrial Development Authority 2009). In 2008 the industry accounted for 26.4 percent of industrial production with a total value added of LE 33.5 billion (Ministry of State for Economic Development (MOED) 2008), and close to 10 percent of the country's exports (International Trade Centre 2008). The government has long utilized this sector to absorb

Egypt's growing labor force and help tackle unemployment problems and generate incomes for about half a million Egyptian families. The growth of the sector was hoped to move workers from the informal sector with worse, less secure, working conditions and low returns.

As of the late 1990s, the TC sector has increasingly attracted female workers. Increasing employment was a consequence of the growing private sector, both as public firms were privatized or more specifically neglected (El-Haddad 2010), but more particularly from the entry of new private firms in the newly liberalized economic environment following the adoption of the Economic Reform and Structural Adjustment Program (ERSAP) in 1991. In fact the entire increase in private sector employment between 1998 and 2006 was on account of the feminization of these two sectors (Assaad and El-Hamidi 2009). Many more women are employed in TC compared to the average national level: at the national level in 2007 just under 20% (just over 20%) of the private sector (overall) labor force were women whereas in textiles and clothing (TC) this share doubles to about 40%.

However, labor intensive industries, especially those producing for the export market, have often been criticized for providing only low wage employment, especially for women. So can the TC sector in Egypt be expected to yield a living wage, especially for women who are either in lower paid occupations or suffer from wage discrimination? To answer this question, this paper examines the gender wage gap in Egypt's TC sector. Specifically, the paper analyzes data from a new survey of firms and workers in the TC sector collected in 2009. These data allow for the explanation of the sector's gender wage gap by poorer endowments, relegation of women to low–paying firms and occupations and by within-firm and within-occupation differential in returns. These results are presented as a Oaxaca decomposition controlling for both worker and firm characteristics.

The paper is divided into four sections. The second presents data and methodology employed in this paper. Results are discussed in the third section of the paper. The fourth section concludes.

2. Data and Methodology

2.1 Data Sources

Two new data sets-a firm questionnaire covering 275 TC firms and a worker questionnaire covering 5,383 TC workers-were collected in September, 2009.[1] This paper uses the latter. The following two sections briefly describe the questionnaire and sampling design.

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1   The survey was conducted by the Cabinet's Information and Decision Support Center (IDSC).

2.1.1 Firm Level Survey

The firm survey comprised six modules: basic firm data, firm activity, production, sales, exports and employment, trends after the financial crisis, job opportunities, and future plans. Table 1 gives a breakdown of sampled firms.

Firms were sampled based on a combination of two sample frames provided by the Egyptian Federation of Industries.[2] Unfortunately, the final frame does not reflect the true number of firms in the TC industry in Egypt. There simply is not any comprehensive, accurate and detailed frame that includes basic firm level data to ensure a representative sample. The 275 firms covered the governorates of Greater Cairo, Alexandria and El-Sharkyia; these three include more than 90 percent of Egypt's TC firms. Greater Cairo comprises the governorates of Cairo, Giza, 6th of October, Helwan and El-Qalyubia.

Stratified sampling was used to ensure sufficient representation of large sized and exporting firms. The resulting geographical distribution of sampled firms was very similar to that in the sample frame (Table 1). Tables 2 and 3 give a breakdown of sampled firms by activity, market orientation, ownership and firm size.

Table 1: Sample Firm Distribution by Location

	No. & % of firms in the sample		No. & % of firms in sample frame	
Greater Cairo	181	66%	820	70%
Alexandria	60	22%	253	22%
El-Sharkyia	34	12%	99	8%
	275	100%	1172	100%

Source: Author's calculation based on Egyptian Federation of Industries Sample Frame and IDSC Sampling Design.

Table 2: Sample Firm Distribution by Activity, Market Orientation and Ownership

	Activity		Market Orientation			Ownership		
	Textiles	Clothing	Exporting		Non-exporting	Public sector	Private sector	Total
			QIZ	Non-QIZ				
No. of firms	97	178	53	40	182	6	169	275
%	35%	65%	19%	15%	66%	2%	98%	100%

Source: IDSC TC Firm Questionnaire (2009).

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2   This means that firms in the informal sector are excluded.

Table 3: Sample Firm Distribution by Firm Size*

	Small	**Medium**	**Large**	**Total**
No. of firms in the sample	125	115	35	275
%	45%	42%	13%	100%
Share in real weighted production	5%	10%	85%	100%

Source: IDSC TC Firm Questionnaire 2009. *Small firms: up to 50 workers, medium: greater than 50 and up to 500 workers, and large: over 500 workers.

2.1.2 Worker Survey

The worker questionnaire was divided into five modules: basic characteristics, work conditions, skills and training, job satisfaction, and crisis effects. The sample was stratified by four size categories: less than 10 workers, from 10 to 100, from 100 to 1,000, and larger than 1,000 workers (Table 4); 5,590 workers were to be surveyed however, due to practical problems in the field, only 5,383 questionnaires were completed.

Table 4: Sample Worker Distribution

Firm category (no. of workers)	No. of sampled firms (1)	No. of workers sampled from each firm in category (2)	No. of sampled workers in category (3) = (1)*(2)
Less than 10	100	5	500
10-100	101	20	2,020
Greater than100-1,000	63	40	2,520
More than 1,000	11	50	550
Total	275		5,590

Source: IDSC Worker Survey Sampling Note (2009).

2.2 Sample Descriptives

2.2.1 Sector Employment by Gender

This analysis covers only permanent public and private sector workers, which are non- seasonal and non- part-time workers, reducing the sample to 5,200 workers. Women are known to be heavily concentrated in the TC sector. Indeed, many more women are employed in TC compared to the average national level. At the national level just under 20% (just over

20%) of the private sector (overall) labor force are females whereas in textiles and clothing (TC) this share doubles to about 40% (Table 5). As of the late 1990s, two sectors increasingly attracted female workers, namely food processing and textiles and clothing. In fact, the entire increase in private sector employment between 1998 and 2006 was on account of the feminization of these two sectors (Assaad and El-Hamidi 2009).

Table 5: National and Sample TC Employment by Gender (2007, 2009)

	Employment in TC	National Employment	
	Sample IDSC 2009	CAPMAS 2007 (in millions)	
		Public + Private	Private Sector
Male	3,243	17.1	12.6
	62%	78%	81%
Female	1,957	4,7	2.9
	38%	22%	19%
Total	5,200	21.8	15.5
	100%	100%	100%

Source: Central Agency for Public Mobilization and Statistics (CAPMAS), Annual Statistical Book, Various issues. IDSC TC Worker Questionnaire 2009.

Compared to the sector data, at the national level the distribution of men and women in the sample is closer to that of the private sector, so whilst women represent 38% of all TC workers in the sample they represent just a quarter (26%) in overall sector employment at the national level (Table 6). But the share is close to that of the private sector (34%). This is hardly surprising since most public sector firms are textiles firms rather than clothing firms. Clothing firms are more likely to hire larger numbers of women than men, especially for their relatively substantial sewing activity.

Table 6: TC National and Sample Employment by Gender (2007, 2009)

	Sample IDSC 2009	CAPMAS 2006	
		Public + Private	Private Sector
Male	3,243	206,421	115,315
	62%	74%	66%
Female	1,957	71,846	58,446
	38%	26%	34%
Total	5,200	278,267	173,761
	100%	100%	100%

Source: Central Agency for Public Mobilization and Statistics (CAPMAS), Annual Statistical Book, Various issues. IDSC TC Worker Questionnaire 2009.

According to the sample, most women working in the sector are relatively young (average age of 28 compared to 36 for men) and unmarried (62%) (Table 7). Men have attained relatively higher educational levels compared to women (Table 8); 15% of all sampled men have a university or post-university degree compared to only 9% of all women. These differences in education reflect the disproportionate hiring of men at more senior levels, as discussed below.

Table 7: Marital Status by Gender

	Men	Women	Total
Unmarried	845	1,220	2,065
	26%	62%	
Married	2,398	737	3,135
	74%	38%	
Total	3,243	1,957	5,200
	100%	100%	

Source: Author's calculations based on IDSC TC Worker Questionnaire 2009.

Table 8: Educational Attainment by Gender

		Men	Women	Total
Illiterate	Frequency	314	208	522
	Share of all men (women)	9%	10%	10%
Read & Write	Frequency	1,136	752	1,888
	Share of all men (women)	34%	37%	35%
Secondary & Postsecondary	Frequency	1,391	881	2,272
	Share of all men (women)	41%	44%	42%
University & Post University	Frequency	517	184	701
	Share of all men (women)	15%	9%	13%
Total	Frequency	3,358	2,025	5,383
	Share of all men (women)	100%	100%	100%

Source: Author's calculations based on IDSC TC Worker Questionnaire 2009.

