Does Economic Globalization Benefit Women? Export Production, Foreign Investment, and Gender Inequality in Mexico

Andrés Villarreal*
University of Texas at Austin

Wei-hsin Yu
University of Texas at Austin

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ABSTRACT

Sociological research has been generally critical of the effects of economic globalization for developing countries. However, greater worldwide economic integration may have created new employment opportunities for women. In this paper we examine the effect of foreign investment and export production on gender inequality in Mexico, a country that epitomizes the global shift to an open-market economic strategy. Using data from nationally representative surveys of manufacturing firms between 1992 and 2001 we find that foreign and export-oriented firms employ significantly more women at every occupational level than nationally-owned firms producing goods for sale in the domestic market. The greater employment of women in foreign and export firms cannot be explained by their higher demand for workers of lower skill levels, their size, capital intensity, production technology, wage level, use of temporary workers, or industry. Using managers' responses to survey questions regarding their gender preferences in hiring we find that managers in foreign-owned export firms have a preference for hiring women that cannot be explained by firm-level factors and which may partly account for the observed differences in female employment. Finally, using firms' payroll information to analyze the gender wage gap in manufacturing firms we find that foreign-owned export firms discriminate against women less in terms of wages.

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Sociologists have been increasingly interested in the effects that economic globalization has had on the lives of people in developing countries. Researchers have argued that foreign investment and international trade restrict economic growth, increase inequality, and have numerous other harmful consequences for less developed countries (Bornschier and Chase-Dunn 1985; London and Robinson 1989; Wimberley and Bello 1992; Dixon and Boswell 1996; Kentor 1998; Kentor and Boswell 2003). Much less attention has been paid to the effects of economic integration on gender inequality. Yet the available evidence suggests that globalization may have benefited women in some important ways. In particular, research in development economics indicates that international trade has increased women's employment in less developed countries (Joekes 1987, 1995; Standing 1989, 1999; Lim 1990; Wood 1991; Joekes and Weston 1994; Cagatay and Ozler 1995; Braunstein 2006). Export industries have been known to employ an unusually high proportion of women, although we do not know exactly why. Some authors suggest that export firms employ more women because they are in labor-intensive industries such as the garment and electronics industries which pay lower wages and provide little or no job security (Pearson 1991, 1998; Pyle 1999). However, the reasons for the higher employment rates of women in export firms compared to those producing goods for domestic markets have not been systematically tested.

Efforts to compare women's employment in export and non-export firms have been hampered by the lack of suitable data sets with firm-level information. Firm-level data are

necessary not only to identify which firms are engaged in export production, but also to test whether differences between export and non-export firms in their size, capital intensity, use of automated machinery, and industrial sector, among other factors, account for the observed differences in female employment between export and non-export firms. Previous research has instead relied on aggregate national statistics or employment surveys that contain limited information about the types of firms women work for (Standing 1989, 1999; Wood 1991; Tiano 1994; Fussell 2000). Existing case studies on the other hand, have tended to focus on firms located in specialized areas within developing countries devoted to export production known as Export Processing Zones (EPZ) which are not always representative of all export firms (e.g., Fernandez-Kelly 1983; Ong 1987; Safa 2002).[1]

In this paper we use information from a nationally representative sample of manufacturing firms in Mexico to compare female employment rates in export-oriented firms to those producing goods for sale in the domestic market. We also compare female employment rates in foreign and nationally-owned firms. Researchers have so far failed to examine the effect of foreign investment on women's labor force participation despite the increasing importance of foreign direct investment in many developing countries (UNCTAD 2005).[2] Mexico constitutes a crucial setting to test the effects of foreign investment and

[1] The International Labor Organization (ILO) defines EPZs as "industrial zones with special incentives set up to attract foreign investors, in which imported materials undergo some degree of processing before being re-exported" (ILO 2002). Typically, materials and equipment used in the production process are allowed to be imported with lower tariffs. Other incentives to investors in EPZs include tax breaks and exemptions from some national laws and regulations.

[2] A considerable overlap exists between foreign investment and export production since multinational companies in developing countries frequently produce goods for export. However, multinational firms are increasingly selling their products in local markets, and many nationally-owned firms are selling abroad, thus creating a need to further separate the effects that foreign investment and export production have on women's employment.

export production on women's employment because the country epitomizes the shift to an open-market economic strategy experienced by a numerous other countries over the past two decades. As of 2003 Mexico had signed eleven free trade agreements with thirty-two countries in addition to being a founding member of the World Trade Organization (López-Córdova 2003). The North American Free Trade Agreement (NAFTA) enacted in 1994 reduced tariffs on trade with the United States and Canada, and made Mexico part of the second largest trading bloc in the world.

Second, in order to assess whether foreign and export-oriented firms have gender-biased hiring practices that may explain the observed differences in the proportion of female workers we also analyze managers' responses to survey questions regarding their preferences for employing either women or men to fill positions at different occupational levels. Although the sex-typing of jobs in export industries has been proposed as an explanation for greater female hiring (Elson and Pearson 1981; Fernández-Kelly 1983; Fuentes and Ehrenreich 1983), this hypothesis has never been properly tested using a representative sample of firms. Finally, critics of women's employment in export industries charge that women are employed only in the lowest paying and least desirable jobs in export firms, and that they lag far behind their male counterparts in terms of wages (e.g., Ríos 1990; Pearson 1991; Pyle 1999). While studies have generally shown that foreign and export-oriented manufacturing firms pay wages that are at least as high and usually higher than other firms operating in the same national labor markets (Wilmore 1986; Aitken, Harrison and Lipsey 1996; Bellak 2004; Greenaway, Gullstrand and Kneller 2005), previous work has not systematically compared the wages paid to women and men in foreign and export-oriented

firms. In this study we will therefore also use firms' payroll information to determine whether foreign-owned and export-oriented firms pay women lower wages than men in similar occupations, and whether the gender wage gap is higher in foreign-owned and export-oriented firms compared to nationally-owned non-export firms.

To summarize, this paper seeks to answer three specific questions: First, do foreign-owned and export-oriented firms in Mexico employ more women compared to nationally-owned firms producing goods for sale in the domestic market, and if so why? We refer to this difference in the proportion of female workers as the *employment gap*. Second, do foreign-owned and export-oriented firms have hiring preferences which are either favorable or discriminatory towards women? We refer to this difference in gender preferences as the *preference gap* in order to distinguish it from the actual difference in female employment across firms. And finally, do foreign-owned and export firms systematically pay women lower wages than men in similar occupations, and is this *wage gap* higher in foreign-owned and export-oriented firms? The paper is organized as follows: in the next three sections we review the relevant literature in order to derive specific hypotheses regarding the effect of foreign ownership and export production on women's employment and wages. After describing the survey and measurements used, we present descriptive statistics and results from the multivariate analyses. We conclude with a discussion of the general implications of the findings from this study.

Globalization and Women's Employment in Developing Countries – The Employment Gap

Women's labor force participation has increased dramatically in developing countries over the past several decades. While the proportion of employed women is still lower than in more developed countries, recent estimates indicate that labor force participation rates among women ages 20 to 54 exceed 60 percent in developing countries as a whole (United Nations 1999). According to information from the International Labor Organization, women's employment has increased faster than men's employment since 1980 in most regions of the world (ILO 1998a; United Nations 1999). Factors such as women's higher educational attainment, lower fertility rates, and changing attitudes towards women working outside the home have increased female employment rates by increasing the supply of female labor, that is, the amount of women willing and able to seek paid jobs (Chant and Craske 2003). Researchers also argue that the expansion of trade with developed countries has contributed to a rise in female employment by increasing the demand for female workers in the manufacturing sector (Joekes 1987, 1995; Standing 1989, 1999; Lim 1990; Wood 1991; Joekes and Weston 1994; Ozler 2000; Braunstein 2006).

One reason why export production increases the demand for female workers is that export firms employ large numbers of low-skilled workers (Joekes 1987; Pearson 1991; Kusago and Tzannatos 1998). Since women continue to lag behind men in educational attainment in most developing countries they tend to fill the lowest positions within the occupational hierarchy. A higher demand for low-skill labor therefore increases the demand for women, all else being equal. Typical export industries such as those engaged in the

manufacture of clothing and assembly of electronic devices, for example, require large numbers of workers with little or no formal education or prior training. These industries are also highly feminized. The low skill requirements of workers are in turn closely associated with the intensity of capital investment and the level of technology used in the production process. Firms that are more capital intensive (in other words, those that are less labor intensive) will be less pressed to reduce labor costs by hiring low-skilled female workers (Joekes 1987).[3] Similarly, technologically advanced firms will require workers with more skills and will generally invest more on training workers for specific tasks. Since female workers are often perceived to be more likely to quit their jobs upon marriage and childbearing, employers are more hesitant to hire women for positions requiring extensive training (Brinton 1989; Goldin 1990).

