

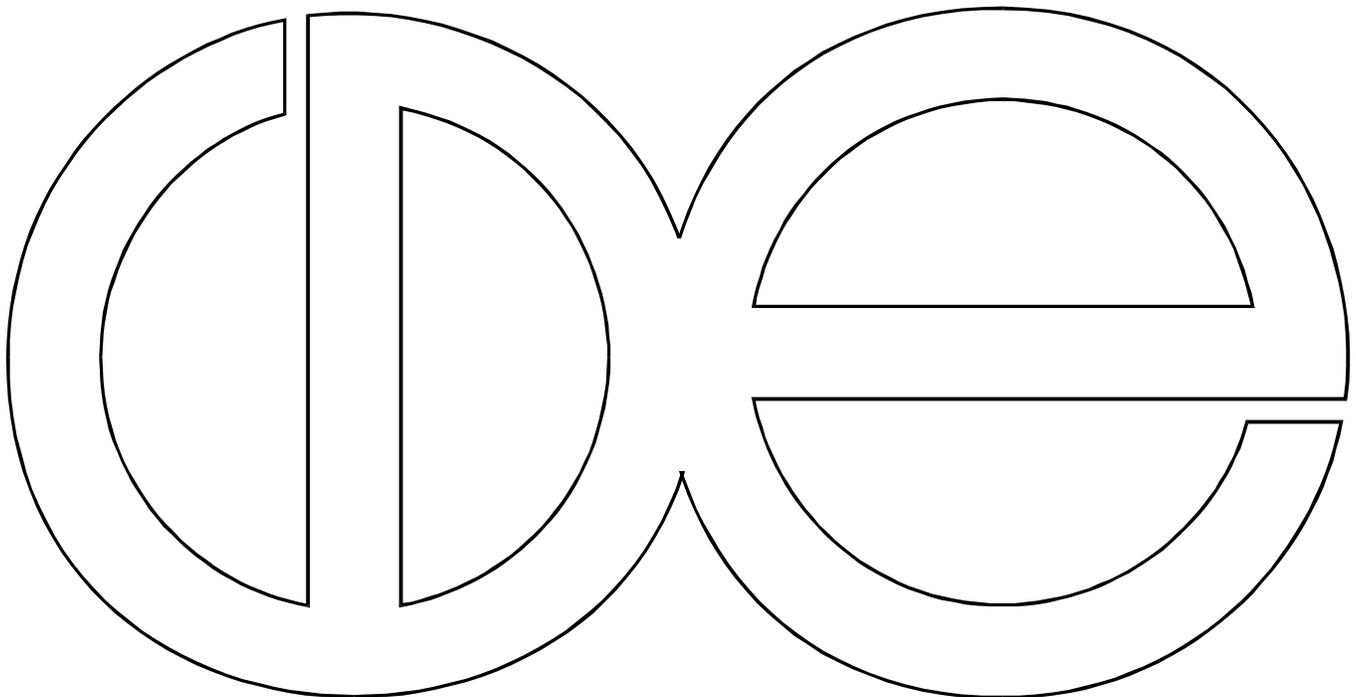
**Center for Demography and Ecology
University of Wisconsin-Madison**

**Spatial Differences in Wage and Non-Wage
Female Labor Force Participation in Mexico**

M. Elizabeth Fussell

René M. Zenteno

CDE Working Paper No. 97-10



**Spatial Differences in Wage and Non-Wage
Female Labor Force Participation in Mexico***

M. Elizabeth Fussell
Sociology Department
University of Wisconsin - Madison
1180 Observatory Drive
Madison, Wisconsin 53706

René M. Zenteno
Population Studies Center
University of Pennsylvania
3718 Locust Walk
Philadelphia, Pennsylvania 19104-6298

We would like to acknowledge the support of El Colegio de la Frontera Norte, Tijuana, Mexico. The Center for Demography and Ecology receives core support for population research from the

National Institute for Child Health and Human Development (P30 HD05876).

ABSTRACT

In this paper we examine variation between Mexican cities in women's labor force participation, differentiating between wage and non-wage work. In the past decade women's employment has increased in response to household income shortages due to the economic crisis, while prior increases appeared to be related to demographic and social change. Using data from the 1987 and 1993 Mexican Urban Employment Surveys, we analyze the relative shifts in the ranks of cities by total, wage, and non-wage female labor force participation. We choose six cities, representing distinct urban economies, to perform logistic regression analyses of the individual and household determinants of female labor force participation. We find that the characteristics of the urban economies interact with household and individual characteristics creating different magnitudes of effects on women's likelihood of working and the type of work which they engage.

INTRODUCTION

Research on women's labor force participation in developing countries often focuses on women working in 'global' sectors of the economy (as in the New International Division of Labor) or on household and individual determinants of female labor force participation (as in neo-classical economics). In this research we bridge these theoretical approaches by examining both the characteristics of urban economies and the household determinants of female labor force participation in Mexico, comparing an export-oriented manufacturing city (Ciudad Juárez) with cities with distinct economies (Mexico City, Guadalajara, Veracruz, San Luis Potosí and Mérida). These cities have each been affected differently by Mexico's debt crisis and subsequent economic reforms which instigated a shift in development strategy from the protective, import-substitution industrialization strategy to a neoliberal opening of the economy.

Two of the most common responses to these reforms, in terms of employment, have been increasing labor force participation in export-oriented manufacturing and a growing trade and service sector employing many marginal workers (Lustig 1992; Castells and Portes 1989). These two responses have not been gender neutral: women are heavily employed in these manufacturing activities (Oliveira and Roberts 1993). Similarly, they are more active in informal economic activities as a result of the crisis in buying power (Escobar Latapí and Roberts 1991; Oliveira and Roberts 1993). Some cities and regions absorbed the effects of the economic crisis better than others because of their specialized economic bases. These two patterns of decentralization of manufacturing and the terciarization of the economy have led to remarkable spatial variations in women's levels and types of economic participation.

Ciudad Juárez is often used as an example of the ability of export-oriented industrialization to incorporate women in the formal labor market. It is located in the northern border region's free trade zone where export-oriented manufacturers, known as maquiladoras,

benefit from special tariff codes which allow them to pay only import tariffs on the value added in the assembly process. Industrial production in this region rapidly increased during the 1980s when foreign investors took advantage of favorable exchange rates. Since 1986, when restrictions on foreign investment were loosened in the country as a whole, maquiladoras and other forms of international businesses have grown more rapidly in the interior of the country, although they are still concentrated in the north (Graizbord and Ruiz 1996).

The rapid growth of export-oriented enterprises and their intense labor demand for women workers has led to the belief that the main border cities experience the highest female labor force participation rates in Mexico. However, Table 1 shows that between 1987 and 1993 the border cities fell in rank while cities with diverse economic bases rose to attain the highest levels of female labor force participation. While female labor force participation increased overall, the realignment in the ranking of cities reflects sectoral employment shifts in the economy.

TABLE 1 HERE

Tienda's (1977) study using 1970 census data demonstrated a strong positive relationship between regional socioeconomic development and women's presence in the labor force. In 1970, the four cities with the highest rates of female economic participation, Mexico City, Guadalajara, Monterrey and Puebla, also had the largest populations, the most diverse economies, and experienced the highest rates of urbanization and industrialization during the post-war period. The Border Industrialization Program and the strength of export-led development propelled female labor force growth during the 1970s in the northern border region. The data for 1987 show that while Matamoros and Ciudad Juárez maintained their high female labor force participation rates, the severe economic crisis of the 1980s rearranged the ordering, with some interior cities significantly increasing their rates of female economic participation. By 1993, cities which placed significantly higher in the rank order are not the export-led industrial cities, but rather cities with

more traditional economies. The relationship which Tienda found in 1970 still exists, but has been modified spatially and qualitatively by the decentralization of manufacturing from the largest urban areas to smaller cities and the terciarization of the national economy during the 1980s and early 1990s.

By distinguishing between women's wage and non-wage employment we differentiate between the abilities of the local economies to absorb women into the formal labor force. Wage work is characterized by a formal relationship to the employer, frequently receiving benefits and a steady work-week. In contrast, non-wage work includes self-employment in commerce or services, unpaid work within a family business, piece-work, working for tips, or other types of employment in which there is no formal employment relationship. This approach innovates by disaggregating national level studies of individual and household determinants of female employment into the level of urban labor markets and by broadly distinguishing between types of employment. In doing so we show the importance of examining the local labor market, in addition to labor supply variables, as a determinants of women's economic activity.

We use the National Survey of Urban Employment (ENEU) for 1987 and 1993 to examine regional variations in female labor force participation in urban Mexico. The paper is divided into four sections. First, we discuss the social and economic context of and prior research on determinants of female labor force participation in Mexico. Second, we describe the data and methods used to study female labor force participation and present our research hypotheses. Third, we analyze the most recent changes (1987-1993) in wage and non-wage female participation rates in sixteen key Mexican cities by studying the bivariate relationships between these rates and supply and demand factors. Finally, we use individual level data to examine different models of labor supply determinants to show the border cities' industrial structure's unique influence on the patterns of women's economic participation. The export-led city of

Ciudad Juárez, as well as five other cities having high levels of female employment and representing different types of economic development (Mexico City, Guadalajara, Mérida, San Luis Potosí and Veracruz) were selected for this final analysis.