2.2.2 Sample Gender and Wage Distribution by Occupation

The distribution of men and women into the various occupations along the TC occupational structure shows a degree of occupational segregation. Men are disproportionately represented in the upper, more powerful professions, such as supervisors, managers, executives, and production operators (Table 7). On the other hand, women tend to be over-represented in the lowest-ranking, lowest-paid occupations in the workforce, such

as secretaries, sewing machine operators, and sales associates. That is, occupations are "sex typed" as either being specifically male or female jobs. Unsurprisingly, the largest single occupation, accounting for 56% of all workers, is factory workers. Nearly half of all men (47%) occupy this category whilst for women the figure is 71%.

Table 7: Sample Occupation Breakdown by Gender and Gender Breakdown by Occupation

	Men	Women	Total
Managerial Positions (e.g. executives, supervisors, production operators) (1)			
Frequency	183	52	235
Gender share in occupation (%)	78	22	100
Share of all men (women) (%)	5.6	2.7	4.5
Specialists ("those holding scientific positions", e.g. engineers) (2)			
Frequency	239	60	299
Gender share in occupation (%)	80	20	100
Share of all men (women) (%)	7.4	3.1	5.8
Specialists› helpers and technicians (3)			
Frequency	444	50	494
Gender share in occupation (%)	90	10	100
Share of all men (women) (%)	13.7	2.6	9.5
Office administrative positions (4)			
Frequency	154	79	233
Gender share in occupation (%)	66	34	100
Share of all men (women) (%)	4.8	4.0	4.5
Workers in services, in shops and markets(e.g. sellers of clothing) (5)			
Frequency	29	6	35
Gender share in occupation (%)	83	17	100
Share of all men (women) (%)	0.9	0.3	0.7
Handicraftsmen (7)			
Frequency	386	252	638
Gender share in occupation (%)	61	40	100
Share of all men (women) (%)	12	13	12
Factory workers, machinery workers and assembly workers (8)			
Frequency	1,519	1,383	2,902
Gender share in occupation (%)	52	48	100
Share of all men (women) (%)	47	71	56

Ordinary workers (e.g. maids, cleaners, office boys…etc.) (9)			
Frequency	289	75	364
Gender share in occupation (%)	79	21	100
Share of all men (women) (%)	9	4	7
Total	**3,243**	**1,957**	**5,200**
	62%	38%	100

Source: IDSC Worker Questionnaire, 2009. Occupation codes in brackets. Codes utilized here follow the Standard Occupational Classification Manual (2005) (IDSC, Ministry for Labor Force and Immigration, Social Fund for Development, CAPMAS, National Committee for data Review and Auditing, 2005).

Table 8 gives the average hourly wage for each occupation in the sample. The higher the occupational code, the lower the occupational status and the lower the wage rate. So whilst the average hourly wage reaches about six (LE5.61) Egyptian pounds for management positions, it drops by 60% to just above two pounds (LE2.24) for office boys and cleaners.

Table 8: Log Hourly and Hourly Wage by Occupation (in LE)

	Log Hourly Wage	Hourly Wage
Managerial Positions (e.g. executives, supervisors, production operators) (1)	1.62	5.61
Specialists ("those holding scientific positions", e.g. engineers) (2)	1.31	4.33
Specialists› helpers and technicians (3)	1.14	3.48
Office administrative positions (4)	1.04	3.10
Workers in services, in shops and markets(e.g. sellers of clothing) (5)	1.05	3.16
Handicraftsmen (7)	1.02	3.14
Factory workers, machinery workers and assembly workers (8)	0.85	2.55
Ordinary workers (e.g. maids, cleaners, office boys...etc.) (9)	0.73	2.24
Total	0.96	2.96

Source: IDSC Worker Questionnaire, 2009. Note on occupational codes as in Table 7 above.

Figure 1 shows an increasing trend for females' share into lower paying occupations, whereas the opposite is the case for men (of course, as it is the opposite side of the same coin). Accordingly, the distribution of men and women along the TC occupational structure – before controlling for characteristics - supports the glass ceiling hypothesis. This hypothesis argues that women are stopped at a lower level within the hierarchy of

an organization due to discrimination. The ceiling or barrier preventing women from advancing is believed to be not immediately apparent and is usually an unwritten and unofficial or informal policy hence, the term glass (i.e. transparent and so can't be seen, that is, it is not written down anywhere).

The first three occupations (1, 2 and 3) represent the stereotypically "male jobs", in which 80%-90% of the workers are men (Table 7 above, Figure1). Average wages in these three occupations are higher than those in occupations 7 and 8, in which 40% and 48% of the jobholders are women (compared to 38% of all occupations). This segregation of women into less-prestigious and lower-paid jobs decreases a woman's opportunity for promotion, as well as her chance of having any type of substantial management function over other employees.

Figure 1: Share in Occupational Categories by Gender
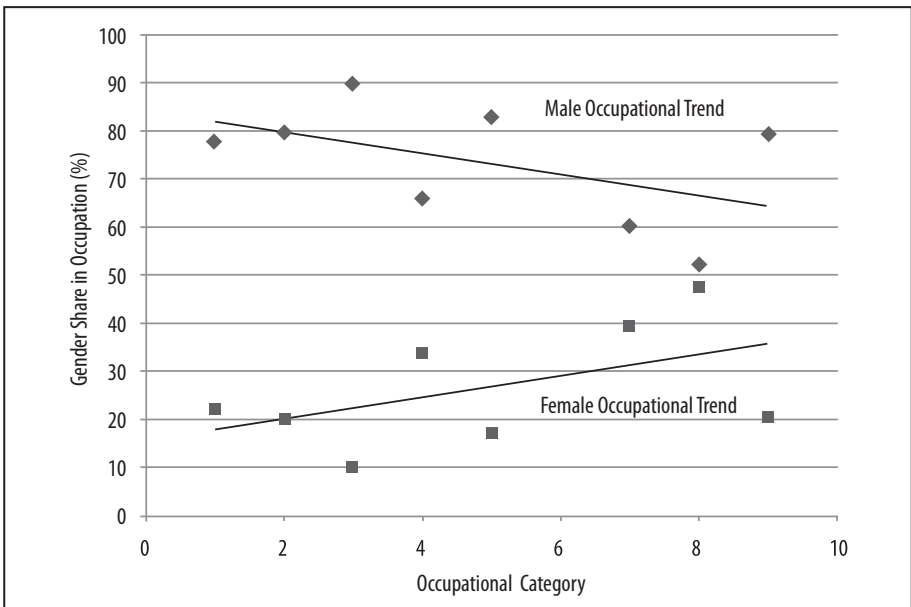
Source: IDSC Worker Questionnaire, 2009. Note on occupational codes as in Table 7 above.

Figure 2 also shows that occupation(s) with the most women has (have) nearly the lowest hourly average wage and that occupation(s) with the highest average wage have a small share of women.

Figure 2: Female Share in Occupational Category against Hourly Wage
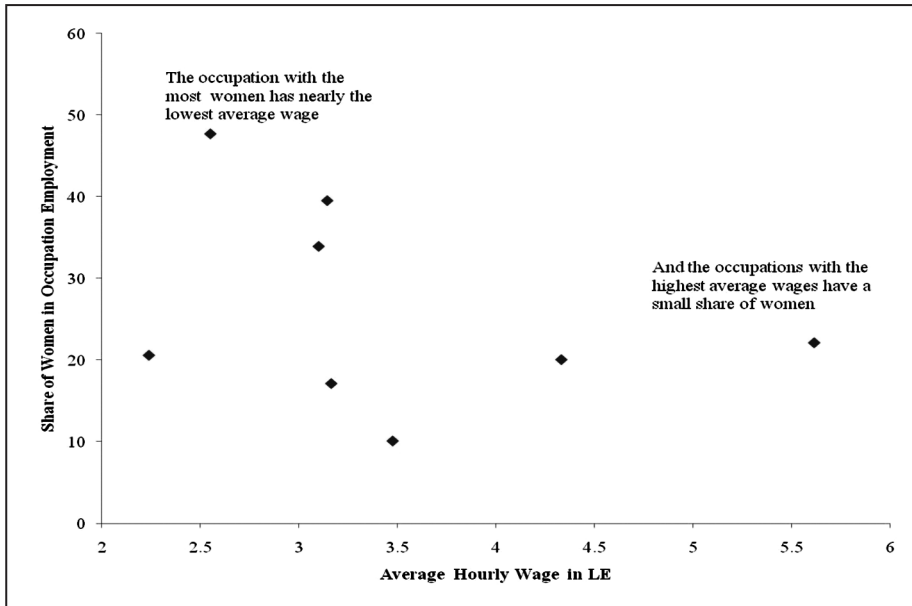
Source: Author's calculations based on IDSC Worker Questionnaire, 2009. Note on occupational codes as in Table 7 above.