Another important reason why export production increases the demand for female workers (already implicit in the foregoing discussion) is that women constitute a cheaper labor source (Standing 1989, 1999; Pearson 1992; Braunstein 2006). International competition leads export firms to reduce the cost of labor as much as possible. Employing women is one way export-oriented firms reduce labor costs since women continue to receive significantly lower wages than men in similar occupations. According to this explanation, the demand for female workers has less to do with skill requirements per se than with reducing

[3] Joekes (1987:88-89) also suggests that the need for capital-intensive industries to make maximum use of their fixed investment by running production operations around the clock provides a disincentive for women to work there since they are frequently forbidden by law or social customs from working night shifts.

labor costs.[4] Standing (1989, 1999) relates the demand for female labor to a broader international shift towards flexible labor practices. International competition not only creates a greater need to reduce labor costs, but also provides an incentive to reduce rigidities in the labor market. The new flexible labor regime implies the disappearance of stable union jobs and their replacement with temporary jobs that can easily be eliminated in reaction to changes in the market (Smith 1997; Kalleberg 2000). Women are more likely to fill these downgraded jobs.

Evidence for the positive effect of export production on women's employment in developing countries comes largely from the experience in Export Processing Zones. According to a report by the International Labor Organization (2002) 37 million workers are employed in 3,000 EPZs around the world. In almost every country firms in EPZs employ a much higher percentage of female workers than manufacturing companies outside EPZs (ILO/UNCTC 1988; Joekes 1995; ILO 1998b; United Nations 1999; ILO 2002; Benería 2003:78-79). On average 70 percent of the labor force in EPZs is female (Joekes and Weston 1994), and in some countries such as Sri Lanka women constitute 85% of the workforce in EPZs (United Nations 1999; Benería 2003:79). Studies on Mexico have concentrated on the *maquiladora* industry program (Fernández-Kelly 1983; Sklair 1989; Tiano 1994; MacLachlan and Aguilar 1998; Cravey 1998; Fussell 2000; Salzinger 2003). Although maquiladora firms are now located throughout Mexico and are not restricted to any particular area of the country, they are governed by similar regulations as firms in EPZs elsewhere in

[4] If this explanation is correct then export firms may be substituting male employees with women rather than creating a higher demand for traditional female occupations. In this sense the explanation for women's employment in export firms based on skill levels and wages are conceptually distinct.

the world (MacLachlan and Aguilar 1998).[5] The maquiladora labor force was overwhelmingly female during the initial phases of the program, with the percentage of female production workers (*obreros*) reaching 77% or higher in the 1970s and early 80s, and then declining rapidly to reach 58% by 1996 (Sklair 1989:167; MacLachlan and Aguilar 1998). More recent reports suggest a tapering off of the decline in the percentage of female employment (INEGI 2006).

The decline in the proportion of women employed in maquiladoras reflects a broader shift towards lower female participation rates in EPZs in many developing countries (ILO/UNCTC 1988; Pearson 1992; Joekes and Weston 1994; Joekes 1995; Elson 1996; United Nations 1999:9-10; Braunstein 2006). This decline in women's share of the labor force in EPZs seems to coincide with a diversification of export production and a shift towards heavier industries such as the automotive industry, which generally employ more men compared to the garment and electronics industries. Researchers have suggested that the decline in female employment in EPZs is specifically tied to the changing characteristics of export firms such as their greater capital intensity and use of advanced technology, which reduce the demand for low-skilled labor (Pearson 1991; Joekes and Weston 1994; Joekes 1995, 1999; ILO 2002; Braunstein 2006). The detailed information available in the surveys of Mexican manufacturing firms will allow us to test whether these and other firm-level factors are indeed associated with lower female employment rates in export industries.

[5] Maquiladora plants in Mexico assemble goods for export to foreign countries using materials that are imported temporarily for this purpose. Special legislation allows maquiladoras to import materials and machinery duty free so long as the assembled products are exported. Initially, maquiladoras were only allowed within twenty kilometers of the U.S. border under conditions similar to Export Processing Zones (EPZ) elsewhere in the world. Current legislation allows the establishment of maquiladoras in other parts of Mexico (INEGI n.d.)

An important limitation of previous studies examining the relation between export production and female employment is that they are largely based on the experience in EPZs. As Joekes and Weston (1994) and others have pointed out, EPZs are not necessarily representative of all export firms in developing countries since a large percentage of firms engaged in export production are not located in EPZs, especially in the middle-income developing countries in East Asia. In Mexico the proportion of non-maquiladora firms engaged in export production has increased substantially during the past decade in part as a result of the enactment of the North American Free Trade Agreement in 1994. By reducing the tariffs on trade between Mexico, the United States and Canada NAFTA, as well as numerous other trade agreements signed by Mexico have made the distinction between maquiladoras and other manufacturing firms less relevant. In the statistical analysis below we therefore examine women's employment in all export firms regardless of whether they are recognized as maquiladoras or not.

Another important limitation of previous research is the lack of attention to the effect that foreign investment has on women's employment in developing countries. Along with international trade, foreign investment flows are an important dimension of globalization. Yet we know almost nothing about the effect these investment flows have on female labor force participation rates and women's wages.[6] To the extent that foreign-owned firms overlap with those engaged in export production we may expect them to have a similarly positive effect on female employment. However, foreign-owned firms producing goods for

[6] This point has been raised by the United Nations report on *Women in a Changing Global Economy* (1995:24). See also Singh and Zammit (2000).

sale in national (i.e., non-export) markets are more frequently involved in heavier, capital intensive industries such as the metal products and chemical industries, which tend to employ less women. In the analysis below we therefore distinguish between foreign-owned firms that are engaged in export production and those that sell their products locally.

The Role of Gender Stereotypes in Hiring Practices – The Preference Gap

In addition to the explanations emphasizing factors such as skill requirements and cost reduction, another popular explanation for the greater demand for women in export industries in developing countries has to do with employers' beliefs in stereotypes regarding female workers. According to this explanation women are preferred by employers for the types of jobs available in export firms because they are perceived to be more docile and undemanding in their relations with managers, as well as less likely to form labor unions. Women are also thought to be preferred because of their alleged manual dexterity (their so-called "nimble fingers") and greater ability to perform traditional female tasks such as sewing (Elson and Pearson 1981; Fuentes and Ehrenreich 1983; Hein 1986; Joekes 1987:87-88; Pearson 1992:231-235; Braunstein 2006). Discussions of the role of gender stereotypes in recruitment practices in Mexican maquiladoras can be found throughout the literature (Fernández-Kelly 1983; Sklair 1989:167-180; Tiano 1994; Salzinger 2003). Such stereotypes of female workers have been repeatedly shown not to be based on reality. Nevertheless, the fact that these stereotypes are fictitious does not mean that they do not affect employers' hiring decisions.

What the various studies discussing the importance of gender stereotypes in the hiring practices of export firms have failed to explain is why these same stereotypes should not also affect the employment decisions of managers in non-export firms. If women are thought to possess certain desirable characteristics for manufacturing work (such as docility and manual dexterity) they should be desired by *all* types of firms regardless of their export orientation. If we were to find that export firms prefer to hire women even once the desired skill level of workers and various other firm-level characteristics are controlled, then we would have grounds to believe that gender stereotypes are more prevalent among managers of export-oriented firms than those in non-export firms. Because previous studies have focused only on firms that are export-oriented they have been unable to demonstrate that their hiring practices are different from those of other manufacturing firms. In contrast, we are able to overcome this important limitation by comparing the hiring preferences of managers in the entire sample of Mexican manufacturing firms.

Research examining gender preferences in hiring not only among export-oriented firms in developing countries but in the U.S. as well, usually infer a preference for workers of a particular gender based on the actual gender composition of the workers hired (e.g., Konrad and Pfeffer 1991; Reskin and McBrier 2000; Gorman 2005). Yet there are other reasons why the gender composition of the hired workforce may vary across firms. By contrast, the Mexican surveys of manufacturing firms used in this study contain specific questions regarding managers' gender preferences in hiring. These questions allow us to directly test whether foreign and export-oriented firms actually prefer to hire women and examine the factors leading to such preferences. The questions regarding managers' gender

preferences posed in the Mexican survey are similar to those in a series of ILO-sponsored studies in four transition economies (Bulgaria, Hungary, the Czech Republic and Slovakia) and four developing countries (India, Cyprus, Sri Lanka and Ghana) (see Anker and Hein [1985, 1986] and Anker [1998] for details).[7] Although these studies were not specifically concerned with differences between export and non-export firms, they nevertheless demonstrate the feasibility of using survey data to analyze hiring preferences. Results from the establishment surveys in Hungary and Bulgaria for instance, indicated that managers systematically preferred to hire men to fill skilled positions (Szirácki and Windell 1992). However, the same study also shows a substantial variation in the sex-typing of jobs by industry. Women were more often preferred to men for positions in the textile, leather and clothing industries. The firm-level information from the Mexican surveys allows us to control for such industry-level differences in hiring preferences in the analysis below.[8]

Differences in Female and Male Wages – The Gender Wage Gap

While numerous studies indicate that export firms provide a large quantity of jobs for women in developing countries, much less is known about the quality of these jobs, and specifically how the quality of women's jobs in export firms compares to the jobs held by men. One important measure of the quality of women's jobs (though by no means the only one) is the wages they receive (Joekes and Weston 1994). Previous research has found that foreign and export-oriented manufacturing firms pay higher wages than other firms operating

[7] The International Labor Organization participated in the planning of the first manufacturing survey used in this study (INEGI 1992).
[8] See the Data and Descriptive Statistics sections below for a discussion of the problems associated with using survey responses to measure managers' preferences, as well as for the strategy used to assess the validity of such measurements.

in the same national labor markets in various countries (Wilmore 1986; Aitken, Harrison and Lipsey 1996; Bernard and Jensen 1999; Bellak 2004). Our earlier work has demonstrated that foreign-owned and export-oriented firms in Mexico also pay significantly higher wages ([authors' citation omitted]). In this sense foreign and export-oriented firms generally offer women better options with regards to pay than other alternatives open to them, especially if we also compare wages in foreign and export-oriented manufacturing firms to the wages paid by other non-manufacturing jobs typically available to women (Lim 1990; Joekes and Weston 1994; Kabeer 2000; Ver Beek 2001; Braunstein 2006). This point has also been raised by several studies of the Mexican maquiladora industry, however critical they otherwise are about the treatment of women in maquiladoras (see for example Fernández-Kelly 1983; Sklair 1989; Tiano 1994). However, virtually no information is available on the extent to which women working in foreign-owned and export-oriented firms are paid the same or less than men in the same firms. In the final section of this paper we therefore examine the difference in wages between women and men in Mexican manufacturing firms, and specifically test whether the wage gap is higher in foreign-owned and export-oriented firms.