MEXICO'S SOCIAL AND ECONOMIC CONTEXT

The import-substitution strategy typical of most Latin American countries in the post-World War II era encouraged a massive mobilization of labor from rural to urban areas, from self-employment to wage work, and from household to non-household economic activities. However, with the exhaustion of the import-substitution strategy in the 1970s, Mexico experienced a nationwide economic recession. The Northern border's relative economic health during this recession due to its status as an export processing zone foreshadowed the shift in strategy toward export-oriented economic development in the 1980s.

The 1982 economic crisis caused severe unemployment and economic stagnation nationwide. The government turned to a strategy of promoting exports in order to improve its balance of payments and recover from the crisis.¹ The effects of this policy shift varied regionally with the northern regions of the country receiving over 80% of the net increase in manufacturing employment between 1980 and 1988 (Graizbord and Ruiz 1996). However, absolute gains in manufacturing employment were slight compared to gains in trade and service activities. Tertiary growth was mainly due to the increases in small-scale, under-remunerated commercial enterprises and consumer services in all regions. In the larger cities (Mexico City, Puebla, Guadalajara, and Monterrey) more than half of those occupied in commerce were self-employed. Many workers in

¹ The 1986 Foreign Trade Act as well as other programs were designed to increase exports and increase foreign investment. This policy shift was capped off by the signing in 1994 of the North American Free Trade Agreement.

these small-scale trade and service enterprises were previously non-working women mobilized by economic need (Rendón and Salas 1995). Service sector employment also increased but those more skilled service jobs (education, social assistance, health) generally increased in larger cities, while consumer services (personal services, food service) increased across all regions (Aguilar and Graizbord 1993). Although the number of commercial and service jobs increased, their average salary decreased significantly, resulting in severe underemployment (Graizbord and Ruiz 1996). Indeed, the restructuring of the economy is resulting in a ‘new geography of production,’ whose complement is a ‘new gendered geography of employment.’

PRIOR RESEARCH ON DETERMINANTS OF WOMEN’S LABOR FORCE PARTICIPATION IN MEXICO

García and Oliveira’s (1994) research on the meaning of work to women and its socio-demographic correlates is certainly the most comprehensive treatment of female labor force participation in Mexico. However, they examine whether or not women work at all, while we ask how women’s socio-demographic characteristics and the characteristics of the local urban labor market influence whether they work and the type of work they choose.

Traditional models of women’s work argue that the supply of women workers is primarily shaped by their family life cycle stage, i.e., their marital status and the presence or age of their children, and their human capital. Sociologists of women and development argue that household characteristics are mediating variables influencing labor force outcomes, thereby bringing to the fore the effects of the gendered division of household labor (Stichter 1990). Jelín (1982) argues that women’s employment is not just determined by the variation in the gendered division of household labor over the life course, but also the household’s composition and economic resources. She classifies women into four groups associated with their likelihood of employment:

(1) women without domestic responsibilities, i.e., those who live alone or in households managed by other women; (2) those who can hire substitute houseworkers, freeing up time from chores, but not oversight; (3) those devoted solely to domestic work; and (4) those who must find employment and care for the household simultaneously. The type of employment a woman engages in is most likely to be shaped by domestic responsibilities for those women in the fourth category. This revision of the standard model of women's labor force determinants makes explicit the importance of the household as a locus of the gendered social division of labor.

Women's labor force participation increases are associated with three societal changes in Mexico: a rapid decline in fertility, increasing household economic need, and women's increasing desire to work. However, changing social norms and household cash shortages caused by the economic crisis are also associated with increased labor force participation. Since 1970, women's employment over the life course has changed from a pattern peaking at younger ages (20-24) and rapidly declining as women marry and bear children to one in which women of all ages participate at nearly equal rates, with slightly greater rates for women in their 30s in 1987 and 1993 (see Figure 1).

FIGURE 1 HERE

Additionally, between 1970 and 1993, total fertility rates for women dropped dramatically from 6.8 to 3.2 (U.S. Bureau of the Census 1997). Women's educational attainment also increased over this period (García and Oliveira 1994). The change in the age pattern of labor force participation between 1982 and 1992 clearly indicates the increasing economic activity of married women during the economic recession, while the constantly increasing level of activity supports the argument that all three factors are operating to increase women's labor force participation. These broad national level trends make clear that life-cycle factors, while still important, do not explain all of the change in women's employment patterns. Furthermore, while they may make a

difference in the type of employment (formal vs. informal) in which women engage, human capital and labor market opportunities take on increasing importance in determining women's labor market outcomes.

In urban Mexico, wage and non-wage work indicate different means of entry into employment. Women working in the maquiladoras frequently find employment through employed friends or family members or through recruitment efforts by employers. In comparison, non-wage employment entails working in a family enterprise or self-employment selling goods or services on a small scale within one's own neighborhood or social networks. Because of the differences in entry into the labor market and conditions of employment, women's individual and household characteristics are expected to have different effects on determining their insertion in the labor market. The extant literature makes it clear that women's informal work, more so than formal labor, is linked to the need for cheaper labor during periods of economic crisis and families' needs for additional income (Oliveira 1989; García and Oliveira 1994). Furthermore, the different regional impacts of the economic crisis clearly shape women's likelihood of working and the type of work in which she engages.

DATA AND METHODS

The National Survey of Urban Employment (ENEU) is a survey designed to measure characteristics of the working and non-working population of Mexican cities. It is a continuous, representative, multistage, and stratified sample of the population normally residing in thirty-five of the most populous Mexican cities, conducted by the Instituto Nacional de Estadística, Geografía e Informática (INEGI). The survey includes socio-demographic and economic data on households and household members, targeting those 12 years of age and over, living in non-institutional arrangements. Complete interviews for all household members have been obtained

each quarter of every year since 1986. The sample size is approximately 2,000 households for each city, except for Monterrey, Guadalajara and León (3,000 households each) and Mexico City (5,000 households). We use data from the second quarters of 1987 and 1993 to examine changes in aggregate patterns of female labor force participation.² We use only the 1993 data to examine household determinants of female labor force participation by city.

The ENEU is the best available information to study women's work in urban labor markets in Mexico, particularly after the underestimation of female labor force in the 1990 Population Census (Jusidman and Eternod 1994). It was designed to capture women's labor force conditions through a complex battery of questions. Understanding the gradations of women's work is essential since many working women in Mexico still consider unpaid household work to be their main activity.

We use the ENEU data to develop aggregate and individual-level analyses of the economic participation of women according to type of remuneration. Our analysis begins by presenting the most recent changes (1987-1993) in wage and non-wage female labor force participation in Mexico for the sixteen cities for which information is available. Next, we measure bivariate correlations between rates of female economic participation and labor supply and labor market factors. The aggregate-level comparison shows the relationships between the economic base of cities and wage and non-wage participation rates in 1993.

In order to explore more carefully the relationship between the economic bases of cities and women's labor force participation we selected six cities with high rates of labor force participation which represent particular types of urban economies. We selected these cities from the 16 cities surveyed in 1987 and 1993 in order to examine change over time as well as variation

² The survey was expanded from 16 cities in 1987 to 35 in the 1993. We examine changes in the 16 cities between 1987 and 1993, but examine the characteristics of all 35 cities in 1993.

among types of cities. Thus our criteria for selection was based mainly on data availability. While no single city is "typical" of all cities with a particular economic development trajectory, we chose to preserve the natural unit of the city, rather than to aggregate them, in order to observe the characteristics of individuals in that particular labor market.

Ciudad Juárez represents the export-led development strategy of the northern border cities; San Luis Potosí is a northern state capital having an economic base in social services (government, health and education) and commerce; Guadalajara is an older industrial city with more established linkages between local, national, and international companies; Mérida is a southern state capital with an economic base in services and commerce but more closely linked to a rural economy; Veracruz's economy is based on its strategic geographic location as a port city for the oil industry and foreign trade and its tourist economy; and Mexico City is the dominant urban center of the country with a diverse and dynamic economy.

For each city and for the cities overall we employ logistic and multinomial logistic models to examine the labor supply determinants of women and the effects of cities on working versus not working, working as a wage-worker versus not working, and working as a non-wage worker versus not working. Our analyses proceeds in two steps. In step one we test whether the non-observed characteristics of cities are significantly different once we take into account differences in labor supply characteristics. In step two we test, for each city, whether the labor supply determinants are different in significance, direction and magnitude as a consequence of the particularities of the economic bases. By calculating models for each city we are able to observe differences in the supply and human capital characteristics of women in each local labor market although we are not able to compare the coefficients between cities.