But are women discriminated against in pay within each occupational category? Figure 3 depicts the distribution of hourly wages across occupations by gender. The figure shows that women earn systematically lower hourly wages than men in every single occupational category. Figure 4 shows that women are least concentrated in occupations with nearly identical hourly wage (e.g. occupation 3). The largest difference in pay is in the professionals and specialists' category (occupation 2) where women's share represents only 20%. Table 9 gives the same information.

Figure 3: Hourly Wage Distribution by Gender and Occupation   (in LE)

Source: Author's calculations based on IDSC Worker Questionnaire, 2009.

Figure 4: Share in Occupational Wage Categories by Gender & Hourly Wage
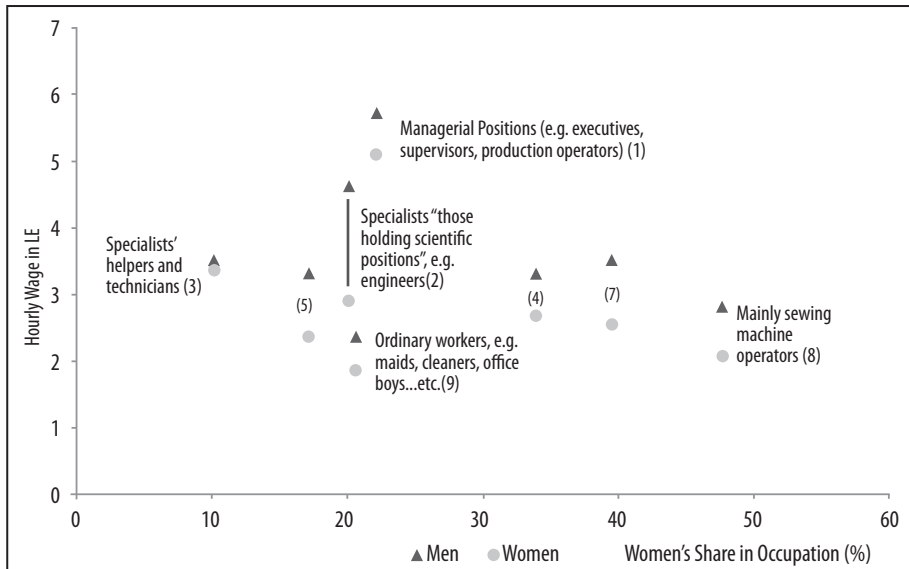
Source: Author's calculations based on IDSC Worker Questionnaire, 2009.

Table 9: Hourly Wages: Mean, Standard Deviation, and Frequency by Occupation and Gender

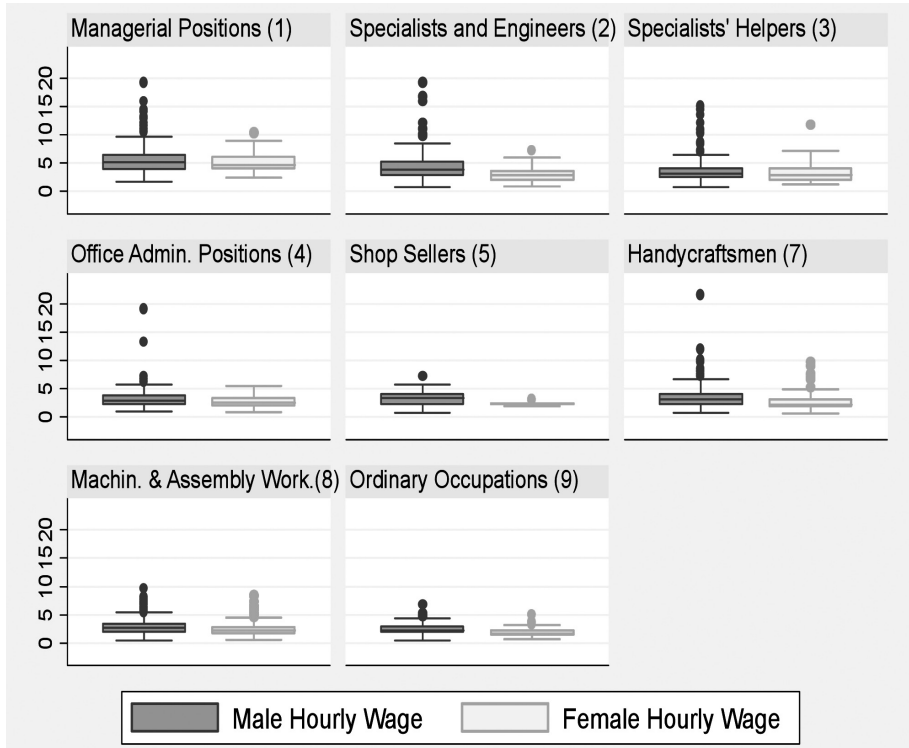| Occupation		Men	Women	Total
Managerial Positions (e.g. executives, supervisors, production operators) (1)	Hourly Wages in LE	5.76	5.1	5.61
	SD	3.21	1.78	2.96
Frequency		183	52	235
Specialists ("those holding scientific positions", e.g. engineers((2)	Hourly Wages in LE	4.69	2.9	4.33
	SD	3.23	1.33	3.04
Frequency		239	60	299
Specialists› helpers and technicians(3)	Hourly Wages in LE	3.49	3.36	3.48
	SD	1.84	2.02	1.86
Frequency		444	50	494
Office administrative positions (4)	Hourly Wages in LE	3.32	2.68	3.1
	SD	1.91	0.99	1.68
Frequency		154	79	233
Workers in services, in shops and markets(e.g. sellers of clothing) (5)	Hourly Wages in LE	3.33	2.37	3.16
	SD	1.46	0.41	1.38
Frequency		29	6	35
Handicraftsmen (7)	Hourly Wages in LE	3.53	2.55	3.14
	SD	1.99	1.23	1.8
Frequency		386	252	638
Factory workers, machinery workers and assembly workers (8)	Hourly Wages in LE	2.83	2.25	2.55
	SD	1.17	0.9	1.09
Frequency		1519	1383	2902
Ordinary workers(e.g. maids, cleaners, office boys...etc.) (9)	Hourly Wages in LE	2.34	1.87	2.24
	SD	0.9	0.72	0.89
Frequency		289	75	364
Total		3.29	2.42	2.96
		1.97	1.15	1.76
		3243	1957	5200

Source: Author's calculations based on IDSC Worker Questionnaire, 2009. Note on occupational codes as in Table 7 above.

2.2.3 Sample Gender and Wage Distribution by Firm Characteristics

Exporting firms hire relatively more women (Table 10: 41%) compared to non-exporting firms (34%). These firms also have a lower hourly wage gap: the gap is LE2.32 for non- exporting firms but only 67 piasters for exporting firms, i.e. one third of that of non-exporting firms (Table 11). This finding is consistent with evidence from India showing that the wage gap is less in sectors with a greater export orientation (Reilly and Dutta, 2005).Using German firm-level data, Heinze and Wolf (2009) also find a smaller wage gap in firms that export more. Assaad has even spoken of a "reverse wage gap" in export sectors which heavily demand female labor (Population Reference Bureau 2008). However, this is not a universal rule, as Seguino reported a persistent wage gap despite substantial export growth in South Korea (1997), the same being argued for East Asia in general by Zveglich and Rodgers (2004).

With respect to size, the pay gap is wider in medium and large firms compared to small firms (Table 12). But larger firms also pay higher wages, so in absolute terms both men and women are better paid in these firms (this is of course before controlling for characteristics).

Table 10: Distribution of Employees by Firms' Market Orientation

	Men	Women	Total
Non-exporting	1,597	829	2,426
	66%	34%	100%
Exporting	1,646	1,128	2,774
	59%	41%	100%
Total	3,243	1,957	5,200
	62%	38%	100%

Source: Author's calculations based on IDSC Worker Questionnaire, 2009. Note on occupational codes as in Table 7 above.