Comparing the wages paid to women and men in foreign and export firms is important for our understanding of the effect of economic integration on gender inequality in Mexico because it allows us to assess whether these types of firms discriminate against women not so much in terms of employment but rather in terms of wages. It may be the case that export firms employ more women at every occupational level than non-export firms. Yet if export firms systematically pay women lower wages than men their overall effect on

gender inequality may need to be reconsidered. Our analysis makes use of the rarely available payroll information in the Mexican manufacturing surveys to examine the wage gap between women and men employed in the same occupational level within export and non-export firms as well as between those that are foreign and nationally-owned. While such a comparison is critical for our overall objectives, it should be noted that our analysis constitutes a very narrow test of gender discrimination since previous studies in other national contexts have shown that the within-occupation within-firm wage difference between women and men accounts for only a small part of the total gender wage gap (Petersen and Morgan 1995). By the same token, because intra-firm wage comparisons control for various firm-level characteristics they constitute a very rigorous test of gender wage discrimination by foreign and export firms.

Data and Measurements

Our analysis of women's employment and wages in foreign and export-oriented manufacturing firms in Mexico is based on data from the National Surveys of Employment, Wages, Technology and Training in the Manufacturing Sector (*Encuestas Nacionales de Empleo, Salarios, Tecnología y Capacitación en el Sector Manufacturero, ENESTYC*). The ENESTYC surveys were conducted in 1992, 1995, 1999 and 2001 by the Mexican National Institute for Statistics, Geography and Informatics (INEGI), the same governmental institution in charge of the population censuses (INEGI 2001). We rely primarily on information from the 2001 survey because it is the most recent and largest of the four. However, data from the 1992 and 1999 ENESTYC surveys are used both to further confirm

our findings and measure changes over time. The 1995 survey is omitted from our analysis because it does not include a breakdown of workers by gender.[9]

The 2001 ENESTYC survey contains information from a nationally representative sample of manufacturing firms. Separate surveys were conducted for traditional manufacturing firms and maquiladoras. Data from both types of industries were merged into a single dataset in the analysis below.[10] All three ENESTYC surveys include detailed information about firms' finances and operations such as the amount and national origin of capital investment, the total value and national destination of sales, the use of technology and the industrial sector of which they are a part. Aggregate information is also available for workers in each firm based on four occupational categories and according to gender, including the number of workers in each occupational category, their average wages, educational level, and years of tenure in the firm.

The ENESTYC surveys distinguish four occupational categories: 1) unskilled blue-collar workers defined as those with "minimum experience and training regarding their work"; 2) skilled blue-collar workers who "master a trade or position... as well as the instruments of their work"; 3) non-managerial white-collar workers, which include "all personnel that are not directly involved with the production process" such as clerical workers, engineers, accountants and other administrative staff; and 4) managers, defined as "personnel

[9] The ENESTYC surveys contain sensitive information regarding firms' finances and personnel. For this reason, the Mexican National Institute for Statistics, Geography and Informatics (INEGI) strictly enforces confidentiality standards and does not release the data from the surveys publicly. It was therefore necessary to obtain approval for our research project and carry out our analyses at the INEGI headquarters in Mexico.

[10] Separate surveys were carried out for maquiladora and non-maquiladora firms in 1999, while the 1992 survey included both types of firms together.

that make decisions associated with planning, directing, formulating production policies, finance, marketing, and organization within the firm..." (INEGI 1999, our translation). Employment levels are available for workers of each gender in each occupational category according to whether they are permanent employees or temporarily hired by the firm at the time of the survey. Both permanent and temporary workers are employed full time. Part-time and subcontracted workers are excluded from the analysis because of insufficient information (i.e., their occupational level and wages are not available).[11] Finally, because foreign investment and export production are heavily concentrated in medium and large size firms we selected only manufacturing firms in these two categories based on INEGI's own classification system, that is, those with more than 100 employees.[12] Selecting only firms that are of comparable size to those that are foreign-owned or oriented towards export production is important because sex discrimination is likely to vary by firm size (Peterson 1989; Carrington and Troske 1995:507-508; Reskin 1993:255; Yu 2005).[13]

[11] One limitation of our research is therefore that we are missing the low-wage employment generated by export and non-export firms through subcontracting, including industrial homework (Benería and Roldán 1987). Although a detailed breakdown by occupational level is not available, results from the 2001 ENESTYC survey indicate that subcontracted workers account for only 0.8% and 2.6% of all workers employed by the average export and non-export firm in our sample respectively. The average percentage of workers who are employed part time (0.8%), by the hour (0.2%), and by honorarium (0.3%) are similarly low for the firms included in our sample.

[12] According to results from the 2001 ENESTYC survey 96.1% of workers in foreign-owned firms are employed in firms with more than 100 employees, while 92.7% of workers in export firms are employed in firms of that size.

[13] In addition, a vast amount of research has shown that larger firms pay significantly higher wages and provide more opportunities for career advancement (Stolzenberg 1978; Villemez and Bridges 1988; Sakamoto and Chen 1991; Kalleberg and Van Buren 1996; Hollister 2004). Our analysis is intended to test whether foreign investment and export production increase women's access to these better jobs. Finally, from a methodological standpoint, including small firms in our sample increases the risk of multicollinearity in the multivariate regressions when firm size is introduced as a predictor along with national ownership and export production since foreign-owned export firms are almost exclusively in the largest firm size categories.

Three different dependent variables are used in the statistical analyses, corresponding to the three gender "gaps" described in the previous section. First, we use the proportion of female workers in each of the four occupational categories in each firm as a dependent variable in the analysis of the gender employment gap. Second, we use managers' declared preference for hiring either men or women or having no gender preference at all to fill positions in each occupational level as an unordered categorical dependent variable in multinomial logit models in order to examine the gender preference gap. In the descriptive analysis we also explore the specific reasons cited for preferring women or men, and attempt to validate the use of managers' answers to the survey questions as measures of their true preferences by examining how closely they correspond to actual hiring practices over the past six months. Finally, we use the logged ratio of the average total compensation paid to women relative to men in each occupational level within a firm as a dependent variable in the regression models corresponding to the gender wage gap. The total compensation to workers includes wages, overtime pay, benefits, mandatory contributions by employers to the national social security system, and any other payments made during the month of reference (June 2001). This measure of total compensation is preferable to one based solely on monetary wages because it more accurately reflects the total income received by employees for their service to the firm and the living standard they can afford (Jencks, Perman and Rainwater 1988). For simplicity, in the remainder of the paper we will refer to the sum of all these direct and indirect payments to workers as "wages".

Firm-level Predictors

Following our theoretical discussion, the main predictors used in the regression analysis are those that have to do with the national origin of the capital invested in the firm and the destination of the manufactured goods sold. We classify all firms in which 50% or more of the total investment is not Mexican as foreign-owned. Such firms will include joint ventures between foreign and domestic capital, but only when the foreign stockholders own a controlling share.[14] Similarly, we classify as export-oriented firms all those with 50% or more of their sales destined for foreign markets. Because 100% of their output is sold abroad, all maquiladoras are classified as export-oriented firms. However, because maquiladoras have special features that distinguish them from traditional exporting companies, we also use a separate dummy variable to specifically identify them in our statistical analysis. Finally, in order to test the interaction effects between foreign ownership and export orientation we construct dummy variables identifying four mutually exclusive categories of firms: foreign-owned export firms, foreign-owned non-export firms, domestic export firms, and domestic non-export firms.

Our first explanation for the higher proportion of women in export-oriented firms described above pertains to the skill requirements of workers in such firms. Researchers have argued that export firms employ a disproportionate amount of low-skill workers. Since women tend to occupy lower occupational positions compared to men, they are likely to constitute a large proportion of workers in firms with low skill requirements. We control for

[14] Majority foreign ownership of a firm is meaningful for our analysis because it allows foreign investors to have a direct influence on hiring policies and wages. Moreover, exploratory analysis revealed that the distribution of firms according to the percentage of foreign capital investment is such that the majority of firms with any foreign investment at all had foreign capital participation of 50% or more.

the skill level of workers in the statistical analysis below by testing separate regression models for each of the four occupational groups: unskilled blue-collar, skilled blue-collar, non-managerial white-collar, and managerial workers. A second factor thought to explain differences in female employment in export and non-export firms is the intensity of capital investment. Researchers argue that export-oriented firms employ more women because these firms are less capital intensive. We measure capital intensity as the total value of a firm's assets in hundreds of thousands of current pesos divided by the total number of workers in all occupational levels. Part of the effect of capital intensity on female employment may also be due to the use of more advanced technology in the production process. We measure the effect of advanced technology on female employment directly by including as a predictor the cost of automated equipment (such as numerical control machinery and robots) as a proportion of the total value of the machinery used for production.