HYPOTHESES

The overarching research question in this investigation is: what determines women's labor force participation, particularly since age-specific labor force participation rates appear to be leveling out in the 1990s? We hypothesize that in Mexico in the late 1980s and early 1990s, it is not only women's life-cycle characteristics which 'allow' her to work before marriage or after child rearing. While household arrangements can be drawn upon to facilitate women's work, for many the simple necessity of making ends meet has increased women's propensity to work. Since the economic crisis was nationwide, we expect to see that women's labor force participation increased in all urban labor markets since women are having to supplement lower household incomes due to declining male wages. However, we expect that in cities less well integrated into Mexico's economy and therefore having difficulty recovering from the crisis (for example, cities in agricultural regions or with economic bases in natural resources), women's labor force participation in non-wage work will be greater than for cities with bases in government, finance, or industry where relatively more wage work is available. Of course, the same argument applies to male employment, suggesting that in cities with less developed economies both men's and women's incomes will be lower, perhaps raising the likelihood of women's non-wage participation even more.

One set of hypotheses has to do with the regional differences in women's labor force participation which are usually masked in national-level analyses. We expect to find regional variation associated with the trends toward decentralization of industry to medium-sized cities and the terciarization of the economy in response to the economic crisis. Both these tendencies are related to higher rates of women's labor force participation since women are often the preferred labor force in low-skill manufacturing as well as in small, family-run service enterprises which use women's unpaid or low-paid family labor to operate more 'efficiently'. Our analysis of aggregate trends between 1987 and 1993 shows which cities are experiencing greater or lesser growth in

wage and non-wage female labor force participation. This will inform our individual-level analysis of the determinants of labor force participation, indicating which cities were experiencing greater effects of the economic crisis and restructuring of production.

The second set of hypotheses is related to the effect of individual and household characteristics on the likelihood of work as well as the type of work a woman performs. Not only are a woman's life-cycle characteristics and human capital relevant to her likelihood of seeking and finding a job in the labor market, her household characteristics are relevant to shaping the type of work she is able to perform. We expect to find that women who are household heads and women who are free from domestic responsibilities, either because of their single status or the substitute work of a relative in an extended household, are most likely to work because of their greater responsibility for providing for the household and their greater availability, respectively. The traits which are associated with greater domestic responsibility, such as being married or having a young child in the household, are expected to make less of a difference for non-wage work (versus not working) than wage work, since non-wage work is more easily combined with domestic work.

The effects of cities

We anticipate that the unobserved characteristics of cities in the logistic regressions will account for significant variation in women's economic participation as a result of regional economic patterns. These unobserved urban characteristics can only be measured in this data set by using the city variable since the survey did not measure contextual variables. We interpret these unobserved effects as the economic base of the cities which provide distinct labor opportunities and constraints for women.

Wage employment for women is greater in cities which are well integrated into the

national economy through manufacturing, government, health, educational or financial services, all economic sectors demanding skilled labor. We expect that the likelihood of wage labor will be greatest in Ciudad Juárez, with its economic base in export-oriented manufacturing, the only manufacturing sector to expand since the economic crisis. Guadalajara and Mexico City, both cities with industrial bases and financial service centers, may also have relatively high wage labor force participation rates, but we expect these to be lower than in Ciudad Juárez given the trend toward decentralization of industry and Mexico City's significant loss of manufacturing jobs. As seats of government, Mexico City, San Luis Potosí and Mérida all offer waged jobs in the service sector. Therefore, we would expect these cities to show at least average levels of wage labor force participation. Veracruz has few formal employment opportunities for women and is expected to have the lowest levels of waged female employment.

Crisis-induced increases in informal, under-remunerated economic activities accounts for some increases in female employment in all cities. However, we expect greater non-wage participation rates in cities lacking formal employment opportunities. Veracruz' port economy depends on the transportation of natural resources and manufactured products, exports which declined from this region during the economic crisis. We expect that levels of non-wage work will be significantly higher in this city. Mexico City and Guadalajara, two urban economies which experienced a loss of employment during the 1980s are also expected to have relatively higher levels of non-wage work (Graizbord and Ruiz 1996). Mérida, a southern state capital, is located in one of the least developed regions of Mexico, the Yucatan peninsula. However, tourism stemming from the nearby Mayan ruins and the small textile industry offer both wage and non-wage opportunities, moderating the effects of the crisis. The northern cities, San Luis Potosí and Ciudad Juárez, which fared relatively well during the 1980s due to the growth of manufacturing in the northern states are expected to have relatively lower levels of non-wage work. As a state

capital, San Luis Potosí offers wage employment in social services and public administration. Ciudad Juárez's industrial economy is expected to absorb the available female labor force such that levels of non-wage work will be lower than in other cities. To the extent that formal employment cannot absorb excess labor, the effect of the economic crisis is to push women into the non-wage labor force.

The effects of sociodemographic characteristics

The traditional division of domestic labor conditions women's availability for paid labor on her individual and household characteristics. In general, married and cohabiting women are less likely to work than separated, divorced, or widowed women, while never-married women are the most likely to work. Marital status is associated with the presence of a male breadwinner and the wife's specialization in domestic work. In contrast, a female head of household is expected to be much more likely to work because of her greater responsibility for the needs of her family. Furthermore, we expect that women living in non-nuclear³ households will be more likely to work since they may be freed from domestic responsibility by another woman's domestic work. In contrast, in a nuclear household a more traditional gender specialization is expected, decreasing the likelihood of women's economic activity. A female head of household is much more likely to work than women who are not household heads because of her greater responsibility for the needs of the family. An additional household factor is the presence of a child younger than seven years old which is predicted to deter a woman from entering the labor force because of the difficulty of finding a substitute caretaker.

³ We define a nuclear household as one with immediate family only, i.e., parents and children. This is compared with an extended, or non-nuclear, household in which other relatives are present. Therefore, female-headed households and nuclear households are not exclusive categories.

We expect that the type of work that women engage in is also preconditioned on her individual and household characteristics. By 1993 the total participation rates are nearly equal over the age groups. However, young women are more likely to participate in wage work and with age, their relative propensity to work in non-wage work increases. For example, women with many domestic responsibilities may elect a type of work that gives them flexibility in the hours and location of work. Being married, a female head of household, or having a child younger than seven years old in the household will be less of an obstacle to women engaging in non-wage work than wage work. In contrast, being single or formerly married, being a household head, not having a young child, or having an additional relative in the household to share domestic responsibilities are factors which facilitate wage employment. Therefore, we expect these individual and household variables (married, non-nuclear household, child younger than seven, female household head) to have lesser effects in the non-wage work equation than in the wage work equation since non-wage work is more amenable to a woman with many domestic responsibilities.

Age, distinct from the aforementioned characteristics, is a trait which is not only associated with the life-course, but is also a characteristic by which employers select employees. The effect of age independent of marital status, household headship, the presence of a child, or a non-nuclear household, may reflect the age-graded labor market opportunities for women favoring younger women for wage work. Furthermore, it may reflect the lack of labor market experience of older women since women have only entered the labor force in greater numbers since the 1980s. We expect that younger women will be more likely to engage in wage work than will older women, while older women will be more likely to engage in non-wage work.

Education, our indicator of human capital, is expected to increase the likelihood of wage work because of the requirements of this type of employment. In contrast, education is unlikely to be either an obstacle or an advantage in non-wage work, except for the most educated self-

employed professionals. Therefore, we anticipate a strong positive relationship between education and wage work but a weak relationship for non-wage work, except for those with the highest levels of education.

In general, we expect that the demand for women wage workers is more rigidly defined according to sociodemographic characteristics than for non-wage workers. This stems from the preferences of employers and the constraints that women face when juggling domestic and market work responsibilities. We expect that the social characteristics of women engaged in non-wage work, in contrast, will be more varied as a result of the different process of entering this type of work, the more flexible work conditions associated with non-wage work, and the fact that non-wage work is often supplementary income in difficult times rather than the main income.

AGGREGATE CORRELATIONS BETWEEN WOMEN'S LABOR FORCE PARTICIPATION AND LABOR MARKET CHARACTERISTICS

We have already seen from Table 1 that cities with distinct economic bases have similarly high rates of women's labor force participation. Likewise, a variety of cities experienced greater than average increases in female labor force participation between 1987 and 1993, with rates in Veracruz, Tampico, Monterrey, San Luis Potosí, León, Puebla, and Nuevo Laredo all increasing more than 16.5 percent (Table 2). Of the border cities, only Nuevo Laredo, a smaller border city, experienced an above-average rate of total growth in female labor force participation. With the exception of Veracruz and Tampico, the other cities experiencing greater than average growth tend to be either non-border northern cities or cities in the center of the country in which a more than average portion of that growth (60%) was due to increases in wage work. Veracruz' and Tampico's high rates of participation and growth may be explained by economic recovery of their port economies under new export oriented policies. Notably, the two export-oriented border

cities, Matamoros and Ciudad Juárez, both experienced larger increases in non-wage work during this period, as did Veracruz and Tampico. This suggests that non-wage employment may be expanding in these cities as a multiplier effect of the success of the export industries or that export-oriented industries in those cities have exhausted their ability to absorb the female labor supply in formal positions.