Table 11: Mean Hourly Wage by Gender and Firms' Market Orientation (in LE)

	Men	Women	Hourly Wage Gap
Non-Exporting	4.87	2.55	2.32
Exporting	3.57	2.9	0.67

Source: Author's calculations. Sampling weights used.

Table 12: Mean Gender Hourly Wage Gap by Firm Size (in LE)

	Men	Women	Hourly Wage Gap
Small: 0 ≤ 50 worker	2.81	2.22	0.59
Medium: 50 ≤ 150	3.6	2.47	1.13
Large > 150	3.99	2.95	1.04

Source: Author's calculations. Sampling weights used.

2.2.4 Employer's Gender Preference

When asked if they preferred a particular gender to work in their firm provided both had the same educational attainment and skill level, 35% of employers (97 employers of a total of 275) stated that they do. Of these, over a half claimed they prefer men (54%) the top reason being the difficulty of the task required of them (25% of those who prefer men), the second reason being men's lower rate of absenteeism (22%).

When asked whether the average monthly wage differs between men and women who possess the same level of education and years of experience and are in the same occupation, only 16% of all employers agreed that it does. Nearly all of these respondents argued the preference was in favor of men (96%). Again, the difference in tasks required of each sex topped the list of reasons for the difference (34 firms, 76% of these firms) followed by higher productivity for men (19 firms, 42%) and then the lesser number of hours worked per month by women compared to men (17 firms, 38%), and finally female workers taking more leave (12 firms, 27%).

The following analysis will control for difference in worker and firm characteristics between men and women in order to judge the source of pay differences between them.

2.3 Background

Gender pay discrimination has been tackled theoretically via two distinct methodologies: direct and indirect. Following Oaxaca (1973), traditional wage equations can be decomposed to show how differences in wages can be attributed to differences in personal attributes or skills, plus discrimination due to gender-differentiated returns to those characteristics, and a residual pure discrimination effect.

This approach has been criticized for suffering from selection bias as it does not control for selection of labor market participants into the labor force and into the sectors and occupations they currently hold. Precisely, exclusion of non-participants in the labor force from the OLS wage regression equation, provided the participation decision is systematic,

renders the pool of studied employees non-random and accordingly, results in biased estimates (Heckman 1979; Maddala 1983). This problem can be overcome by performing a double selection model (Heckman 1979; Maddala 1983) where a further correction term for selection – calculated from a first stage participation equation – is added as a regressor to the earnings or the wage equation (cf. El-Hamidi and Said, 2008). The Oaxaca approach has also been criticized as the OLS residuals in the wage equations are assumed to have zero means, however, the expectation of the error term at a given quantile (along the wage distribution) need not be zero. Approaches analyzing gender wage discrimination at quantiles include that introduced by Gardeazabel and Ugidos (2005). Kandil (2009) has applied this technique to explore changes in the gender wage gap at the aggregate level in Egypt over three years (1988, 1998 and 2006). Rica et al. (2003) also explored the Spanish gender wage gap utilizing a quantile analysis.

The traditional Oaxaca-Blinder approach has increasingly been replaced by other methods. First, an analysis of whether discrimination is evident within the same establishment or firm utilizing a range of models, such as multilevel modeling and random effects on matched employer-employee data (cf. Peterson and Morgan 1995; Groshen 1991; Cardoso 2000; Gupta and Rothstein 2001; Meyersson-Milgrom et al. 2001; Bayrad 2003; Korkeamäki and Kyyrä 2005; Ilkkaracan and Selim 2007; Heinze and Wolf 2009). However, these studies are limited in number due to their demanding data requirements, there being only a handful of such studies even for the U.S. (Council of Economic Advisers, 1998) though this has been recently changing. The second approach measures male versus female productivity in order to link differences in pay to productivity. This approach is rarely implemented because of its even greater data requirements.

Indirect methodologies have most usually been applied in developed country research. This approach utilizes (field) experiments to prove discrimination by, for instance, sending out identical resumes with male and female names as job applications and thus discovering discrimination (cf. Petit 2007; see also same methodology applied to racial discrimination: Pager, Western, and Bonikowski 2009). A field experiment in the U.S. has been conducted by concealing the identity of symphony orchestra candidates from their audition juries. As a result chances of hiring female musicians have noticeably increased in such competitions (ibid.). Other studies have undertaken laboratory experiments (e.g. Andreoni and Petrie 2008).

2.4 Methodology

The analysis proceeds in two stages. First, log hourly wages are estimated for both men and women using the classical least squares model. Second, a traditional Oaxaca-Blinder decomposition is performed based on these estimates. Oaxaca decomposition reveals whether differences in pay between men and women are due to differing characteristics between them or alternatively, due to discrimination (unjustified difference). Discrimination is present if pay differs for men and women with the same characteristics. The novel aspect of this analysis is that it combines both worker and firm data sets and hence, controlling for personal worker attributes but also firm and occupational attributes. Controlling for the latter is expected to reduce the discrimination effect although it may introduce other types of discrimination; that is, discrimination at the entry point for the various sectors of the economy, occupations within any one sector, and into particular types of firms. As a sectoral study, this study is able to quantitatively identify segregation or entry barriers of women to the last two, i.e. to certain firms and to certain occupations within a certain sector (here TC) but not into sectors, such as agriculture, industry or services, and then into subsectors within these (e.g. food industry, textiles and clothing, chemicals…etc.). Due to lack of data, performing a Heckman double selection correction model to control for selection into the labor force and into sectors is not possible. Controlling for self-selection depends on women's opportunity cost of time, and so will usually depend on a woman's family social background, her unearned income (or that of her household), her household's assets, and the employment status of males in her household. All these household-related variables are unfortunately unavailable in the datasets at hand. Nevertheless, at least selection into occupations within TC will be performed as a further extension to the paper at hand.

2.4.1 Mathematical Representation

Discrimination against women in the labor market exists when the ratio of the mean male and female wages does not equal the wage ratio in the absence of discrimination: $\frac{Wm}{Wf} \neq \frac{Wmo}{Wf}$, where $\frac{Wmo}{Wf}$ is the ratio in the absence of discrimination, and $\frac{Wm}{Wf}$ is the observed male/female ratio (Oaxaca 1973). However, $\frac{Wmo}{Wf}$ is unobserved and so the observed wage difference is decomposed into two parts: a difference based on individual productivity traits (justified difference) and a difference based on market returns to those traits (unjustified difference or discrimination) (Borjas and Ramey, 2000).

Thus, for the purposes of estimating the male-female wage differential, the population regression line is given by:

$lnw_i = \beta_{0i} + \beta_{1i}x_{1i} + \beta_{2i}x_{2i} + \varepsilon_i$ \hfill (1)

Where:
lnw_i = logarithmic hourly wage
x_{1i} = vector of worker personal attributes
x_{2i} = vector of firm and occupation attributes
i = m for male workers, f for female workers
β_{ji} = associated vector of coefficients
j = 1, 2
ε_i = additive error term

The vector of worker personal attributes includes age, age squared, marital status and education level. Firm attributes include firm size, its market orientation, be it exporting or not, years of experience required by the firm for that particular occupation, and firm location (given by governorate) to control for differences in living standards across regions. An ownership variable to explore the possibility of different wages between Egyptian and foreign firms is also added to this vector.