A fourth explanation for the greater proportion of female workers in export firms had to do with their purported lower wage levels. We therefore include the logged average wages (plus benefits and other compensation) paid to workers in each occupational level within a firm as a predictor of the proportion of women employed. We expect firms with lower wages to employ more women. Fifth, we also test the importance of flexible labor practices on women's employment by introducing the proportion of temporary workers in each occupational category in a firm as a predictor in the regression models. If the greater employment of women in export firms is due to managers' attempt to hire a labor force that can be more easily dismissed, then the female employment gap between export and non-

export firms should disappear (or be substantially reduced) when the proportion of temporary workers is introduced in the regression models below.

In addition to the firm-level characteristics just described we control for several additional factors in the regression models. The total firm size is included as a predictor because previous research has suggested that the level of intra-firm gender inequality may vary by firm size. For example, larger firms are more likely to comply with anti-discrimination laws and thus hire more women (Carrington and Troske 1995:507-508). Second, we control for a firm's age of operation because older establishments are more likely to rely on gender stereotypes to recruit workers as a result of organizational inertia (Baron, Mittman and Newman 1991). Third, we introduce a dummy variable for firms that belong to large conglomerates because such firms are argued to have more economic power, which enables them to discriminate more against women (Rosenfeld 1983; Kalleberg and Lincoln 1988). Fourth, we control for firms' geographical location in order to account for regional differences in the supply of female workers. Specifically, we include two dummy variables indicating whether a firm is located in the northern border states as well as the Mexico City area where we expect women to have higher labor force participation rates. Finally, in order to test for any remaining differences in female employment rates across firms belonging to different industries that are not captured by the firm-level predictors we include 8 dummy variables corresponding to the major categories in the Mexican industrial classification system (see the tables below for the specific name of each industry). We use the textiles, apparel and leather industry as a baseline category because it typically has the highest proportion of female workers. If differences in female employment rates between export and

non-export firms are due to the types of industries of which they are a part then the employment gap should disappear once we control for industry.

Descriptive Statistics

Table 1 compares the average percentage of female workers and average ratio of female to male wages for workers in each occupational category in domestic versus foreign-owned firms (panel 1), non-export versus export firms (panel 2), and non-maquiladora versus maquiladora firms (panel 3). The differences in female employment levels across these sectors are indeed remarkable. At every occupational level foreign-owned firms employ significantly more women than nationally-owned firms. The differences are even larger between export and non-export firms, and between maquiladora and non-maquiladora firms.[15] Whereas women constitute 50.6% of all unskilled workers in the average maquiladora firm, they make up only 29.8% of such workers in the average non-maquiladora firm. The differences are generally lower for higher occupational levels suggesting that the higher overall demand for female workers in foreign-owned and export-oriented firms may indeed be partly (although not entirely) explained by their greater employment of unskilled workers. Even at the managerial level, female employment levels in maquiladora firms is more than 13 percentage points higher than in non-maquiladoras.

The differences in the gender wage gaps between firms according to their level of foreign investment and national destination of their sales are less dramatic. It is important to keep in mind that the numbers reported in table 1 are the average ratios of the wages paid to

[15] The differences in the average percentage of women workers are statistically significant at the .05 level for every occupational category as noted by the asterisks in table 1.

women and men working in the same occupational level within the same firm. As noted earlier, the within-occupation within-firm gender wage gap is known to be relatively small (Peterson and Morgan 1995). Nevertheless, the results indicate that the ratio of female to male wages is significantly higher for unskilled workers in foreign firms compared to those that are nationally-owned, and in export firms compared to non-export firms. In fact, the wage ratios for unskilled workers in foreign and export firms as well as in the maquiladoras are all greater than one, seemingly implying that women in this occupational level earn slightly more than men in such firms. However, further statistical tests reveal that these wage ratios are not significantly higher than one at the .05 level. Like the female employment levels, the wage ratios also decrease for higher occupational groups. Of course, all the aggregate differences just described do not control for differences between foreign and domestic firms and between export and non-export firms in their size, capital intensity, and industry, among other factors. The multivariate regression analysis below will examine the extent to which these firm-level characteristics explain the overall differences in female employment and wages observed in table 1.

Turning now to the preference gap, table 2 shows the percentage of survey respondents who prefer to hire men or women as well as those who report no preference at all when hiring workers in each of the four occupational levels. Respondents to this section of the ENESTYC survey consisted of a manager within each firm responsible for hiring decisions. Their preferences should therefore correspond closely with actual hiring practices

as demonstrated below.[16] As shown in table 2 a majority of personnel managers reported having no gender preferences when hiring workers at every occupational level. However, the percentage of respondents with no gender preferences is generally higher for higher occupations. Among respondents stating a gender preference most prefer men by very large margins, except when hiring non-managerial white-collar workers where women are preferred. This intermediate occupational group is quite heterogeneous, encompassing both clerical workers and professionals. The preference for women in non-managerial white-collar jobs may therefore indicate the greater number of clerical workers hired by the firm relative to the number of professionals, given that the former are often sex-typed as female positions and the latter as male positions.

As far as the differences in gender preferences across different types of firms, the results in table 2 indicate that personnel managers in foreign and export firms are much more likely to report a preference for hiring women than those in nationally-owned and non-export firms respectively. These differences are even more pronounced between managers of maquiladora and non-maquiladora firms. Whereas 5.8% of managers in non-maquiladora firms prefer to hire women for unskilled positions, 18.3% of maquiladora managers prefer women. Stated differently, among non-maquiladora managers who report a gender preference when hiring unskilled workers, men are preferred by a ratio of 7 to 1 (40.4% versus 5.8%). In contrast, maquiladora managers prefer to hire women, albeit by a small margin (18.3% versus 15.1%). Maquiladora managers are also more likely to not have (or at

[16] Unfortunately, demographic information about the personnel manager answering this part of the survey is not available. We are therefore unable to control for the gender of the personnel manager in our multivariate analysis below. Previous research has demonstrated that an employer's gender is associated with the gender of the workers hired (Carrington and Troske 1995; Gorman 2005).

least not report) a gender preference in hiring workers at every occupational level compared to managers in non-maquiladora firms (as are managers in foreign and export-oriented firms in general). Taken at face value, these findings suggest that export-oriented firms are less likely to discriminate based on gender when hiring workers, and when they do discriminate they tend to favor women.

The use of direct questions about hiring preferences to measure gender discrimination is obviously problematic since many managers are likely to hide their preference for hiring either women or men, among other reasons because it is nominally illegal in Mexico to discriminate against workers on the basis of gender.[17] Moreover, some managers may be truly unaware of their preferences. Nevertheless, managers who do express a preference for hiring workers of a particular gender for a given position are likely to be expressing their true opinions since there is an incentive for managers to hide their preferences, but little incentive to lie regarding their preference for hiring women or men once they have stated a preference. Measures of gender discrimination in hiring obtained from managers' reported preferences for men or women are therefore likely to underestimate the actual level of discrimination.[18] In order to validate our measures of gender preferences in hiring we compare the percentage of female workers hired over the past 6 months in firms whose managers prefer either men or women as well as those claiming to be indifferent.[19] The results shown in table 3 indicate an overall consistency between the stated gender preferences and actual hirings. For example,

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[17] See online document created by the Commission for Labor Cooperation (*Guide to Employment Discrimination Laws in Mexico)* http://www.naalc.org/migrant/english/pdf/mgmexemd_en.pdf.

[18] There may also be differences in the extent to which managers in foreign and domestic firms hide their true gender preferences. On this point see our discussion in the multivariate results section below.

[19] The sample size is reduced in these tabulations because many firms did not hire personnel in one or more occupational levels during the previous 6 months.

among firms with personnel managers who prefer men for unskilled positions only 12.3% of recently hired unskilled workers were women, whereas 67.1% of recent hires were women in firms where managers preferred female workers. The percentage of women hired in firms with managers claiming to have no gender preference (47.1% for unskilled workers) roughly corresponds to the percentage of female workers in the labor supply.

The survey of Mexican manufacturing firms also asked managers who reported a preference for hiring either women or men why they preferred to hire workers of that particular gender. They were specifically asked to choose among eight different reasons shown in table 4. Among other things, the answers to this question allow us to examine whether managers in manufacturing firms who prefer to hire women do so because of their greater perceived docility (i.e., because they are seen as "more controllable") or their greater perceived dexterity (i.e., because they have "special abilities") as suggested by previous research. By far, the most common reason given for preferring women both as unskilled and skilled blue-collar workers was indeed their "special abilities" for performing the required tasks (62%). Although the category of "special abilities" is rather vague, this finding does suggest that managers' perceptions of women's manual dexterity or their ability to perform certain tasks may in fact be the primary reason they are preferred. Women were also preferred for unskilled positions because of their greater productivity (15.0%), which might also be related to their perceived abilities, as well as "lower absenteeism" (11.2%), and "greater adaptability" (7.6%). Interestingly, relatively few managers who reported a preference for hiring women did so because they thought that women were more docile (i.e., "controllable") (0.8%). By contrast, a vast majority of managers who preferred to hire men as

unskilled or skilled blue-collar workers did so because they considered them better suited for "heavy work" (90.0% and 71.9% for unskilled and skilled blue-collar workers respectively).