TABLE 2 HERE.

While there are greater growth rates of women's wage work compared with non-wage work in most of the cities in this table, the cities with the highest overall rates of participation also experienced greater rates of growth of non-wage than wage work during this period. Although Veracruz and Tampico experienced large non-wage growth rates to move into these ranks in 1993, Matamoros and Ciudad Juárez only maintained their positions in the top ranks by increases in non-wage work.⁴ The rest of the cities experienced greater rates of growth in women's wage work. This suggests a further dispersion of waged jobs among growing cities, particularly northern cities (San Luis Potosí, Chihuahua, Tijuana, Nuevo Laredo, Torreon) and some increases in the cities formerly oriented to internal markets (Monterrey, Guadalajara, and Puebla). Furthermore, the cities which experienced relatively greater rates of growth in non-wage work (Veracruz, Tampico, Matamoros, Ciudad Juárez, Mexico City, and León) have all experienced above average rates of participation during the past 20 years, suggesting that there is an already mobilized female labor force in those cities motivated to find work, whether waged or unwaged (see Table 1). These tendencies reflect the decentralization of industry to intermediate cities and the terciarization of weakened urban economies that we expected to find, as well as the greater

⁴ The bivariate correlation for the 35 cities in the ENEU between non-wage growth between '87 and '93 and the total participation rate in '93 was positive and significant (0.78 (p=.000)) whereas the correlation between wage growth between '87 and '93 and total participation rate in '93 was non-significant and negative (-.15 (p=.574)).

proclivity of women to be economically active.

We can see the relationship between the strength of the urban economy and women's wage or non-wage labor force participation in the bivariate correlations between aggregate labor supply and labor market characteristics and women's labor force participation for the 35 cities in the ENEU in 1993 (Table 3). Keeping in mind that there is no causal order here, we find that women's wage labor is associated only with the labor market characteristics of the city, whereas non-wage labor is associated with both aggregate characteristics of female labor supply and labor market characteristics. These relationships demonstrate the importance of labor market opportunities for shaping the nature of women's labor force participation.

TABLE 3 HERE

There are consistent relationships between variables which suggest that cities with modern economies also employ more women in formal, wage employment, while traditional urban economies are associated with marginal forms of female economic activity. The positive associations of the numbers employed in large firms and higher male labor force participation rates with female wage-labor force participation rates shows that stronger economies employ more women **and** men in stable forms of work. In contrast, the positive association between the percentage employed in small enterprises (less than 5 employees) and the percentage employed in commerce with higher rates of non-wage female labor force participation demonstrate the precarious nature of women's employment in traditional, small scale economies. The negative association between the ratio of female to male income and non-wage participation rates suggests that women's non-wage labor is less well-remunerated than most male occupations. Furthermore, it is clear from the negative association of wage employment with the percentage employed in commerce and small enterprises and the positive association of wage employment with the number of large firms that women generally prefer formal employment when it is available.

Unlike wage participation rates, non-wage female participation rates are significantly associated with labor supply characteristics. Lower mean years of women's education and greater percentages of female headed households in a city are related to the greater participation rate of women in non-wage work. These correlations reveal the linkages between women's human capital, household composition, and type of labor force participation. Those women with less human capital and bread-winning responsibility are more likely to work in unregulated and informal niches in the local economy since they have few opportunities in the formal labor market. In contrast, women in nuclear households where male earners are more likely to be contributing are significantly less likely to engage in non-wage work. It is also notable that cities with higher proportions of female headed households, lower levels of education, and higher rates of non-wage participation tend to be in southern Mexico (Acapulco, Coatzacoalcos, Oaxaca, Orizaba, and Veracruz), cities with traditional, agricultural or local resource based economies.⁵

The relationship between types of female labor force participation and urban economies is made clearer when we classify the thirty-five cities included in the ENEU in 1993 by their main economic base: export-led industry, internal market industry, northern state capitals, southern state capitals, local resources and the primary city of Mexico City.

TABLE 4 HERE

There does not appear to be a relationship between the type of city and high levels of total female labor force participation. However, distinct patterns emerge when we differentiate between rates of wage and non-wage work. The two most important export-oriented industrial cities,

⁵ This is evident from the data used to make these correlations which we are not presenting here.

Ciudad Juárez and Matamoros, display the highest female participation in wage work, followed by six state capitals and two urban centers whose economies are based in manufacturing for the internal market. No local-resource based urban center is found among the cities with high wage participation rates. In contrast, local-resource based cities hold the highest female participation rates in non-wage work. This finding reinforces our analysis of labor supply and labor market characteristics and rates of labor force participation in which cities with modern economies have more wage work opportunities for women while those with traditional economic bases have higher rates of informal work.

Table 5 elaborates this relationship between urban economy and wage and non-wage female labor force participation by showing the concentration of female workers by sector and the distribution of wage type within each sector. Ciudad Juárez's economic base, with larger proportions of female employment in manufacturing, stands out from the other cities in which women are employed in relatively greater percentages in the service sector. This is primarily due to the export-led industrialization of the northern border cities. Guadalajara, an industrial city oriented toward a national market, shows somewhat higher portions of women working in food and textile manufacturing, the more traditional manufacturing sectors in Mexico. As a commercial center, Guadalajara also shows relatively higher proportions of women in commerce and the low-skilled service sectors. The cities with government seats, Mexico City, Mérida and San Luis Potosí, have concentrations of women employed in public administration and educational services, relatively skilled and stable economic sectors. Veracruz, with an economy based on port trade, offers the least opportunity for employment in 'modern' sectors. Employed women in Veracruz are concentrated in trade, restaurants and 'other' services, most likely in the informal economy. In each city the concentrations of women in formal sectors of the economy reflect the nature of the local economy and its demand for workers. Cities with concentrations of women in commerce and

other types of low-skilled, informal work are likely to be cities where the economies have been weakened by economic crisis, leaving women few other employment options. These differences between cities speak to the importance of the local economy in determining the level and type of employment of women.

LOGISTIC ANALYSES

The effects of cities on women's labor force participation

In order to show that cities have an independent effect on women's labor force participation we test whether differences between cities are explained by variation in women's individual and household characteristics. We know that age, education, marital patterns, and fertility vary by region (Delaunay 1994). For example, in the six selected cities we can see that, on average, women in San Luis Potosí have the highest levels of education and women in Ciudad Juárez have the lowest; more women in Veracruz and Guadalajara and fewer women in Ciudad Juárez and Merida are single; more women in Veracruz are female household heads and fewer are in Guadalajara and Mexico City (Table 6). Is this variation in women's individual and household characteristics sufficient to account for differences in levels of labor force participation between cities?

TABLE 6 HERE

Our multivariate analysis reveals that labor supply factors do not account for all of the difference in women's labor force participation between these six cities (Table 7).⁶ The

⁶ The results we present in Tables 7 and 8 are in the form of odds ratios which can be read as the relative odds that a woman with a particular set of characteristics is working versus not working or working in either wage or non-wage work versus not working. For example, we can see that a woman aged 25-34 has odds 2.69 times greater of participating in wage labor (vs. not working) than a woman of age 12-24. An odds ratio of one signifies that there is no difference in the odds between the two categories and a ratio of less than one indicates that she has lower odds

coefficients for Ciudad Juárez, Guadalajara and Veracruz are statistically significant and positive in the working vs. not working logistic model, indicating that independently of labor supply differences, women living in these cities are more likely to be working than women in Mexico City. Furthermore, differentiating between wage and non-wage work in the multinomial logistic model confirms our expectation that a great deal more variation exists between these cities according to the formality of women's ties to the labor force.

TABLE 7 HERE

The export-oriented city of Ciudad Juárez stands out as the only city where women have higher chances of participating in wage opportunities **and** lower chances of participating in non-wage employment, reflecting the intensity of demand for women's labor by manufacturing. In Ciudad Juárez, the odds of a woman working versus not working are 17 percent higher than that of a woman in Mexico City. Her odds of working in wage work are 33 percent higher and her odds of working in non-wage work are 19 percent lower than in Mexico City. This pattern shows the strength of the manufacturing sector to absorb the female labor force. It also reflects the decentralization of manufacturing toward secondary cities.

It is interesting to compare Ciudad Juárez with Guadalajara, the other city specializing in industry but oriented toward an internal market. In Guadalajara women are more likely to work as wage **and** non-wage workers than those living in Mexico City (odds are 12 and 20 percent higher, respectively). Guadalajara's restructuring economy provides an insufficient number of wage jobs for women since the traditional wage labor opportunities in food, textile, clothing and leather processing and manufacturing stagnated under the crisis with declines in national consumption. The higher non-wage participation rate may be interpreted as the economy's weakened ability to

of working.

absorb the excess female labor supply.