The fitted lines take the following form:

$$lnw_m = b_{0m} + b_{1m}\bar{x}_{1m} + b_{2m}\bar{x}_{2m}$$
$$lnw_f = b_{0f} + b_{1f}\bar{x}_{1f} + b_{2f}\bar{x}_{2m}$$

Decomposition Analysis \hfill (2)

\hfill (3)

Mean difference between male and female wages is given by the following difference equation, which is the subtraction of equation (3) from (2):

$$\Delta ln\bar{W} = ln\bar{W}_m - ln\bar{W}_f$$

$$\Delta ln\bar{W} = (b_{0m} - b_{0f}) + b_{1m}\bar{x}_{1m} + b_{1m}\bar{x}_{1f} - b_{1m}\bar{x}_{1f} - b_{1f}\bar{x}_{1f} + b_{2m}\bar{x}_{2m} + b_{2m}\bar{x}_{2f}$$
$$- b_{2m}\bar{x}_{2f}$$
$$= (b_{0m} - b_{0f}) + b_{1m}(\bar{x}_{1m} - \bar{x}_{1f}) + \bar{x}_{1f}(b_{1m} - b_{1f}) + b_{2m}(\bar{x}_{2m} - \bar{x}_{2f}) +$$
$$\bar{x}_{2f}(b_{2m} - b_{2f})$$

\hfill (4)

(5)

$$= \underbrace{(b_{0m} - b_{0f})}_{\substack{\text{Pure}\\\text{discrimination}}} + \underbrace{b_{1m}(\bar{x}_{1m} - \bar{x}_{1f})}_{\substack{\text{Personal}\\\text{attributes or}\\\text{share effect}}} + \underbrace{b_{2m}(\bar{x}_{2m} - \bar{x}_{2f})}_{\substack{\text{Firm \& occupation}\\\text{attributes share}\\\text{effect}}} + \underbrace{\bar{x}_{1f}(b_{1m} - b_{1f})}_{\substack{\text{Different}\\\text{returns to}\\\text{personal}}} + \underbrace{\bar{x}_{2f}(b_{2m} - b_{2f})}_{\substack{\text{Different returns to}\\\text{firm \& occupational}\\\text{attributes}}} (5)$$

Allocation or share effect   Different returns to characteristics

The second and third terms of equation (5) capture the allocation or share effect attributing part of the gender gap to difference in endowments

between sample men and women. Endowments range from personal attributes (i.e. age, marital status and education level) to firm attributes (i.e. size, export status, required years of experience and ownership) and type of occupation workers are allocated to (i.e. ranging from occupations 1 to 9 as listed above). The last two terms of the equation capture discrimination or difference in returns to endowments between male and female workers. Finally, the first term signifies pure or outright discrimination between men and women, that is, the wage gap between men and women having allowed for their different characteristics and returns to those characteristics.

3. Results

3.1 Wage Equation Regression Results

Table 13 presents regression results from 4 different specifications. Each specification is presented three times: on the pooled data set, and separately for men and women. The pure discrimination term (the coefficient on the sex variable in the pooled regression) is robustly significant, with a fairly stable coefficient across specifications. However it is lower in more fully specified models (regressions (3) and (4)) which include additional firm characteristics such as size, so papers ignoring those characteristics may overstate discrimination within firms.

3.1.1 Occupational Characteristics

Log hourly wages for most categories are quite similar once characteristics such as education are controlled for. However, two occupational categories depart from this norm. Managers (occupation category (1)) receive significantly higher wages compared to the reference category (occupation category (5): workers in services, in shops and markets, e.g. sellers of clothing) and office boys/girls (occupation category (9): ordinary positions) receive significantly less. In addition the "management premium" is quite a bit higher for women than men, i.e. compared to men women receive a larger incremental rise in hourly wages when climbing up the occupation structure from occupational category (5) to (1).

3.1.2 Personal Attributes

Significant increases in hourly wages accrue to both males and females as they attain more advanced stages of education, namely secondary and post-secondary education, and university and post-university education, though the incremental increase is slightly lower for women employees. The coefficient on age is highly significant and stable. With sample mean

age for males of 36 years and of only 28 for their female counterparts, it is expected that the share or endowment effect will be substantial for this regressor.

Although not significant, it is worth noting that marital status is positive for men and negative for women. This may be due to differences in productivity levels. It is customary that women in Egypt are motivated, efficient and productive before marriage but that this changes with marriage and children. In relatively male dominated societies such as Egypt, working women are still expected to carry out all household responsibilities, hence crippling their performance at work, which in turn exercises downward pressure on their wages. At the extreme, once married, most women in this sector do not desire to work any longer or feel that they will be unable to do so (Assaad and El Hamidi 2009). This is because most of the female workers in the sector are young, unmarried[3] secondary school graduates who still live with their parents. Their main reason to work is to prepare themselves for marriage and to financially assist their parents (ibid.), with marriage this reason no longer holds. In Islamic societies men are expected to financially provide for the family. Hence, another explanation for the opposing signs for the coefficient on marital status may be employers' belief that married men need more money than unmarried women.

3.1.3 Firm Attributes

Despite a lower gender pay wage gap in exporting firms (see Sample Descriptives section above), wages in these firms are significantly lower than those in non-exporting firms once characteristics are controlled for. All characteristics' hourly wages are significantly lower for employees of exporting firms compared to non-exporters.[4] The difference in wages between exporters and non-exporters is larger for men than it is for women. Producers for the domestic market compete with each other but in a still largely protected market,[5] but exporting firms compete in alargely competitive international market and so hourly wages reflect this fact. Exporters have been divided into qualifying industrial zones (QIZ) exporters and non-QIZ ones, but the results are essentially the same and

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3   As shown by the means of these variables presented earlier.

4   This slightly contradicts the findings of Al Azzawi and Said (2009) that wages in industries with a higher share of exports are higher.

5   This is because most favored nation tariff (MFN) rates on the imports of TC are non-zero. Currently MFN tariffs on yarns range between 0-5%, fabrics 0-10% and tariffs on carpets and other textile floor coverings, clothes and home textiles are generally in the neighborhood of 30% (Presidential Decrees 2000, 2004 and 2007). These rates are in full accordance with Egypt's WTO commitments. Indeed, in most cases these rates are below their WTO bound rates (El-Haddad 2010).

the F-test allows the combination of these categories into one (that is exporting, see more elaborate specifications in Annex 1).

Adding firm size substantially improves the results (regressions 3 and 4). Regression 3 uses size as a categorical variable whilst regression 4 uses dummies for three firm sizes: small (0<50 workers), medium (50 ≤ 150 workers) and large (>150 workers) since the categories could not be combined according to an F test. Medium sized firms pay higher wages in general (log LE 0.1333 higher than small firms), and larger firms pay even higher (0.272 higher). However, for women the incremental increase is much higher for large firms compared to medium ones (regression (4): 0.238 compared to only 0.075). The ownership variable is never significant, possibly due to multicollinearity with the export and size variables. This, together with the joint F-test, makes regression (4) the best specification for this data set. Experience dummies have the right signs but are almost always significant for men but not for women, most likely as just under 90% (87%) of women join firms and occupations that require little or no experience compared to 78% for men.[6] Alexandria governorate pays significantly lower wages compared to Al Sharkeya, the reference category, but also compared to Greater Cairo.

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6   This is because tasks like sewing, where women are concentrated, need less training.

Table 13: Log Wage Regressions

	Regression (1)			Regression (2)			Regression (3)			Regression (4)		
	P 1	M1	F1	P2	M2	F2	P3	M3	F3	P4	M4	W4
Constant	0.691***	0.741***	0.47	0.684***	0.744***	0.354	0.418*	0.486*	0.122	0.557***	0.610**	0.251
Personal Attributes:												
Sex Dummy F=1	-0.106***	(omitted)	(omitted)	-0.106***	(omitted)	(omitted)	-0.097***	(omitted)	(omitted)	-0.097***	(omitted)	(omitted)
Age	0.031***	0.031***	0.031***	0.032***	0.031***	0.034***	0.032***	0.031***	0.034***	0.032***	0.031***	0.035***
Age^2	-0.000**	-0.000*	-0.000*	-0.000**	-0.000*	-0.000**	-0.000****	-0.000*	-0.000**	-0.000***	-0.000*	-0.000**
Marital Status Married=1	0.004	0.015	-0.016	0.004	0.016	-0.015	0.01	0.021	-0.01	0.01	0.02	-0.009
Occupation Dummies (reference category: workers in services & shops (5)):												
Management (1)	0.213**	0.186*	0.424***	0.210**	0.188*	0.442***	0.196**	0.176*	0.384***	0.196**	0.178*	0.386***
Specialists (Engineers) (3)	0.167	0.157	0.14	0.166	0.158	0.147	0.157	0.15	0.109	0.157	0.152	0.112
Occupations (3), (4) & (7)*	0.019	0.004	0.035	0.016	0.006	0.047	0.008	-0.001	0.006	0.007	0.001	0.01
Machine Operators	-0.088	-0.099	-0.034	-0.09	-0.098	-0.021	-0.085	-0.092	-0.048	-0.085	-0.089	-0.042
Ordinary Positions (9)	-0.246***	-0.268***	-0.173*	-0.248***	-0.267***	-0.151	-0.266***	-0.278***	-0.226***	-0.266***	-0.277***	-0.224**
Education Dummies (reference category: illiterate):												
Read & Write=1	0.028	0.005	0.089*	0.027	0.005	0.085*	0.002	-0.026	0.072	0.002	-0.026	0.07
Secondary & Postsecondary=1	0.175***	0.168***	0.206***	0.173***	0.169***	0.188***	0.141***	0.135***	0.159**	0.141***	0.135***	0.156**