Multivariate Results

Table 5 shows the results of the regression models for the employment gap using the proportion of unskilled blue-collar workers who are female as a dependent variable. The first three models test the effect of foreign ownership, export production, and maquiladora sector separately, while the remaining models use interaction terms to form mutually exclusive groups corresponding to: foreign-owned export firms, foreign-owned non-export firms, and domestic export firms, using domestic non-export firms as the baseline category. The results strongly confirm our expectation that export firms and maquiladoras employ more women. However, once export production is taken into account foreign ownership appears not to have a significant effect in 2001 (see evidence for other years below). The higher female employment in export-oriented firms holds true even when all other firm characteristics are controlled. The difference in the proportion of women employed in export firms compared to those selling their products domestically is indeed quite large. According to the most complete model (Model 7) the proportion of unskilled workers who are female is 18.6 percentage points higher in foreign-owned export firms compared to nationally-owned firms producing goods for the domestic market.

None of the firm-level factors discussed in the theoretical section above seems to fully account for the higher female employment rates in export-oriented firms. Nevertheless, some of the firm-level variables are significant predictors of the proportion of female

workers. First, as expected, more capital intensive firms employ significantly less women. By contrast, the use of automated machinery does not appear to reduce female employment, at least at the lowest occupational level (see below for the effect of automation on female employment in other occupational levels). The negative coefficient for log wages indicates that women are more commonly employed in low-paying firms. However, contrary to some reductionist accounts of women's employment in export firms, their greater presence in such firms is not explained by wage levels alone. Similarly, contrary to explanations emphasizing the importance of labor flexibility women are not significantly employed in larger numbers in firms with more temporary workers.

Table 6 shows the results of the full regression models for each of the four occupational groups in 2001. By testing the same model for each occupational group separately we are able to assess whether the greater employment of women in export firms is due to the latter's disproportionate employment of low-skilled workers. We are also able to examine differences in the extent to which firm-level characteristics affect women's employment at different levels within the occupational hierarchy. The results indicate that export-oriented firms employ more women at every occupational level. Export firms that are foreign-owned in particular employ more women in white-collar and managerial positions. Some other interesting differences are observed across occupational levels. Whereas the use of advanced production technologies did not reduce the proportion of women employed in unskilled blue-collar positions, it does reduce the proportion of women in skilled blue-collar and non-managerial white-collar positions. Firm size appears to have opposite effects on women's employment in lower and higher occupations: larger manufacturing firms employ

more women in blue-collar positions, but less in white-collar positions. Newer firms employ significantly less women in almost every position suggesting that female employment may perhaps be declining over time. However, it is not clear whether this is a temporal effect or an effect somehow associated with the aging of firms (i.e., a period effect vs. an age effect).

Finally, even after all other firm-level characteristics are controlled, significant differences remain in female employment rates across industries. Compared to the textile, apparel and leather industry used as the baseline category, firms in every other manufacturing industry employ less women, particularly as skilled blue-collar workers. However, not all differences across industries are statistically significant. The basic metal and metal products industries systematically employ less women at almost every occupational level, including the white-collar and managerial levels. The mineral products industry and the food, beverage and tobacco industry employ less women at every level except the managerial, while the wood products industry, the paper and printing industry, and the chemical industry employ less women in skilled blue-collar positions.

Table 7 shows the results of the full regression models for the proportion of women employed as unskilled blue-collar workers in each of the three years for which sufficient information is available from the surveys of Mexican manufacturing firms. Estimating the models for all three years allows us to determine whether the effect of foreign ownership and export production on women's employment has changed over time. The results indicate that along with export production, foreign ownership is an important predictor of women's employment in 1992 and 1999. Regardless of whether they were exporters or not, foreign-

owned firms employed more women than their domestic counterparts in 1992 and 1999. However, by 2001 the effect of foreign ownership is diminished or disappears, while the effect of export production continues to be strong and significant.[20] Overall, the regression coefficients for the remaining firm-level predictors are quite consistent over time thus providing greater support for our findings. Capital intensity and higher average wages are associated with lower female employment in all three years. The use of automated equipment reduces the proportion of women employed, while the use of temporary workers increases the proportion of women in Mexican manufacturing firms. However, the coefficients for these last two predictors are only significant in the earlier years.

Turning now to the preference gap, table 8 shows the results of the multinomial logit models for personnel managers' preferences for hiring men and women for the four occupational categories using respondents with no gender preference as the baseline category. The results indicate a greater preference for hiring women and a lower preference for hiring men in foreign-owned export firms than in nationally-owned firms producing goods for sale in the domestic market at almost every occupational level. The effect is strongest for skilled blue-collar positions for which managers in foreign-owned export firms are 7.5 times more likely to prefer hiring women than be indifferent with regards to workers' gender (i.e., exp(2.017)). Similarly, managers in foreign-owned export firms are 73% less likely to prefer hiring men for skilled blue-collar jobs than be indifferent (i.e., 1-exp(-1.303)). The only

[20] It is impossible to tell whether the lower effect of foreign ownership on women's employment in Mexican manufacturing firms in 2001 is only temporary or reflects a permanent shift since data from more recent years are not available. The year 2001 was exceptional in that Mexico experienced a relative decline in foreign investment and exports, and a severe contraction of the maquiladora sector in particular, in part as a result of the slowdown of the U.S. economy and increasing competition from China (ILO 2002:5; Rosen 2003). More recent evidence appears to indicate a recovery of Mexico's external sector (INEGI 2006).

occupational category for which personnel managers in foreign-owned export firms are no more likely to prefer hiring women than be indifferent is the managerial category, but even there managers are significantly less likely to prefer men than be indifferent. The general preference for women in foreign-owned export firms is consistent with our results from the regression models for female employment, and suggest that gender discrimination in hiring may provide an alternative explanation for the greater employment of women in such firms.[21] Our finding also further corroborates the validity of our measures of gender preferences in hiring among personnel managers. Because foreign firms are more vulnerable to accusations of gender discrimination in hiring (Joekes and Weston 1994:43; ILO 1998b), we would expect managers in such firms to more frequently lie about their true preferences by claiming to be indifferent with regards to the gender of the workers they hire. Yet it is precisely in such firms where we see a clear preference for women.

Finally, table 9 shows the results of our analysis of the within-firm gender wage gap. The log ratio of the average wages paid to women relative to men in each occupational level within a firm is used as the dependent variable. As noted in the preceding sections of the paper this analysis constitutes a very rigorous test of the difference in wages between men and women because it controls for many firm-level characteristics. Accordingly, the

[21] This proposition cannot be tested by simply introducing managers' preference for female workers as a predictor of the proportion of female workers employed in a firm since both variables are modeled here as a function of the same firm-level predictors. Introducing managers' preference as a predictor of female employment leads to endogeneity bias in our estimates. Nevertheless, when a preference for female workers is introduced as a predictor of the proportion of unskilled female workers within a firm in separate models not presented here, the effect of export production on female employment was substantially reduced (the corresponding regression coefficients were reduced by approximately half their original values). Moreover, in models where the proportion of female managers (which include those making hiring decisions as well as those who may not be involved in the hiring process) are used as instruments to identify a model where a preference for female workers is considered endogenous, the difference in women's employment in unskilled positions between domestic export firms and domestic non-export firms becomes non-significant.

regression results reveal few statistically significant predictors and the overall fit of the models is modest (the R-squared of the full model is .10). For this reason significance levels up to the .1 level are reported in table 9. The firm-level predictors introduced in the regression models are similar to those in the employment gap models. However, because differences in the wages received by women and men in a firm may also be a function of their relative levels of human capital, these models also introduce basic characteristics of female and male workers as predictors, including their education level and their years of tenure in the firm. [22]

The results in table 9 indicate that the wage gap between women and men in unskilled blue-collar jobs is significantly lower in foreign-owned export firms compared to nationally-owned firms producing goods for the domestic market (in other words, the ratio of female to male wages is higher as indicated by the positive regression coefficient). Foreign-owned non-export firms also appear to have a smaller wage gap, although their corresponding coefficient does not reach statistical significance at the .1 level in the final model. Interestingly, while worker characteristics such as women's and men's level of education are important predictors of the difference in wages across genders in model 2, their coefficients are no longer significant once firm level characteristics such as firm size, capital intensity and so on, are included in model 3. The fact that the effects of worker characteristics disappear when we include the firm-level predictors suggests that the effect of worker characteristics on the

[22] The average years of tenure in the firm is used as a proxy for their work experience. The variable is computed using the 6 tenure categories available, corresponding to the proportion of workers of each gender and occupational level with: less than 1, 1 to 3, 3 to 5, 5 to 10, 10 to 20, and more than 20 years of work in the firm.

gender wage gap is due to a sorting of individuals with various endowments into different kinds of firms.