Veracruz stands out as the only city where women's greater likelihood of working in non-wage work accounts for their higher total level of labor force participation. A woman living in this city is 74 percent more likely to work in non-wage conditions than a woman with similar characteristics in Mexico City. The multinomial logistic regression tells us that this greater likelihood of non-wage work in Veracruz is not explained by women's sociodemographic characteristics, rather it reflects the lack of formal work opportunities for women in Veracruz's port and tourism based economy.

The seats of government, San Luis Potosí, Mérida, and Mexico City, all benefit from the formal employment opportunities in government bureaucracies. However, only in San Luis Potosí is this associated with significantly lower chances of women working in non-wage employment (18 percent lower than in Mexico City). San Luis Potosí differs from the other capital cities because of its relatively high proportions of women employed in educational, medical, and public administration and lower proportions of women in commerce. The formal work opportunities for women in San Luis Potosí may make women's non-wage work relatively unnecessary or the relative health of the economy may preclude the need for women to engage in marginal employment to supplement other household incomes. In contrast, women's relative likelihood of working in wage or non-wage labor and the sectoral concentrations of women workers in Mérida are not significantly different from Mexico City. It is interesting that Mexico City, the primary city losing its manufacturing bases, and Mérida, a city with a relatively less developed economy, show such similar patterns. This is notable since Mexico City, once known as the industrial center of Mexico, now employs women in roughly equal proportions to Mérida in both wage and non-wage jobs.

Labor supply determinants by city

The multinomial logistic equations for each city show the different effects of labor supply characteristics between cities. The limitation with having six separate models is that we cannot compare directly the relative odds of labor force participation between cities although we can see differences in the overall patterns. We can see that the direction of the effects of labor supply characteristics are consistent between cities, although some differ in statistical significance (Table 8). Overall, these models are better at predicting wage work than non-wage work, which concurs with our expectation that women's characteristics would be less important in determining non-wage participation since it is likely that they find work which combines with their domestic work and that seeking non-wage work has more to do with household need than with life cycle characteristics or human capital.

TABLE 8 HERE

Ciudad Juárez stands out because, not only are all the variables in the wage work equation significant, but the differences across categories of age, education, and marital status are generally less stark than in the other five cities. This suggests that the greater demand for wage workers in Ciudad Juárez creates less selection based on individual characteristics into the labor market than in other cities. For example, in the five other cities, single women are more likely to work in wage labor than married⁷ or formerly married women, but the differences in magnitude of the odds of working in wage labor force participation according to marital status are not as striking in Ciudad Juárez. This suggests that Ciudad Juárez's labor market provides significant economic opportunities for all women in wage work. In contrast, non-wage work in Ciudad Juárez shows a markedly different pattern from other cities: formerly married and single women are less likely to

⁷ 'Married' refers to women either formally married or in a consensual union.

work in non-wage work whereas in the other cities being formerly married doesn't make a difference and being single raises one's likelihood of non-wage work. In Ciudad Juárez both formerly married and single women may not be as likely as married women to work in non-wage work because of the abundant wage work opportunities or because they are not working at all.

Education, the only human capital variable in the model, also shows a distinct pattern of selection into wage work for Ciudad Juárez. As expected, greater levels of education increase the likelihood of wage work in all cities. However, differences in the odds ratios between the most educated women and those with less than complete preparatory education are smaller in Ciudad Juárez than in the rest of the cities. In contrast, the differences in the odds ratios between the least educated women and those with less than complete secondary education are greater in Ciudad Juárez than in the other cities. We infer from this that the greater demand for the low-skilled work typical of the maquiladora industry raises the number of wage work opportunities for women with minimal levels of education. Furthermore, education makes almost no difference for women's non-wage work in all cities except for Ciudad Juárez. In Ciudad Juárez, having completed elementary school significantly reduces a woman's chances of non-wage work. Again, the demand for low-skilled labor gives women with lower levels of education more opportunities to work in the wage labor market thereby reducing their numbers in the non-wage labor force.

Age also makes less of a difference for the odds of wage work in Ciudad Juárez than in the other five cities. Elsewhere, women aged 25 through 44 are at least three times more likely to work in wage work than women aged 12-24. This may be due to the societal norm that women not work when they are newly married or have young children. However, in Ciudad Juárez, maquiladora employer's preferences for younger women may lessen wage work opportunities for older women while increasing opportunities for younger women. It is notable that Ciudad Juárez is the only city where women aged 45 and above are significantly less likely to work than women

aged 12-24. Guadalajara's age pattern is the most similar to that of Ciudad Juárez, suggesting that the demands of industrial work creates stricter age limits on employment.

In all six cities women older than 24 are more likely to work in either wage or non-wage work than women aged 12-24 but for wage work the likelihood is greater for the younger age groups (25-34 and 35-44) and for non-wage work the likelihood is greater in the older age groups (35-44 and 45+). The major difference between cities lies in the magnitude of difference in the likelihood of work between ages: as in the case of wage work, the magnitude of the effect of age on the likelihood of non-wage work is the smallest in Ciudad Juárez.

Household characteristics, representing competing domestic demands, are expected to influence the likelihood of labor force participation. In all cities and in both wage and non-wage work, being the head of household significantly increases a woman's likelihood of working since it generally means that the woman is the major household earner. However, it is notable that in most cities, the magnitude of this effect is greater for non-wage than wage work due to the greater flexibility of informal work. The effect of headship on non-wage work is particularly large in Ciudad Juárez, where the domestic demands of being a household head may preclude manufacturing work which imposes a strict full-time work schedule. In contrast, in San Luis Potosí being a female household head increases the likelihood of wage work but not non-wage work. This may reflect the better wage work opportunities available in San Luis Potosí. Nevertheless, it is outstandingly clear that regardless of the city, female headship necessitates women's likelihood of any type of work.

Notably, Ciudad Juárez is the only city where the **absence** of children younger than 7 years old significantly increases the likelihood of working in wage labor. In all the other cities, the presence or absence of young children in the household has no effect on the likelihood of a woman working in either wage or non-wage work. This may reflect the particularly inflexible

conditions of work in Ciudad Juárez or the lack of an extended family due to the migrant settlement of the city making it difficult to arrange alternative child care.

Finally, in most cities living in a non-nuclear household increases the chances of working as a wage worker but has little effect on the likelihood of non-wage work. Women living in extended family households are able to specialize in market work while someone else takes care of domestic responsibilities. This effect does not exist for non-wage work, possibly because women who have no household members to help them out trade-off flexibility in their domestic work for flexibility in their market work.

The picture presented by this individual level analysis shows that Ciudad Juárez's female labor force participation patterns, for both wage and non-wage work, distinguish it from other Mexican cities. The dominance of the maquiladora industry in this economy largely explains this uniqueness. On one hand, the strength of the demand for women's unskilled labor reduces selection into the wage labor force based on age and marital status and reduces women's participation in non-wage labor. On the other hand, the demands of the labor process make women's household characteristics relatively more important than in the other cities, particularly for female household heads and women in households with young children. While these tendencies are also present in other cities, they are more notable in Ciudad Juárez's export-oriented labor market.

An important theme which emerges from this picture is the strong tension between women's domestic roles and market work. We conclude that the intense demand for women's labor force participation in manufacturing reduces selection into the market based on individual characteristics but makes household constraints relatively more important determinants of their participation. Ciudad Juárez, a model of export-led economic development, foreshadows this tendency for cities whose economies rely upon women's low-skill work. Indeed, other cities in

the analysis, such as Guadalajara, Mexico City, and San Luis Potosí, share certain tendencies with Ciudad Juárez, in terms of their patterns of wage labor force participation. Women in both Guadalajara and Ciudad Juárez are more likely to work in wage labor and women in both San Luis Potosí and Ciudad Juárez are less likely to work in non-wage labor in comparison to Mexico City. In Table 5 we can see that they all have relatively strong shares of the female labor force involved in manufacturing. If the conditions associated with this type of work become equally as rigid in these cities as in Ciudad Juárez due to growth in low-skill manufacturing employment, we may expect to see a greater influence of household characteristics on women's labor force participation.

CONCLUSIONS

This paper builds on previous research on women's work in Mexico by examining regional effects of economic crisis and restructuring on female labor force participation, differentiating between wage and non-wage work as a crude measure of the effect of the depressed economy and changes in industry. Since the mid-1980s women's total labor force activity at all ages has increased, suggesting that larger economic forces are overriding life cycle determinants of women's paid labor. So how can we differentiate between urban-economic and household-economic effects to better understand the process through which women are currently entering the labor force?

In this paper we have shown that the highest rates of women's labor force participation occur in distinct urban economies, illustrating the impossibility of arguing in favor of a single explanation for Mexican women's patterns of labor force participation. We have looked for evidence of household level and city level variation in determining women's market labor. The increase in female labor force participation associated with growing export-oriented

manufacturing only explains higher levels of participation in northern border and non-border cities, where manufacturers have preferred to hire women for labor intensive assembly production. In recent years, even some of these cities have experienced significant growth in women's informal work. The economic crisis and consequent opening of the economy to foreign investment in the mid-1980s caused many Mexican manufacturing firms, particularly those concentrated in Mexico City, to go bankrupt, contributing to the 'decentralization' of industry by shifting from national ownership to multinational ownership and consequently moving operations from the national capital closer to the US. The terciarization of the economy, as a result of Mexican industry's inability to generate sufficient formal employment, also contributed to greater female labor force participation nationwide. Unemployed individuals have responded to high unemployment rates by creating their own employment, insufficient though it may be. These dramatic changes have contributed to regional increases in female labor force participation and to shaping the nature of that participation.