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	Regression (1)			Regression (2)			Regression (3)			Regression (4)		
	P 1	M1	F1	P2	M2	F2	P3	M3	F3	P4	M4	W4
University and Post University=1	0.278***	0.241***	0.390***	0.275***	0.242***	0.369***	0.252***	0.213***	0.360***	0.252***	0.213***	0.360***
Years of Required Experience Dummies (reference category: 5-10 years):												
Zero Years =1	-0.331***	-0.362***	-0.311	-0.334***	-0.360**	-0.307	-0.374***	-0.411***	-0.318	-0.373***	-0.411***	-0.309
One Year = 1	-0.091	-0.041	-0.314	-0.092	-0.04	-0.301	-0.148	-0.107	-0.329	-0.148	-0.107	-0.32
2-3 Years = 1	-0.244*	-0.256*	-0.329	-0.243*	-0.256*	-0.316	-0.301**	-0.329**	-0.333	-0.301**	-0.329**	-0.323
4-5 Years = 1	-0.269*	-0.285*	-0.423	-0.268*	-0.285*	-0.423	-0.324**	-0.356**	-0.412	-0.324**	-0.355**	-0.4
> 10 Years =1	0.017	0.006	-0.227	0.016	0.007	-0.232	-0.033	-0.055	-0.255	-0.033	-0.054	-0.248
Governorates Dummies (reference category: Al Sharkeya):												
Greater Cairo=1	-0.079**	-0.086**	-0.038	-0.082**	-0.084**	-0.048	-0.031	-0.034	0.003	-0.031	-0.035	0.007
Alexandria = 1	-0.238***	-0.269***	-0.142***	-0.242***	-0.266***	-0.157***	-0.190***	-0.218***	-0.099**	-0.189***	-0.219***	-0.096*
Firm Attributes:												
Export Status (Dummies)												
Export = 1				0.013	-0.008	0.088***	-0.090***	-0.110***	-0.018	-0.090***	-0.108***	-0.024
Size:												
0≤50 worker = 1							0.137***	0.142***	0.128***			
50 ≤ 150 = 2												
> 150 = 3												
50 ≤ 150 = 1										0.133***	0.174***	0.075**
> 150 = 1										0.272***	0.299***	0.238***

	Regression (1)			Regression (2)			Regression (3)			Regression (4)		
	P 1	M1	F1	P2	M2	F2	P3	M3	F3	P4	M4	W4
Ownership Dummy:												
Egyptian = 1												
N	5200	3243	1957	5200	3243	1957	5200	3243	1957	5200	3243	1957
ll	-2337	-1492	-755.1	-2337	-1492	-745.2	-2272	-1453	-717.4	-2272	-1452	-715.9
df_m	19	18	18	20	19	19	21	20	20	22	21	21
aic	4714.1	3023	1548.2	4715.1	3024.8	1530.5	4587.6	2947.9	1476.8	4589.6	2948.9	1475.9
R2	0.396	0.386	0.299	0.396	0.386	0.306	0.411	0.401	0.325	0.411	0.401	0.326
F	35.82	25.797	24.935	36.505	25.869	24.08	38.98	27.141	29.612	40.067	27.861	28.542

Source: Author's calculations based on IDSC Worker and Firm Questionnaire, 2009. Note on occupational codes as in Table 7 above.

legend:

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

Notes:* Office administrative positions (4),Workers in services, in shops and markets, e.g. sellers of clothing (5), Handicraftsmen (7)

3.2 Decomposition Results

In the TC industry women receive 22% lower log hourly wages than men, in other words they receive only 78% of the hourly wage men receive in the industry.[7] A substantial part of this gap (72%) is explained by differences in women's personal endowments compared to men's (Figure 5); sampled women are relatively younger and less educated than men in the sample (refer to Annex 2 for descriptives of all regression variables).

One-fifth of the gap (19%) is attributable to women being employed in low paying firms and occupations; those requiring little or no experience (see preceding section above). and to them being relegated to exporting; smaller sized firms, where everyone makes less money. The concentration of females in these types of firms and occupations could also be regarded as "indirect or concealed discrimination," but at the entry point. Even though such entry barriers are justified by endowments, it is these endowments that constitute what Roemer (1998) calls "inequality of opportunity" which are [partly] created by what he calls "circumstances," such as racial and family background, which the individual should not be held accountable for from a social justice perspective. Hence, it is the endowments that need to be enhanced for females in the sector to climb to the top of the occupational ladder. Two factors, namely females' personal attributes and their allocation to low paying firms and occupations, together explain over 90% of the gap (Table 14). Note that the data set does not include information on "circumstances" and so cannot quantify how much of the endowments and allocation is due to "circumstances" and how much is due to "effort."[8] Hence, further rigorous analysis is required.

Only 9% of the gap is attributable to discrimination. This low figure results from two counteracting tendencies. Women are actually favored in terms of returns to firms' characteristics and occupations, as well as personal characteristics. That is, women with the same characteristics as men receivehigher pay, and the intra-occupational pay gap is reversed once characteristics are controlled for (-0.16 and -0.17 log hourly LE respectively). Thus, outright discrimination is the sole reason for discrimination and could be partially explained by the difference between the role society expects of men and that it expects of women, the former being the main bread earner. This explanation is in line with the tradition of women's wages being "pin money," that is for women's own petty expenses. This view is not confined to Arab or Muslim societies. Evidence from OECD countries suggests that perceptions of women's role as homemakers, which are likely formed in youth and linked to religious ideology, have persisted

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7   Note that this gap is expressed in log terms, the actual gap in absolute Egyptian pounds amounts to 29%.

8   More precisely "effort" beyond an individual's group or type average effort level. This is so since Roemer divides individuals to types of similar circumstances (Roemer 1998).

over time (Fortin 2005). Note that this is the perception of the employer as much as it is that of the woman herself, and her personal expectation of what (pay) she deserves. A study on Israeli men and women has shown that complacency regarding wages is more prevalent among more traditional and religious women than among "modern" women. The former turn to low status, female-typed occupations, and prefer to work in part-time jobs (Moore 2006). In developing Asia, particularly South Asia, gender gaps remain significant across the labor market. A recent survey of the empirical literature suggests this persistence of gender inequality is caused and reinforced by interlinked cultural, social, and economic factors (Nimii 2009). It could also be explained by a trend toward gender equality in which employers want to employ women, and since women are less qualified, end up giving equal pay to women who are less qualified than their male counterparts. However, there is not yet any equal pay legislation in force in Egypt. The plausibility of both these explanations requires further research.

Figure 5: Log Hourly Wage Gap Decomposition
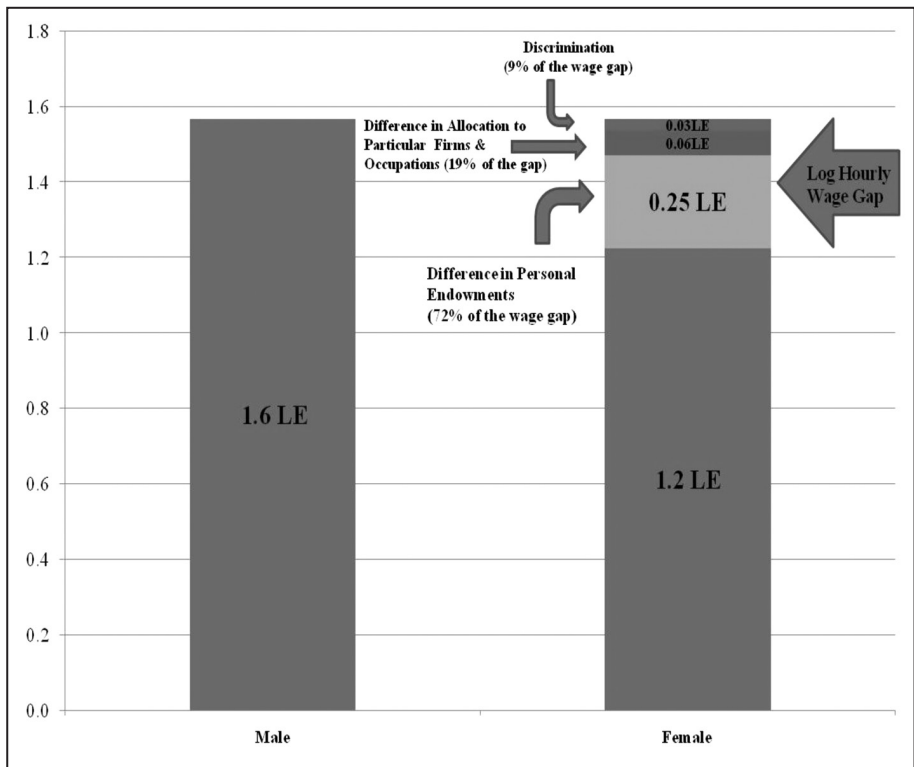
Source: Author's calculations based on IDSC Worker Questionnaire, 2009.