Conclusions

Sociologists have generally been critical of the effects of economic globalization on the lives of people in developing countries. We do not dispute that globalization may have some negative consequences. However, the findings from this study suggest that greater economic integration has benefited Mexican women in one important way, namely by creating new and to some extent better job opportunities available to them. Using detailed information from a representative sample of manufacturing firms we found that foreign and export-oriented firms employ significantly higher proportions of women at every occupational level than nationally-owned firms producing goods for sale in the domestic market. The greater employment of women in foreign and export-oriented firms cannot be explained by the structural features of these firms such as their higher demand for workers of lower skill levels, their size, capital intensity, production technology, wage level or industry. The inability of any of these factors to explain women's higher employment rates in foreign and export-oriented firms suggests that work in these types of firms is heavily gender typed. In the context of developing countries such as Mexico, export work has come to be recognized as women's work. Our analysis of managers' responses to survey questions regarding their gender preferences in hiring seems to confirm this view: managers in foreign export firms prefer to hire women even when other firm-level characteristics which are often associated with women's employment are controlled.

Contrary to popular perception, the jobs created by multinational companies in developing countries are not the lowest paying. In fact, foreign and export-oriented firms in Mexico pay wages that are higher than other firms, and they discriminate against women less in terms of wages. There is therefore little doubt that foreign and export-oriented firms offer Mexican women better options with regards to pay than would otherwise be available to them. However, wages are only one criterion by which to judge the kinds of jobs created by multinational firms. There are several other important criteria that we have not considered in this study. First, a substantial amount of evidence suggests that women continue to face sexual harassment and other forms of discrimination by employers in multinational firms. Ethnographic studies of Mexican maquiladoras have shown how women are routinely subjected to hostile work environments, abuse from bosses, and demands of sexual favors as conditions for employment (see for example Fernández-Kelly 1983; Peña 1997; Kamel and Hoffman 1999; Salzinger 2000, 2003). A report by the non-governmental organization Human Rights Watch concluded in 1996 that women's rights were being violated by maquiladoras plants. Specifically, the organization found that female workers were being forced to undergo pregnancy tests in order to be employed and were denied work or fired if they were found to be pregnant (Human Rights Watch 1996). Studies also document how workers in maquiladora plants are subjected to hazardous or unsafe working conditions (i.e., Peña 1997:296-308; Carrillo and Kopinak 1999; Kamel and Hoffman 1999; ILO 2002).

Second, without going as far as overt human rights violations and hazardous working conditions, we may also judge the effect of foreign and export industries based on whether they provide women long-term career opportunities by increasing their skill levels through

worker training programs and by promoting women to positions with greater responsibilities within the firms. Critics of export industries have argued that they only employ young single women in dead-end jobs (i.e., Pearson 1991). The fact that Mexican export firms employ more women at every occupational level than other types of firms suggests that they provide more career opportunities for women than critics suggest. Nevertheless, a proper analysis of the consequences of employment in export firms for women's careers is beyond the scope of this paper and would require data on women's work trajectories.

A third way to judge the effect of women's employment in foreign and export industries besides the wages they receive is whether these wages lead to women's overall empowerment. The connection between paid employment and women's empowerment in general is not automatic among other reasons because women do not always have control of their earnings. As noted in a United Nations report on the role of women in development, young women working in EPZs in developing countries must often send their wages to their households of origin to advance the education of older brothers, or they otherwise hand over their income to their husbands or other male household members thus perpetuating gender inequality (United Nations 1999:13). The relation between Mexican women's employment in foreign and export-oriented manufacturing firms and their overall empowerment is also beyond the scope of this paper. Nevertheless, a considerable amount of research in developing countries throughout the world and in Mexico in particular has shown that employment in export industries has the potential to increase women's status within their households and improve their self-esteem (Ong 1987; Foo and Lim 1990; Fiala and Tiano 1991; Wolf 1992; Joekes and Weston 1994:58-61; Tiano 1994; Kabeer 2000).

At the methodological level our study has attempted to demonstrate the importance of using detailed firm-level information to examine the effect of economic globalization on gender inequality in developing countries. Research based on aggregate national statistics can at best provide a measure of the overall association between export production and women's employment. Case studies of specific export industries on the other hand, tend to focus exclusively on firms located in EPZs and are thus unable to examine how firms that are integrated into the global economy differ from those that are oriented towards national markets. By using firm-level information we are able to not only compare the hiring practices of foreign and export firms to those of national firms producing goods for sale in the domestic market, but also systematically test previous explanations for the higher demand for female workers in foreign and export firms (i.e., their employment of workers with lower skill levels, their greater capital intensity and purported lower wages). Such analysis is not possible with traditional employment surveys which typically contain information for a sample of workers employed in different establishments and rarely include any information on the firms they work for.

Beyond our specific contribution to the debate regarding the effect of economic globalization on women's employment in developing countries, the findings from this study may also help to inform the broader field of gender segregation. Our research suggests that the gender labeling of work occurs not only at the occupational and industrial levels as previous research has shown (Reskin 1993), but also at the sectoral level. Women are more concentrated in the sector that is highly integrated into the global economy and this gender

segregation is partly explained by the fact that work in this sector tends to be labeled as women's work. One aspect of the gender typing of manufacturing work in export industries that sets it apart from other instances is that the highly feminized jobs in export firms are not lower paid, at least in Mexico. It is therefore perhaps not surprising that men's employment appears to be on the rise in export industries over the past decade. Whether this trend will continue and eventually lead to an erosion of the gender stereotype associated with work in export industries remains to be seen.

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Table 1: Percent Female Workers and Ratio of Wages of Female to Male Workers by Nationality of the Capital Investment, Destination of Sales and Occupational Group, 2001

	Ownership				Sales				Maquiladora			
	Domestic		Foreign-owned		Non-Export		Export		Non-Maquila		Maquiladora	
	% fem	Ratio wages	% fem	Ratio wages	% fem	Ratio wages	% fem	Ratio wages	% fem	Ratio wages	% fem	Ratio wages
Unskilled blue collar	33.4	0.96	43.5*	1.10*	29.2	0.97	47.6*	1.05*	29.8	0.97	50.6*	1.06†
Skilled blue collar	21.3	0.99	29.3*	1.02	17.5	0.99	33.7*	1.02	17.5	0.99	37.8*	1.02
White collar	35.0	0.96	39.6*	0.97	32.0	0.97	43.4*	0.96	31.8	0.97	46.8*	0.96
Managers	13.2	0.88	17.7*	0.99*	10.8	0.90	20.7*	0.94	10.8	0.91	23.7*	0.94

Notes: An asterisk (*) indicates that the difference between average levels of female employment and wage gaps between domestic and foreign-owned firms, non-export and export firms, and non-maquiladora and maquiladora firms are statistically significant at the .05 level († indicates significance at the .01 level). The sample is weighted.

Table 2: Percentage of Firms Preferring to Hire Men and Women by Occupation level, 2001

		Ownership		Sales		Maquiladora	
	All	Domestic	Foreign	Non-Export	Export	Non-Maquila	Maquila
Unskilled blue collar							
Prefer men	32.7	36.3	23.3	41.7	18.1	40.4	15.1
Prefer women	9.7	6.3	18.5	5.6	16.2	5.8	18.3
Indifferent	57.7	57.5	58.2	52.7	65.7	53.7	66.6
Skilled blue collar							
Prefer men	38.9	43.7	26.3	49.9	21.0	49.1	15.3
Prefer women	5.8	4.9	8.2	4.4	8.1	4.3	9.2
Indifferent	55.3	51.4	65.5	45.7	70.9	46.6	75.5
White collar							
Prefer men	3.9	4.3	2.6	4.3	3.1	4.1	3.3
Prefer women	6.9	6.3	8.6	5.9	8.6	5.7	9.9
Indifferent	89.2	89.4	88.8	89.8	88.2	90.3	86.8
Managers							
Prefer men	16.4	18.4	11.7	21.4	8.7	21.1	6.3
Prefer women	1.5	1.9	0.7	1.2	2.1	1.1	2.5
Indifferent	82.1	79.8	87.6	77.4	89.2	77.9	91.2

Weighted sample.

Table 3: Average Percentage of Women Hired in Firms by Preference for Women and Men, 2001

	Unskilled	Skilled	White collar	Managers
Prefer men	12.3	11.7	24.7	8.9
Prefer women	67.1	63.0	60.1	88.5
Indifferent	47.1	34.2	40.6	20.7

Weighted sample.