General patterns of change in women's life-cycle patterns and human capital also contribute to women's increased labor force participation, leveling out some of the age-specific differentials, but retaining differentials in the type of work. Fertility has declined dramatically nationwide and female education has increased, making younger women eligible for more formal employment positions. These contribute to women's greater involvement in the labor force now and foreshadow greater involvement in the future as more educated generations of women experiencing shorter periods of childbearing and rearing in their lifetimes enter the labor market.

A striking result of differentiating wage and non wage labor is the difference in labor force participation according to a woman's age and her household composition. Older women experience a greater likelihood of non-wage participation, independently of human capital and household characteristics, probably as a result of age-discrimination in the wage labor market and

normative values of a generation of women who did not expect to find formal employment. This was particularly true in the cities with natural resources bases in the southern region (Veracruz and Mérida) and in cities with few low-skill wage work opportunities (San Luis Potosí). Younger women and women in households which freed them from domestic responsibilities (single status, extended household) were more likely to engage in wage work, particularly in cities with industrial bases or wage opportunities in the service sector (Ciudad Juárez, Guadalajara, San Luis Potosí and Mexico City). Overall, we found that regional variation in female human capital and demographic characteristics interact with urban economies to shape the patterns of wage and non-wage participation.

The results of this exercise emphasize the importance of understanding the role of the local labor market in mediating the effects of macro-economic forces on household determinants of female labor supply. Too often researchers of women's labor force participation, particularly in developing countries, rely solely on macro-economic explanations, such as structural adjustment or the New International Division of Labor, or household-level models to 'explain' variation in the levels of women's market work. While we rarely have data which can adequately include all variables in the equation, in Mexico we have a chance to come closer to including multiple levels of analysis to understand not just the effects of changes in the economy and demographic changes at the population and household level, but the interaction of these effects.

REFERENCES

- Aguilar, A.G. and B. Graizbord. 1993. 'La reestructuración regional en México, 1980-1989.' as cited in Corona, R. and R. Tuirán. 1994. 'Profundas transformaciones regionales.' Demos, 1994: 21-22.
- Castells, M. and A. Portes. 1989. 'World Underneath: The Origins, Dynamics, and Effects of the Informal Economy.' The Informal Economy: Studies in Advanced and Less Developed Countries, edited by A. Portes, M. Castells, and L. A. Benton. Baltimore: Johns Hopkins University Press.
- Delaunay, D. 1994. 'Algunas identidades demográficas de la frontera norte de México.' Trace Demografía, Centro Frances de estudios Mexicanos y Centroamericanos, 26:5-22.
- Escobar Latapí, A. and B.R. Roberts. 1991. 'Urban Stratification, the Middle Classes, and Economic Change in Mexico.' Social Responses to Mexico's Economic Crisis of the 1980s, edited by M. González de la Rocha and A. Escobar Latapí. Center for U.S.-Mexican Studies, University of California, San Diego.
- García, B. and O. de Oliveira. 1994. Trabajo Feminino y Vida Familiar en México. México, D.F.: El Colegio de México.
- Graizbord, B. and C. Ruiz. 1996. 'Recent changes in the Economic and Social Structure of Mexico's Regions.' Changing Structure of Mexico: Political, Social and Economic Prospects, edited by L. Randall. Armonk, NY: M.E. Sharpe, pp. 365-390.
- Jelín, E. 1982. 'Women and the Urban Labour Market,' Women's Roles and Population Trends in the Third World, edited by R. Anker, M. Buvinic, and N.H. Youssef. Sydney, Australia: International Labor Organization, Croom Helm.
- Jusidman, E., and M. Eternod. 1994. La participación de la Población en la Actividad Económica en México, Mexico City: INEGI/ISS-UNAM.

- Lustig, N. 1992. Mexico: The Remaking of an Economy. Washington, DC: The Brookings Institute.
- Oliveira, O. de. 1989. 'Empleo femenino en México en tiempos de recesión económica: tendencias recientes.' Fuerza de trabajo femenina urbana en México, edited by J. Cooper, T. de Barbieri, T. Rendón, E. Suárez y E. Tuñón. México: Universidad Nacional Autónoma de México y Porrúa, pp. 29-66.
- Oliveira, O. de and B. Roberts. 1993. 'La informalidad urbana en años de expansión, crisis y reestructuración económica.' Estudios Sociológicos 11(31): 33-58.
- Rendón, T. and C. Salas. 1995. 'Cambios Sectoriales del empleo (1980-1993).' Demos 1995: 19-20.
- Stichter, S. 1990. 'Women, Employment and the Family: Current Debates.' Women, Employment and the Family in the International Division of Labour, edited by S. Stichter and J.L. Parpart. Philadelphia: Temple University Press.
- Tienda, M. 1977. 'Diferenciación regional y transformación sectorial de la mano de obra femenina en México, 1970.' Demografía y Economía, 11(3):307-325.
- United States Bureau of the Census, International Data Base (1997). Table 028. Age-Specific Fertility Rates and Selected Derived Measures.

Table 1. Female Labor Force Participation Rates of Sixteen of the Most Important Cities of Mexico: 1970, 1980, 1987 and 1993.

| | 1970 | | 1980 | | 1987 | | 1993 |
|----------------------|------|----------------------|------|----------------------|------|----------------------|------|
| Mexico City | 27.0 | <i>Ciudad Juárez</i> | 36.8 | <i>Matamoros</i> | 36.4 | Veracruz | 41.0 |
| Guadalajara | 24.0 | <i>Matamoros</i> | 34.1 | Veracruz | 33.9 | Tampico | 38.4 |
| Monterrey | 22.6 | Mexico City | 33.5 | <i>Ciudad Juárez</i> | 33.8 | <i>Matamoros</i> | 38.1 |
| Puebla | 22.1 | <i>Tijuana</i> | 32.7 | Orizaba | 32.4 | Guadalajara | 36.9 |
| Tampico | 21.8 | León | 30.7 | Guadalajara | 31.9 | <i>Ciudad Juárez</i> | 36.5 |
| <i>Tijuana</i> | 21.0 | Guadalajara | 30.0 | Mexico City | 31.7 | Mexico City | 35.4 |
| Orizaba | 20.5 | Mérida | 29.6 | Mérida | 30.2 | Monterrey | 35.2 |
| Chihuahua | 20.1 | Veracruz | 28.9 | Chihuahua | 29.6 | Mérida | 34.9 |
| Veracruz | 19.8 | Tampico | 28.7 | <i>Tijuana</i> | 27.9 | San Luis Potosí | 34.8 |
| <i>Ciudad Juárez</i> | 19.6 | Chihuahua | 28.6 | Torreón | 27.8 | Chihuahua | 33.8 |
| San Luis Potosí | 19.6 | San Luis Potosí | 28.5 | León | 27.7 | León | 32.6 |
| <i>Nuevo Laredo</i> | 19.6 | Puebla | 28.5 | Puebla | 27.3 | <i>Tijuana</i> | 32.0 |
| León | 18.9 | Torreón | 26.9 | Tampico | 26.1 | Puebla | 31.8 |
| <i>Matamoros</i> | 18.5 | Monterrey | 26.5 | Monterrey | 26.0 | Orizaba | 31.7 |
| Torreón | 18.0 | <i>Nuevo Laredo</i> | 26.3 | San Luis Potosí | 25.3 | Torreón | 30.0 |
| Mérida | 17.3 | Orizaba | 25.8 | <i>Nuevo Laredo</i> | 23.3 | <i>Nuevo Laredo</i> | 28.9 |
| Mean | 20.7 | | 29.8 | | 29.5 | | 34.5 |
| SD | 1.8 | | 2.4 | | 3.0 | | 2.6 |

Source: Population Census 1970 and 1980 (from Oliveira, 1989); 1987 and 1993 (National Survey of Urban Employment).

Note: Export-led cities in italics and boldface.