Table 14: Full Decomposition of the Log Hourly Gender Gap (lnw_m-lnw_f)

	in log LE	% of Gap
Discrimination		
Pure discrimination	0.36	105%
Difference in returns to personal characteristics	-0.16	-47%
Difference in returns to occupation and to firm characteristics	-0.17	-48%
Discrimination Total	0.03	9%
Difference in Endowments (in characteristics, firms and occupations)		
Personal attributes	0.25	72%
Occupational and firm attributes	0.06	19%
Endowment Total	0.31	91%
Total Hourly Wage Gap	0.34	100%

Source: Author's calculations based on IDSC Worker Questionnaire, 2009.

4. Conclusions

There is a 29 % gender wage gap in the textiles and clothing sector in Egypt. The analysis presented in this paper attributes the largest portion of this gap (72 percent) to differences in endowments between men and women. Most of the remaining gap (19 percent) is accounted for by women's relegation to low paying occupations and lower-paying firms. In particular, there is a clear glass ceiling in effect, in which women are significantly under-represented in the highest-paying management positions.

Only 9 percent of the gap is explained by what is usually classified as discrimination. The differences in returns in fact favor women. That is, women with identical characteristics as men receive higher pay, and the intra-occupational pay gap is reversed once characteristics, including firm characteristics, are controlled for. Failure to control for firm characteristics, as in most studies as they do not use firm data, will over-estimate the gap. Outright discrimination is the sole reason for discrimination and could be partially explained by the difference between the role society expects of men and that it expects of women, the former being the main bread earner, but this argument requires further investigation.

However, discrimination plays a large role that this analysis suggests, since both endowments (lower education and experience) *and* women's allocation to low paying firms and occupations are indirect discrimination, but at the entry point. Even though such entry barriers are justified by

endowments, it is these endowments that constitute what Roemer (1998) calls "inequality of opportunity" which are created by "circumstances", such as racial and family background, which the individual should not be held accountable for from a social justice perspective. There is thus a need for an "equal opportunity" policy to "level off the mounds and troughs in the playing field" (Roemer 1998, p.5). Since returns to characteristics favor females, concerted efforts to enhancing endowments may reverse the gender wage gap. Efforts such as Conditional Cash Transfers (CCTs) given to those parents who send their daughters to school in Upper Egypt are currently being applied and, if successful, could be scaled up to secondary and post-secondary education levels. CCTs have proven very successful in Bangladesh's Female Secondary School Assistance Project. Female enrolment rates have risen from 33% in 1991, the year the project was implemented, to 48% within six years of implementation and further to 56% in 2005. CCTs have generally also been very successful in Mexico. "Oportunidades" in Mexico aimed to break the cross-generational cycles of poverty; its success being followed by Brazil's "Bolsa Familia" in Brazil, and other schemes across Latin America.

In as much as the wage gap is explained by both outright discrimination and entry barriers, the gap can be narrowed by promoting labor standards, especially in the private sector. Men and women are equal under the Egyptian constitution. However, an equal pay act,[9] ensuring equal pay for equal work, and which prohibits discrimination at the entry points into the labor market, in job titles, in job ranks and in pay scales, is yet to be passed. Egypt ratified the United Nations Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) in 1981, and so is committed to ensuring equal treatment of men and women. Nevertheless, there is no mention of the prohibition of unequal treatment such as that specified, for example, in the Equal Pay Act of the United Kingdom. In the UK the Act was passed in 1970, coming into force by the end of 1975. The term "pay" is interpreted in a broad sense to include, on top of wages, things like holidays, pension rights, company benefits, and some kinds of bonuses in addition to "hiring." Once the law was passed, the judicial system began handling cases of complaint of unequal pay, becoming the main enforcement mechanism. What is integral to this process is that women are educated about their rights as given to them by law, and are at the same time granted protection from any possible harassment if they actually step forward.

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9   The unified labor law of the year 2003 does indeed contain an article on the prohibition of wage discrimination based on gender (article 35).

Passing an equal pay act, including prohibition of discrimination at labor market entry, in job titles, job ranks, and in pay scales according to sex is essential. Yet it is equally important to avoid excessive use of the law to impose social entitlements and fringe benefits for women. Such social burdens may negatively affect employers' incentives to create new female jobs (cf. Süral, 2009).

Gender inequality is greater when a country's economic opportunities are more limited and households are in greater economic hardship (Nimii, 2009). Hence, in agreement with Nimii (2009), along with efforts to remove cultural, social, and institutional obstacles through educating the public, introducing and enforcing antidiscrimination legislation, promoting economic development to generate economic opportunities and improving women's capabilities and access to these opportunities are key to greater progress toward gender equality and inclusive growth.

The novel aspect of this study is that it combines both worker and firm level data. But a caveat remains, calling for further work. The decomposition does not control for selection of labor market participants into the sectors and occupations they are currently holding. Whilst the latter is doable with the dataset at hand it would still leave the problem of selection bias into the labor force, and then into the sector of employment, which is a two-step selection process. Modeling this stage requires information on the non-working (i.e. those outside the labor market). Thus, subsequent work will need to combine these data with additional data and use additional econometric techniques to tackle these issues.

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Annex 1

	Regression (1)			Regression (2)			Regression (3)			Regression (4)			Regression (5)			Regression (8)		
	Pool 1	Men 1	Women 1	P2	M2	W2	P3	M3	W3	P4	M4	W4	P5	M5	W5	P8	M8	W8
Constant	0.69***	0.74***	0.47	0.68***	0.74***	0.35	0.4**	0.4*	0.12	0.4*	0.4*	0.16	0.3*	0.4*	0.18	0.56***	0.6**	0.25
Personal Attributes:																		
Sex Dummy F=1	-0.11***	(omitted)		-0.11***	(omitted)		-0.1***	(omitted)		-0.1***	(omitted)		-0.1***	(omitted)		-0.1***	(omitted)	
Age	0.03***	0.03***	0.03***	0.03***	0.03***	0.03***	0.03***	0.03***	0.03***	0.03***	0.03***	0.03***	0.03***	0.03***	0.03***	0.03***	0.03***	0.04***
Age^2	-0.0*	-0.0*	-0.0*	-0.0*	-0.0*	-0.0**	-0.0*	-0.0*	-0.0*	-0.0***	-0.0*	-0.0*	-0.0***	-0.0*	-0.0*	-0.0***	-0.0*	-0.0**
Marital Status Married=1	0.004	0.02	-0.02	0.004	0.02	-0.02	0.01	0.02	-0.01	0.01	0.02	-0.01	0.01	0.02	-0.01	0.01	0.02	-0.01
Occupation Dummies (reference category: workers in services & shops (5)):																		
Management (1)	0.21**	0.19*	0.42***	0.21**	0.19*	0.44***	0.2**	0.18*	0.38***	0.2**	0.18*	0.38***	0.2**	0.18*	0.36***	0.2**	0.18*	0.39***
Specialists (Engineers) (3)	0.17	0.16	0.14	0.17	0.16	0.15	0.16	0.15	0.11	0.16	0.15	0.1	0.16*	0.15	0.09	0.16	0.15	0.11
Occupations (3), (4) & (7)*	0.02	0.004	0.04	0.02	0.01	0.05	0.01	-0.001	0.01	0.01	-0.001	0.002	0.01	-0.002	-0.02	0.01	0.001	0.01
Machine Operators (8)	-0.09	-0.1	-0.03	-0.09	-0.1	-0.02	-0.09	-0.09	-0.05	-0.08	-0.09	-0.05	-0.08	-0.09	-0.08	-0.09	-0.09	-0.04