Table 4: Reasons for Preferring to Hire Men or Women for Different Occupations, 2001

	Unskilled		Skilled		White collar		Managers	
	Pref. men	Pref. women	Pref. men	Pref. women	Pref. men	Pref. women	Pref. men	Pref. women
1) Heavy work	90.0 (1436)	2.7 (17)	71.9 (1318)	1.1 (4)	35.2 (51)	0.4 (2)	5.3 (50)	0.0 (0)
2) Less absenteeism	1.3 (13)	11.2 (31)	3.0 (29)	3.6 (13)	14.5 (22)	11.5 (34)	8.5 (65)	2.3 (2)
3) Special abilities	4.3 (70)	62.0 (193)	16.3 (338)	62.8 (124)	28.1 (47)	37.4 (74)	43.2 (319)	23.9 (19)
4) Greater productivity	1.6 (29)	15.0 (56)	4.0 (88)	19.6 (32)	5.1 (13)	19.9 (27)	4.5 (42)	50.0 (3)
5) Greater adaptability	1.2 (25)	7.6 (28)	1.9 (45)	10.3 (8)	9.0 (23)	24.7 (36)	13.8 (104)	5.7 (5)
6) More controllable	0.3 (7)	0.8 (5)	1.3 (20)	1.7 (4)	3.9 (10)	3.9 (16)	12.4 (111)	17.0 (4)
7) Lower personnel turnover	0.1 (2)	0.6 (4)	0.5 (11)	0.8 (3)	2.0 (5)	1.3 (6)	7.9 (25)	0.0 ()
8) Other	1.2 (19)	0.2 (1)	1.2 (21)	0.0 ()	2.3 (6)	0.9 (4)	4.5 (40)	1.1 (1)
Total	100 (1601)	100 (335)	100 (1870)	100 (188)	100 (177)	100 (199)	100 (756)	100 (34)

Percentages based on weighted sample; numbers in parentheses are the unweighted number of cases.

Table 5: Regression Models Predicting the Proportion of Unskilled Blue-Collar Workers that are Female in Mexican Manufacturing Firms, 2001 (The Employment Gap)

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Firm Characteristics							
Foreign-owned firm	0.101**						
	(0.030)						
Export-oriented firm		0.185**					
		(0.025)					
Maquiladora			0.209**				
			(0.029)				
Foreign-owned export firm				0.190**	0.162**	0.179**	0.186**
				(0.035)	(0.043)	(0.043)	(0.042)
Foreign-owned non-export firm				-0.047*	0.015	-0.003	0.019
				(0.022)	(0.023)	(0.025)	(0.025)
Domestic export firm				0.167**	0.123**	0.128**	0.132**
				(0.033)	(0.034)	(0.038)	(0.036)
Firm size (/10,000)					0.098	0.148*	0.165*
					(0.059)	(0.070)	(0.072)
Capital intensity					-0.115**	-0.110**	-0.090**
					(0.010)	(0.012)	(0.011)
Part of a large conglomerate					-0.072**	-0.058*	-0.044
					(0.024)	(0.025)	(0.025)
Years of operation of firm					-0.002**	-0.003**	-0.002**
					(0.000)	(0.001)	(0.001)
Percent automated equipment					-0.060	-0.038	-0.016
					(0.031)	(0.030)	(0.029)
Proportion temporary workers					0.044	0.037	0.022
					(0.032)	(0.039)	(0.037)
Industries							
Food, beverages and tobacco (31)						-0.072*	-0.073*
						(0.031)	(0.031)
Wood and wood products (33)						-0.240**	-0.239**
						(0.033)	(0.034)
Paper products and printing (34)						-0.084*	-0.067
						(0.038)	(0.036)
Chemical industries, various (35)						-0.065	-0.052
						(0.046)	(0.044)
Mineral products non-metal (36)						-0.121**	-0.110*
						(0.045)	(0.043)
Basic metal industries (37)						-0.235**	-0.215**
						(0.037)	(0.036)
Metal prods., machinery, eqmt. (38)						-0.090*	-0.067
						(0.036)	(0.035)
Other industries (39)						0.138*	0.107
						(0.060)	(0.060)
Regions							
Border						-0.033	-0.029
						(0.026)	(0.025)
Mexico City area						0.056*	0.057*
						(0.026)	(0.025)
Log Wages							-0.130**
							(0.021)
Constant	0.334**	0.292**	0.298**	0.296**	0.428**	0.470**	0.583**
	(0.012)	(0.010)	(0.009)	(0.011)	(0.023)	(0.026)	(0.030)
R-squared	0.0232	0.0916	0.1055	0.0935	0.1772	0.2444	0.2773
n	3919	3919	3919	3919	3820	3080	3079

*p<.05 **p<.01 (two-tailed tests)

Table 6: Regression Models Predicting the Proportion of Workers that are Female in Each Occupational Level in Mexican Manufacturing Firms, 2001 (The Employment Gap)

Variables	Unskilled blue collar	Skilled blue collar	White collar	Managers
Firm Characteristics				
Foreign-owned export firm	0.186**	0.182**	0.133**	0.105**
	(0.042)	(0.035)	(0.028)	(0.032)
Foreign-owned non-export firm	0.019	0.016	0.014	0.024
	(0.025)	(0.020)	(0.015)	(0.014)
Domestic export firm	0.132**	0.116*	0.055	0.076*
	(0.036)	(0.052)	(0.031)	(0.031)
Firm size (/10,000)	0.165*	0.107	-0.102*	-0.060
	(0.072)	(0.065)	(0.046)	(0.073)
Capital intensity	-0.090**	-0.036**	-0.050**	-0.036**
	(0.011)	(0.009)	(0.009)	(0.007)
Part of a large conglomerate	-0.044	0.015	-0.069**	0.035
	(0.025)	(0.022)	(0.017)	(0.020)
Years of operation of firm	-0.002**	-0.001**	-0.001*	0.000
	(0.001)	(0.000)	(0.000)	(0.000)
Percent automated equipment	-0.016	-0.092**	-0.067**	0.005
	(0.029)	(0.030)	(0.024)	(0.027)
Proportion temporary workers	0.022	0.063	-0.034	0.229
	(0.037)	(0.038)	(0.079)	(0.163)
Industries				
Food, beverages and tobacco (31)	-0.073*	-0.125**	-0.065*	-0.039
	(0.031)	(0.035)	(0.030)	(0.036)
Wood and wood products (33)	-0.239**	-0.275**	-0.054	-0.022
	(0.034)	(0.040)	(0.046)	(0.043)
Paper products and printing (34)	-0.067	-0.189**	-0.058	-0.012
	(0.036)	(0.033)	(0.032)	(0.030)
Chemical industries, various (35)	-0.052	-0.145**	-0.064	-0.042
	(0.044)	(0.038)	(0.036)	(0.033)
Mineral products non-metal (36)	-0.110*	-0.229**	-0.142**	-0.028
	(0.043)	(0.035)	(0.034)	(0.052)
Basic metal industries (37)	-0.215**	-0.244**	-0.172**	-0.098**
	(0.036)	(0.032)	(0.032)	(0.027)
Metal prods., machinery, eqmt. (38)	-0.067	-0.185**	-0.135**	-0.082**
	(0.035)	(0.036)	(0.028)	(0.032)
Other industries (39)	0.107	-0.045	0.121*	-0.122
	(0.060)	(0.061)	(0.059)	(0.075)
Regions				
Border	-0.029	-0.042	-0.011	0.004
	(0.025)	(0.025)	(0.020)	(0.021)
Mexico City area	0.057*	0.059*	-0.006	0.007
	(0.025)	(0.025)	(0.020)	(0.018)
Log Wages	-0.130**	-0.114**	-0.019	-0.050**
	(0.021)	(0.026)	(0.016)	(0.011)
Constant	0.583**	0.546**	0.536**	0.318**
	(0.030)	(0.048)	(0.029)	(0.040)
R-squared	0.2773	0.2995	0.2639	0.1317
n	3079	2815	3316	2894

*p<.05 **p<.01 (two-tailed tests)

Table 7: Regression Models Predicting the Proportion of Unskilled Blue-Collar Workers that are Female in Mexican Manufacturing, 1992-2001 (The Employment Gap)

Variables	1992	1999	2001
Firm Characteristics			
Foreign-owned export firm	0.346**	0.235**	0.186**
	(0.023)	(0.025)	(0.042)
Foreign-owned non-export firm	0.048**	0.057**	0.019
	(0.018)	(0.021)	(0.025)
Domestic export firm	0.117**	0.089**	0.132**
	(0.023)	(0.023)	(0.036)
Firm size (/10,000)	0.039	0.364**	0.165*
	(0.057)	(0.113)	(0.072)
Capital intensity	-0.099**	-0.049**	-0.090**
	(0.033)	(0.017)	(0.011)
Part of a large conglomerate	-0.031**	-0.026*	-0.044
	(0.012)	(0.013)	(0.025)
Years of operation of firm	-0.003**	-0.003**	-0.002**
	(0.000)	(0.000)	(0.001)
Percent automated equipment	-0.040**	-0.037*	-0.016
	(0.015)	(0.017)	(0.029)
Proportion temporary workers	0.062**	0.029	0.022
	(0.017)	(0.023)	(0.037)
Industries			
Food, beverages and tobacco (31)	-0.152**	-0.172**	-0.073*
	(0.019)	(0.022)	(0.031)
Wood and wood products (33)	-0.265**	-0.290**	-0.239**
	(0.025)	(0.029)	(0.034)
Paper products and printing (34)	-0.168**	-0.207**	-0.067
	(0.021)	(0.028)	(0.036)
Chemical industries, various (35)	-0.080**	-0.147**	-0.052
	(0.021)	(0.023)	(0.044)
Mineral products non-metal (36)	-0.180**	-0.274**	-0.110*
	(0.024)	(0.033)	(0.043)
Basic metal industries (37)	-0.288**	-0.314**	-0.215**
	(0.021)	(0.033)	(0.036)
Metal prods., machinery, eqmt. (38)	-0.130**	-0.213**	-0.067
	(0.018)	(0.021)	(0.035)
Other industries (39)	0.002	-0.023	0.107
	(0.048)	(0.047)	(0.060)
Regions			
Border	-0.032*	-0.030	-0.029
	(0.015)	(0.018)	(0.025)
Mexico City area	0.073**	0.060**	0.057*
	(0.013)	(0.015)	(0.025)
Log Wages	-0.143**	-0.049**	-0.130**
	(0.013)	(0.016)	(0.021)
Constant	1.377**	0.546**	0.583**
	(0.086)	(0.024)	(0.030)
R-squared	0.2733	0.2625	0.2773
n	3262	3524	3079