Table 2. Female Labor Force Participation Rates and Percentage Change by Wage and Non-wage Work, 1987-1993. (Descending order according to the total participation rates in 1993).

| | Total | | | Wage Work | | | Non-Wage Work | | |
|----------------------|-------------|-------------|-------------|-------------|-------------|--------------|---------------|------------|--------------|
| | 1987 | 1993 | % change | 1987 | 1993 | % change | 1987 | 1993 | % change |
| Veracruz | 33.9 | 41.0 | 20.9 | 23.0 | 25.8 | 39.4 | 11.0 | 15.2 | 60.6 |
| Tampico | 26.1 | 38.4 | 47.1 | 21.1 | 26.6 | 44.7 | 5.0 | 11.8 | 55.3 |
| Matamoros | 36.4 | 38.1 | 4.7 | 31.8 | 31.0 | -47.1 | 4.6 | 7.1 | 147.0 |
| Guadalajara | 31.9 | 36.9 | 15.7 | 23.0 | 26.7 | 74.0 | 8.9 | 10.3 | 26.0 |
| Ciudad Juárez | 33.8 | 36.5 | 8.0 | 29.4 | 29.9 | 18.5 | 4.4 | 6.6 | 81.5 |
| Mexico City | 31.7 | 35.4 | 11.7 | 24.2 | 26.2 | 54.0 | 7.5 | 9.2 | 46.0 |
| Monterrey | 26.0 | 35.2 | 35.4 | 20.8 | 26.9 | 66.3 | 5.2 | 8.2 | 34.7 |
| Mérida | 30.2 | 34.9 | 15.6 | 22.3 | 25.8 | 75.0 | 7.9 | 9.1 | 25.0 |
| San Luis Potosí | 25.3 | 34.8 | 37.5 | 19.6 | 27.2 | 80.0 | 5.7 | 7.6 | 20.0 |
| Chihuahua | 29.6 | 33.8 | 14.2 | 26.3 | 29.1 | 66.6 | 3.4 | 4.7 | 33.4 |
| León | 27.7 | 32.6 | 17.7 | 22.2 | 24.7 | 51.0 | 5.5 | 7.9 | 49.0 |
| Tijuana | 27.9 | 32.0 | 14.7 | 22.3 | 25.9 | 87.8 | 5.5 | 6.0 | 12.2 |
| Puebla | 27.3 | 31.8 | 16.5 | 17.7 | 21.8 | 91.1 | 9.6 | 9.9 | 8.9 |
| Orizaba | 32.4 | 31.7 | -2.2 | 18.7 | 19.5 | 114.0 | 13.7 | 12.2 | -214.3 |
| Torreón | 27.8 | 30.0 | 7.9 | 21.3 | 23.8 | 113.6 | 6.5 | 6.2 | -13.6 |
| Nuevo Laredo | 23.3 | 28.9 | 24.0 | 18.8 | 24.6 | 103.6 | 4.5 | 4.4 | -1.2 |
| Total | 30.5 | 35.0 | 14.8 | 23.2 | 25.9 | 60.0 | 7.3 | 9.1 | 40.0 |

Source: National Survey of Urban Employment (April-June).

Note: The percentage change in female labor force participation is calculated as: $((\text{rate}(1993) - \text{rate}(1987)) / \text{rate}(1987)) * 100$.

The percentage change due to increases in wage (or non-wage) employment is calculated as: $((\text{wage-rate}(1993) - \text{wage-rate}(1987)) / ((\text{total rate}(1993)) - (\text{total rate}(1987)))) * 100$.

Table 3. Bivariate Correlation Coefficients between Types of Participation Rates and Supply and Labor Market Factors.

| | Participation Rates | | |
|--|---------------------|-------------|-------------|
| | Total | Wage | Non-Wage |
| Labor Supply Factors | | | |
| Mean Age of Women 12 and over | .14 | -.00 | .15 |
| Mean years of Education of Women 12 and over | -.11 | .26 | -.34 |
| % of Married Women 15-19 | .03 | .29 | -.21 |
| % of Married Women 20-24 | -.26 | -.07 | -.21 |
| % of Women 15-19 with Children | .11 | .25 | -.09 |
| % of Women 20-24 with Children | -.12 | -.13 | -.02 |
| % of Households Headed by Women | .38 | -.01 | .41 |
| % of Nuclear Households | -.44 | -.11 | -.37 |
| Mean Household Size | -.28 | -.19 | -.14 |
| Labor Market Factors | | | |
| Open Unemployment Rate | .17 | -.04 | .21 |
| Male Participation Rate | .48 | .37 | .19 |
| Women/Men Income Ratio | -.25 | .07 | -.32 |
| % Employment in Informal Enterprises | .41 | -.48 | .83 |
| % Employment in Large Firms | .07 | .34 | -.22 |
| % Employment in Manufacturing | -.20 | .07 | -.27 |
| % Employment in Commerce | .07 | -.37 | .38 |
| % Employment in Social Services | .17 | -.04 | .21 |
| % Employment in Personal Services | -.13 | .01 | -.14 |
| # of Manufacturing Establishments | -.26 | .12 | -.36 |

Source: National Survey of Urban Employment (April-June, 1993).

Note: Coefficients in boldface are significant at the .05 level in a two-tailed significance test.

Table 4. Female Labor Force Participation Rates by Type of Participation and Type of City, 1993.

| Participation Rates | | | | | | | | |
|----------------------|------------|-------------|----------------------|------------|-------------|----------------------|------------|------------|
| Total | | | Wage | | | Non-Wage | | |
| City | Type | Rate | City | Type | Rate | City | Type | Rate |
| Veracruz | LR | 41.0 | Matamoros | ELI | 31.0 | Oaxaca | SCS | 16.5 |
| Oaxaca | SCS | 40.1 | Ciudad Juárez | ELI | 29.9 | Acapulco | LR | 15.7 |
| Colima | SCN | 39.8 | Chihuahua | SCN | 29.1 | Veracruz | LR | 15.2 |
| Acapulco | LR | 39.1 | Colima | SCN | 28.9 | Monclova | LR | 12.7 |
| Manzanillo | LR | 38.6 | Campeche | SCS | 27.5 | Manzanillo | LR | 12.3 |
| Tampico | LR | 38.4 | Villahermosa | SCS | 27.4 | Orizaba | LR | 12.2 |
| Matamoros | ELI | 38.1 | San Luis Potosí | SCN | 27.2 | Coatzacoalcos | LR | 12.1 |
| Guadalajara | IMI | 36.9 | Hermosillo | IMI | 27.0 | Tampico | LR | 11.8 |
| Campeche | SCS | 36.8 | Monterrey | IMI | 26.9 | Colima | SCN | 10.9 |
| Ciudad Juárez | ELI | 36.5 | Guadalajara | SCN | 26.7 | Tepic | SCN | 10.9 |
| Aguascalientes | SCN | 35.6 | Aguascalientes | LR | 26.6 | Guadalajara | IMI | 10.3 |
| Tepic | SCN | 35.6 | Tampico | SCN | 26.6 | Puebla | SCS | 9.9 |
| Mexico City | PC | 35.4 | Mexico City | SCS | 26.2 | Tuxtla Guitérrez | SCS | 9.7 |
| Monterrey | IMI | 35.2 | Manzanillo | LR | 26.2 | Campeche | SCS | 9.3 |
| Mérida | SCS | 34.9 | Culiacán | SCN | 26.1 | Mexico City | PC | 9.2 |
| Villahermosa | SCS | 34.9 | Cuernavaca | SCS | 25.9 | Mérida | SCS | 9.1 |
| San Luis Potosí | SCN | 34.8 | Tijuana | ELI | 25.9 | Morelia | SCS | 9.1 |
| Tuxtla Guitérrez | SCS | 34.5 | Mérida | SCS | 25.8 | Aguascalientes | SCN | 9.0 |
| Cuernavaca | SCS | 34.4 | Veracruz | LR | 25.8 | Toluca | SCS | 9.0 |
| Monclova | LR | 34.4 | Saltillo | SCN | 24.8 | Cuernavaca | SCS | 8.5 |
| Chihuahua | SCN | 33.8 | Tuxtla Guitérrez | SCS | 24.8 | Monterrey | IMI | 8.2 |
| Toluca | SCS | 33.5 | León | IMI | 24.7 | León | IMI | 7.9 |
| Morelia | SCS | 32.9 | Tepic | SCN | 24.7 | San Luis Potosí | SCN | 7.6 |
| Hermosillo | SCN | 32.6 | Nuevo Laredo | LR | 24.6 | Villahermosa | SCS | 7.4 |
| León | IMI | 32.6 | Toluca | SCS | 24.5 | Matamoros | ELI | 7.1 |
| Coatzacoalcos | LR | 32.3 | Zacatecas | SCN | 24.3 | Saltillo | SCN | 6.9 |
| Culiacán | SCN | 32.2 | Morelia | SCS | 23.8 | Zacatecas | SCN | 6.9 |
| Tijuana | ELI | 32.0 | Torreón | LR | 23.8 | Ciudad Juárez | ELI | 6.6 |
| Puebla | SCS | 31.8 | Oaxaca | SCS | 23.6 | Durango | SCN | 6.2 |
| Orizaba | LR | 31.7 | Acapulco | LR | 23.4 | Torreón | LR | 6.2 |
| Saltillo | SCN | 31.6 | Durango | SCN | 22.0 | Culiacán | SCN | 6.1 |
| Zacatecas | SCN | 31.2 | Monclova | LR | 21.8 | Tijuana | ELI | 6.0 |
| Torreón | LR | 30.0 | Puebla | SCS | 21.8 | Hermosillo | SCN | 5.6 |
| Nuevo Laredo | LR | 28.9 | Coatzacoalcos | LR | 20.2 | Chihuahua | SCN | 4.7 |
| Durango | SCN | 28.2 | Orizaba | LR | 19.5 | Nuevo Laredo | LR | 4.4 |

Source: National Survey of Urban Employment (April-June, 1993). Note: Export-led cities in boldface.