	Regression (1)			Regression (2)			Regression (3)			Regression (4)			Regression (5)			Regression (8)		
	Pool 1	Men 1	Women 1	P2	M2	W2	P3	M3	W3	P4	M4	W4	P5	M5	W5	P8	M8	W8
Ordinary Positions (9)	-0.25***	-0.27***	-0.17*	-0.25***	-0.27***	-0.15	-0.27***	-0.28***	-0.2**	-0.26***	-0.28***	-0.2**	-0.26***	-0.28***	-0.25***	-0.27***	-0.28***	-0.2**
Education Dummies (reference category: illiterates):																		
Re*'d & Write=1	0.03	0.01	0.09*	0.03	0.01	0.09*	0.002	-0.03	0.07	0.001	-0.03	0.07	0.003	-0.03	0.08	0.002	-0.03	0.07
Secondary & Postsecondary = 1	0.18***	0.17***	0.21***	0.17***	0.17***	0.19***	0.14***	0.14***	0.16**	0.14***	0.14***	0.16**	0.14***	0.13***	0.16**	0.14***	0.14***	0.16**
University & Post University=1	0.28***	0.24***	0.39***	0.28***	0.24***	0.37***	0.25***	0.21***	0.36***	0.25***	0.21***	0.36***	0.25***	0.21***	0.36***	0.25***	0.21***	0.36***
Years of Required Experience Dummies (reference category: 5-10 years):																		
Zero Years = 1	-0.33***	-0.36***	-0.31	-0.33***	-0.36**	-0.31	-0.37***	-0.41***	-0.32	-0.38***	-0.42***	-0.32	-0.38***	-0.41***	-0.34	-0.37***	-0.41***	-0.31
One Year = 1	-0.09	-0.04	-0.31	-0.09	-0.04	-0.30	-0.15	-0.11	-0.33	-0.15	-0.11	-0.34	-0.15	-0.11	-0.35	-0.15	-0.11	-0.32
2-3 Years = 1	-0.24*	-0.26*	-0.33	-0.24*	-0.26*	-0.32	-0.30**	-0.33**	-0.33	-0.30**	-0.33**	-0.34	-0.30**	-0.33**	-0.36	-0.30**	-0.33**	-0.32
4-5 Years =1	-0.27*	-0.29*	-0.42	-0.27*	-0.29*	-0.42	-0.32**	-0.36**	-0.41	-0.33**	-0.36**	-0.41	-0.33**	-0.36**	-0.42	-0.32**	-0.36**	-0.4
dumexp_6> 10 Years =1	0.02	0.01	-0.23	0.02	0.01	-0.23	-0.03	-0.06	-0.26	-0.03	-0.06	-0.26	-0.03	-0.06	-0.28	-0.03	-0.05	-0.25

	Regression (1)			Regression (2)			Regression (3)			Regression (4)			Regression (5)			Regression (8)		
	Pool 1	Men 1	Women 1	P2	M2	W2	P3	M3	W3	P4	M4	W4	P5	M5	W5	P8	M8	W8
Governorates Dummies (reference category: Al Sharkeya):																		
Greater Cairo = 1	-0.08**	-0.09**	-0.04	-0.08**	-0.08**	-0.05	-0.03	-0.03	0.003	-0.03	-0.03	0.002	-0.03	-0.03	0.01	-0.03	-0.04	0.01
Alexandria = 1	-0.24***	-0.27***	-0.14*	-0.24***	-0.27***	-0.16***	-0.19***	-0.22***	-0.1**	-0.19***	-0.22***	-0.1**	-0.19***	-0.22***	-0.09*	-0.19***	-0.22***	-0.1*
Firm Attributes:																		
Export Status (Dummies):																		
Export = 1				0.01	-0.01	0.09***	-0.1***	-0.11***	-0.02	-0.09***	-0.11**	-0.02				-0.09***	-0.11***	-0.02
QIZ = 1													-0.09**	-0.11**	-0.01			
Non-QIZ = 1													-0.1**	-0.1**	-0.05			
Size:																		
0≤50worker = 1							0.14***	0.14***	0.13***	0.14***	0.14***	0.13***	0.14***	0.14***	0.13***			
50 ≤ 150 = 2																		
> 150 = 3																		
50 ≤ 150 = 1																0.13***	0.17***	0.08**

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	Regression (1)			Regression (2)			Regression (3)			Regression (4)			Regression (5)			Regression (8)		
	Pool 1	Men 1	Women 1	P2	M2	W2	P3	M3	W3	P4	M4	W4	P5	M5	W5	P8	M8	W8
> 150 = 1																0.27***	0.3***	0.24***
Ownership Dummy:																		
Egyptian = 1										0.034	0.041	-0.03	0.036	0.04	-0.024			
N	5200	3243	1957	5200	3243	1957	5200	3243	1957	5200	3243	1957	5200	3243	1957	5200	3243	1957
ll	-2337	-1492	-755	-2337	-1492	-745.2	-2272	-1453	-717	-2270	-1452	-717	-2270	-1451	-714.9	-2272	-1452	-716
df_m	19	18	18	20	19	19	21	20	20	22	21	21	23	22	22	22	21	21
aic	4714	3023	1548	4715	3025	1531	4588	2948	1477	4587	2947	1478	4588	2949	1476	4590	2949	1476
R2	0.396	0.386	0.299	0.396	0.386	0.306	0.411	0.401	0.325	0.412	0.401	0.325	0.412	0.401	0.327	0.411	0.401	0.326
F	35.8	25.8	24.9	36.5	25.9	24.1	38.98	27.1	29.6	37.1	25.8	28.2	37.3	25.98	27.5	40.1	27.9	28.5

Source: Author's calculations based on IDSC Worker Questionnaire, 2009.

Notes: Office administrative positions (4), Workers in services, in shops and markets, e.g. sellers of clothing (5), Handicraftsmen (7)

***: $p < 0.01$, **: $p < 0.05$, *: $p < 0.1$

Annex 2

	Pooled		Men		Women	
	Mean	Std.	Mean	Std.	Mean	Std.
Log Hourly Wage	1.14	0.02	1.22	0.02	0.94	0.03
Hourly Wage	3.58	0.10	3.89	0.13	2.82	0.08
Sex	0.29	0.02	0.00	0.00	1.00	0.00
Age	33.58	0.41	35.75	0.50	28.30	0.50
Age2	1240.50	29.52	1388.08	37.11	880.64	32.77
Marital Status Married =1	0.62	0.02	0.73	0.02	0.33	0.03
Occupation Dummies (reference category: workers in services & shops (5)):						
Management (1)	0.08	0.02	0.10	0.02	0.04	0.01
Specialists (Engineers) (3)	0.09	0.01	0.10	0.01	0.05	0.01
Occupations (3), (4) & (7)*	0.33	0.02	0.35	0.03	0.25	0.03
Machine Operators (8)	0.43	0.02	0.36	0.02	0.61	0.03
Ordinary Positions (9)	0.07	0.01	0.07	0.01	0.05	0.01
Education Dummies (reference category: illiterates):						
Read & Write=1	0.27	0.02	0.27	0.02	0.25	0.02
Secondary & Postsecondary = 1	0.46	0.02	0.43	0.03	0.54	0.03
University & Post University=1	0.22	0.02	0.26	0.03	0.14	0.02
Years of Required Experience Dummies (reference category: 5-10 years):						
Zero Years = 1	0.80	0.02	0.77	0.02	0.87	0.02
One Year = 1	0.10	0.02	0.11	0.02	0.07	0.01
2-3 Years = 1	0.08	0.01	0.09	0.01	0.05	0.01

	Pooled		Men		Women	
	Mean	Std.	Mean	Std.	Mean	Std.
4–5 Years =1	0.01	0.00	0.02	0.00	0.00	0.00
6> 10 Years =1	0.01	0.00	0.01	0.00	0.01	0.00
Governorates Dummies (reference category: Al Sharkeya):						
Greater Cairo =1	0.51	0.02	0.51	0.03	0.53	0.03
Alexandria =1	0.27	0.02	0.27	0.02	0.26	0.02
Firm Attributes:						
Export Status (Dummies):						
Export =1	0.76	0.01	0.75	0.02	0.76	0.02
QIZ =1	0.54	0.02	0.54	0.03	0.54	0.03
Non-QIZ =1	0.22	0.02	0.21	0.02	0.22	0.02
Size (Categorical)	2.76	0.01	2.79	0.01	2.69	0.02
0≤50worker =1						
50 ≤ 150 = 2						
> 150 = 3						
50 ≤ 150 =1	0.12	0.01	0.11	0.01	0.15	0.01
> 150 =1	0.82	0.01	0.84	0.01	0.77	0.02
Ownership Dummy	0.92	0.01	0.92	0.01	0.94	0.01
QIZ =1	0.54	0.02	0.54	0.03	0.54	0.03
Non-QIZ =1	0.22	0.02	0.21	0.02	0.22	0.02
No. of observations	5200		3243		1957	

Source: Author's calculations based on IDSC Firm and Worker Questionnaire, 2009.