*p<.05 **p<.01 (two-tailed tests)

Table 8: Multinomial Logit Models Predicting Managers' Preferences for Women and Men for Positions in Each Occupational Level in Mexican Manufacturing Firms, 2001 (The Preference Gap)

	Unskilled blue collar		Skilled blue collar		White collar		Managers	
Variables	Pref. Men	Pref. Wom	Pref. Men	Pref. Wom	Pref. Men	Pref. Wom	Pref. Men	Pref. Wom
Firm Characteristics								
Foreign-owned export firm	-0.526	1.613**	-1.303**	2.017**	-0.103	1.134**	-1.211**	-0.523
	(0.394)	(0.458)	(0.323)	(0.641)	(0.757)	(0.425)	(0.408)	(1.006)
Foreign-owned non-export firm	-0.244	-0.143	-0.313	-0.012	-0.243	-0.141	-0.378	0.409
	(0.206)	(0.402)	(0.217)	(0.608)	(0.380)	(0.426)	(0.221)	(1.115)
Domestic export firm	-0.417	0.447	-0.658	-1.189*	0.176	0.470	-0.912	1.580
	(0.347)	(0.514)	(0.385)	(0.505)	(0.825)	(0.610)	(0.47)	(0.956)
Firm size (/10,000)	-4.563*	-1.962	-2.365	-0.145	-0.637	-8.365	0.470	-4.300
	(2.244)	(1.787)	(1.510)	(1.326)	(1.751)	(4.613)	(0.752)	(5.185)
Capital intensity	0.490**	-2.407*	0.284*	-0.450	-0.025	-0.245	0.281**	-0.081
	(0.136)	(1.107)	(0.119)	(0.810)	(0.171)	(0.477)	(0.102)	(0.526)
Part of a large conglomerate	0.164	-0.019	0.041	-1.587**	0.205	-0.608	0.172	0.245
	(0.195)	(0.430)	(0.176)	(0.466)	(0.246)	(0.408)	(0.179)	(0.817)
Years of operation of firm	0.010*	0.003	0.012**	-0.005	0.002	-0.003	0.006	-0.002
	(0.005)	(0.007)	(0.004)	(0.010)	(0.011)	(0.010)	(0.004)	(0.018)
Percent automated equipment	-0.040	0.033	0.130	-1.957**	0.302	0.143	0.560	-0.386
	(0.253)	(0.409)	(0.245)	(0.479)	(0.551)	(0.484)	(0.327)	(0.465)
Proportion temporary workers	0.204	1.129**	0.448	1.642**	-1.872	-3.058**	-0.916	-476.687**
	(0.261)	(0.403)	(0.319)	(0.516)	(1.135)	(1.093)	(1.432)	(36.768)
Industries								
Food, beverages and tobacco (31)	0.822**	1.159**	0.662*	0.901	0.351	0.174	0.136	-1.000
	(0.270)	(0.420)	(0.269)	(0.555)	(0.534)	(0.528)	(0.323)	(0.601)
Wood and wood products (33)	0.239	-31.539**	0.540	-1.742*	0.264	-0.462	0.145	-0.643
	(0.397)	(0.516)	(0.375)	(0.842)	(0.628)	(0.552)	(0.385)	(1.052)
Paper products and printing (34)	0.225	-0.213	0.354	-1.522	-0.389	-1.172	-0.330	-0.140
	(0.306)	(0.510)	(0.319)	(0.839)	(0.700)	(0.627)	(0.357)	(0.826)
Chemical industries, various (35)	0.268	0.944*	0.191	-0.946	-0.326	-0.426	-0.177	-0.351
	(0.369)	(0.473)	(0.319)	(0.515)	(0.641)	(0.656)	(0.372)	(0.551)
Mineral products non-metal (36)	0.679*	1.421	0.766*	-34.891**	0.164	0.894	0.011	-32.786**
	(0.323)	(0.911)	(0.389)	(0.567)	(0.659)	(0.930)	(0.357)	(0.67)
Basic metal industries (37)	1.687**	-29.773**	2.356**	-33.918**	1.510*	-0.226	0.464	-32.572**
	(0.497)	(0.511)	(0.549)	(0.635)	(0.647)	(0.871)	(0.481)	(0.484)
Metal prods., machinery, eqmt. (38)	0.457	0.537	0.801**	-0.742	0.204	-0.002	0.476	0.335
	(0.292)	(0.374)	(0.299)	(0.559)	(0.542)	(0.504)	(0.297)	(0.732)
Other industries (39)	-1.903**	0.843	-0.898	-1.743	-32.504**	1.267	-0.978	-32.89**
	(0.702)	(1.028)	(0.474)	(0.957)	(0.893)	(0.957)	(0.680)	(0.727)

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Table 8, continued.

	Unskilled blue collar		Skilled blue collar		White collar		Managers	
Variables	Pref. Men	Pref. Wom	Pref. Men	Pref. Wom	Pref. Men	Pref. Wom	Pref. Men	Pref. Wom
Regions								
Border	0.326	-0.032	-0.061	-1.039	0.000	-0.296	0.126	-2.302*
	(0.193)	(0.400)	(0.196)	(0.683)	(0.338)	(0.347)	(0.203)	(0.905)
Mexico City area	0.390	0.322	0.091	0.803	0.783	0.386	0.094	-1.414*
	(0.226)	(0.272)	(0.215)	(0.491)	(0.548)	(0.397)	(0.219)	(0.558)
Log Wages	0.861**	-0.327	0.709**	0.398	-0.320	-0.043	-0.072	-1.497
	(0.200)	(0.219)	(0.205)	(0.555)	(0.230)	(0.319)	(0.136)	(0.780)
Constant	-2.236**	-2.498**	-1.788**	-1.801	-2.982**	-2.012**	-1.738**	1.539
	(0.381)	(0.454)	(0.377)	(0.980)	(0.477)	(0.731)	(0.492)	(2.689)
Pseudo R-squared	0.1291		0.1642		0.0656		0.0983	
n	3052		2738		3280		2587	

Note: No gender preference used as the baseline category.
*p<.05 **p<.01 (two-tailed tests)

Table 9: Regression Models Predicting the Log Ratio of Average Female to Male Wages for Unskilled Blue-Collar Workers in Mexican Manufacturing Firms, 2001 (The Wage Gap)

Variables	Model 1	Model 2	Model 3
Firm Characteristics			
Foreign-owned export firm	0.105*	0.105*	0.128*
	(0.042)	(0.041)	(0.051)
Foreign-owned non-export firm	0.050†	0.051†	0.018
	(0.029)	(0.031)	(0.036)
Domestic export firm	0.031	0.031	0.030
	(0.028)	(0.030)	(0.034)
Firm size (/10,000)			0.031
			(0.038)
Capital intensity			-0.014
			(0.019)
Part of a large conglomerate			0.026
			(0.023)
Years of operation of firm			0.001
			(0.001)
Percent automated equipment			-0.028
			(0.028)
Worker Characteristics			
Proportion temporary female workers		-0.196*	-0.145
		(0.082)	(0.089)
Proportion temporary male workers		0.183*	0.128
		(0.072)	(0.083)
Proportion middle school female workers		0.021	0.012
		(0.095)	(0.079)
Proportion high school or college female workers		0.210*	0.174*
		(0.101)	(0.088)
Proportion middle school male workers		-0.057	0.034
		(0.108)	(0.088)
Proportion high school or college male workers		-0.208*	-0.160†
		(0.105)	(0.086)
Ave. years of tenure female workers		-0.003	-0.002
		(0.004)	(0.005)
Ave. years of tenure male workers		0.004	0.001
		(0.006)	(0.006)
Industries			
Food, beverages and tobacco (31)			0.071*
			(0.030)
Wood and wood products (33)			0.119
			(0.077)
Paper products and printing (34)			-0.039
			(0.032)
Chemical industries, various (35)			0.005
			(0.024)
Mineral products non-metal (36)			0.043
			(0.055)
Basic metal industries (37)			0.012
			(0.046)
Metal prods., machinery, eqmt. (38)			-0.051†
			(0.027)
Other industries (39)			0.199
			(0.125)

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Table 9, continued.

Variables	Model 1	Model 2	Model 3
Regions			
Border			0.042
			(0.031)
Mexico City area			0.052*
			(0.022)
Constant	-0.082**	-0.064*	-0.135**
	(0.009)	(0.028)	(0.036)
R-squared	0.0206	0.0344	0.0985
n	2982	2773	2186

† p<.1 *p<.05 **p<.01 † (two-tailed tests)