Note: ELI=Export-led Industry; PC=Primary City; IMI=Internal Market Industry; SCN=State Capital, North; SCS=State Capital, South; LR=Local Resources.

Table 5. Distribution of Female Employment by Economic Sector and Wage Type for Each Selected City

| | Ciudad Juárez | Mexico City | Guadalajara | Mérida | San Luis Potosí | Veracruz |
|--|---------------|-------------|--------------|-------------|-----------------|--------------|
| Manufacturing | 35.5 | 17.6 | 20.1 | 12.1 | 17.0 | 9.9 |
| Wage | 93.6 | 75.6 | 66.0 | 56.8 | 82.7 | 30.5 |
| Non-wage | 6.4 | 24.4 | 34.0 | 43.2 | 17.3 | 69.5 |
| Commerce | 20.0 | 23.2 | 26.2 | 25.0 | 20.7 | 26.6 |
| Wage | 36.2 | 36.6 | 43.2 | 48.5 | 42.9 | 32.6 |
| Non-wage | 63.8 | 63.4 | 56.8 | 51.5 | 57.1 | 67.4 |
| Consumer Services | 17.3 | 22.9 | 25.4 | 22.3 | 21.0 | 33.9 |
| Wage | 61.8 | 63.7 | 64.3 | 66.4 | 67.4 | 58.7 |
| Non-wage | 38.2 | 36.3 | 35.7 | 33.6 | 32.6 | 41.3 |
| Producer Services | 7.3 | 7.9 | 5.3 | 5.0 | 5.7 | 6.4 |
| Wage | 91.4 | 85.0 | 86.7 | 76.4 | 79.7 | 77.1 |
| Non-wage | 8.6 | 15.0 | 13.3 | 23.6 | 20.3 | 22.9 |
| Health & Education Services | 13.3 | 19.2 | 17.9 | 27.2 | 26.9 | 18.6 |
| Wage | 91.8 | 93.0 | 90.9 | 95.0 | 94.7 | 88.8 |
| Non-wage | 8.3 | 7.0 | 9.1 | 5.0 | 5.3 | 11.2 |
| Public administration | 1.7 | 7.7 | 3.6 | 5.9 | 7.2 | 2.4 |
| Wage | 94.7 | 100.0 | 98.6 | 100.0 | 100.0 | 100.0 |
| Non-wage | 5.3 | 0.0 | 1.4 | 0.0 | 0.0 | 0.0 |
| Other | 4.9 | 1.4 | 1.6 | 2.4 | 1.4 | 2.2 |
| Wage | 75.9 | 70.0 | 87.1 | 88.5 | 93.8 | 96.4 |
| Non-wage | 24.1 | 30.0 | 12.9 | 11.5 | 6.2 | 3.6 |
| Total | 100.0 | 99.9 | 100.1 | 99.9 | 99.9 | 100.0 |
| Wage | 75.9 | 69.7 | 66.6 | 88.5 | 75.7 | 57.5 |
| Non-wage | 24.1 | 30.3 | 33.4 | 11.5 | 24.3 | 42.5 |

Source: National Survey of Urban Employment, (April-June, 1993).

Table 6. Descriptive Characteristics of Women 12 Years of Age and Older.

| | Total | Ciudad Juárez | Guadalajara | Mérida | San Luis Potosí | Veracruz | Mexico City |
|-----------------------|-------|---------------|-------------|--------|-----------------|----------|-------------|
| Work Type | | | | | | | |
| Not Working | 63.4 | 63.2 | 62.8 | 65.2 | 65.3 | 58.7 | 64.3 |
| Wage Work | 26.9 | 29.6 | 26.9 | 26.0 | 27.1 | 25.9 | 26.5 |
| Non-Wage Work | 9.7 | 7.2 | 10.4 | 8.8 | 7.7 | 15.4 | 9.2 |
| Age | | | | | | | |
| 12-24 | 36.6 | 37.5 | 38.9 | 35.4 | 36.6 | 34.6 | 36.0 |
| 25-34 | 22.1 | 23.0 | 21.3 | 19.8 | 22.7 | 20.5 | 23.5 |
| 35-44 | 16.3 | 16.8 | 15.7 | 16.1 | 15.1 | 18.0 | 16.3 |
| 45+ | 25.0 | 22.8 | 24.1 | 28.7 | 25.6 | 26.8 | 24.2 |
| Education | | | | | | | |
| LT Elementary | 22.3 | 21.9 | 24.5 | 25.9 | 19.7 | 22.4 | 20.7 |
| LT Secondary | 31.9 | 40.5 | 33.0 | 26.8 | 29.4 | 30.8 | 31.6 |
| LT Preparatory | 31.6 | 25.3 | 29.5 | 33.2 | 36.8 | 28.6 | 33.4 |
| Preparatory + | 14.2 | 12.3 | 13.0 | 14.1 | 14.1 | 18.2 | 14.3 |
| Marital Status | | | | | | | |
| Currently Married | 48.3 | 52.1 | 46.7 | 49.9 | 47.6 | 44.4 | 49.0 |
| Formerly Married | 11.5 | 10.7 | 10.8 | 12.5 | 11.4 | 13.2 | 11.3 |
| Never Married | 40.2 | 37.2 | 42.5 | 37.5 | 40.9 | 42.5 | 39.8 |
| Household Head | | | | | | | |
| Yes | 10.8 | 11.0 | 9.6 | 10.6 | 11.0 | 15.7 | 9.6 |
| No | 89.2 | 89.0 | 90.4 | 89.4 | 89.0 | 84.3 | 90.4 |
| No Child LT 7 | | | | | | | |
| No | 36.9 | 42.5 | 39.0 | 35.4 | 36.8 | 31.4 | 36.3 |
| Yes | 63.1 | 57.5 | 61.0 | 64.6 | 63.2 | 68.6 | 63.7 |
| Non-Nuclear HH | | | | | | | |
| No | 60.8 | 62.6 | 61.6 | 59.1 | 65.0 | 53.5 | 61.3 |
| Yes | 39.2 | 37.4 | 38.4 | 40.9 | 35.0 | 46.5 | 38.7 |
| City | | | | | | | |
| Mexico City | 33.4 | | | | | | |
| Ciudad Juárez | 11.2 | | | | | | |
| Guadalajara | 19.8 | | | | | | |
| Mérida | 11.8 | | | | | | |
| San Luis Potosí | 12.1 | | | | | | |
| Veracruz | 11.7 | | | | | | |

Source: National Survey of Urban Employment (April-June, 1993).

Note: First row is always the reference category.

Table 7. Odds Ratios of Determinants of Labor Force Participation for Six Selected Cities.

| | | Logistic Model | | Multinomial Logistic Model | | | |
|-----------------------|------------------|----------------------------|------|------------------------------|------|----------------------------------|------|
| | | Working vs. Not Working | | Wage Work vs. Not Working | | Non-Wage Work vs. Not Working | |
| | | Odds Ratio | S.E. | Odds Ratio | S.E. | Odds Ratio | S.E. |
| Age | | | | | | | |
| | 25-34 | 3.53 | .15 | 3.69 | .17 | 3.31 | .26 |
| | 35-44 | 4.07 | .20 | 4.00 | .22 | 4.49 | .37 |
| | 45+ | 1.32 | .07 | .91 | .06 | 2.31 | .20 |
| Education | | | | | | | |
| | LT Second. | 1.13 | .05 | 1.41 | .07 | .87 | .05 |
| | LT Prep. | 2.12 | .09 | 3.15 | .16 | .98 | .06 |
| | Prep. + | 2.77 | .14 | 4.18 | .24 | 1.20 | .09 |
| Marital Status | | | | | | | |
| | Formerly Married | 1.55 | .09 | 2.05 | .14 | .96 | .08 |
| | Never Married | 2.61 | .11 | 3.42 | .16 | 1.28 | .09 |
| Household Head | | 1.93 | .11 | 1.96 | .12 | 2.10 | .16 |
| No child lt 7 | | 1.11 | .04 | 1.07 | .04 | 1.14 | .06 |
| Non-nuclear HH | | 1.21 | .04 | 1.34 | .05 | .93 | .05 |
| City | | | | | | | |
| | Ciudad Juárez | 1.17 | .06 | 1.33 | .07 | .81 | .07 |
| | Guadalajara | 1.14 | .04 | 1.12 | .05 | 1.20 | .07 |
| | Mérida | 1.01 | .05 | 1.03 | .05 | .95 | .07 |
| | San Luis Potosí | .94 | .04 | .99 | .05 | .80 | .06 |
| | Veracruz | 1.19 | .05 | .97 | .05 | 1.74 | .11 |
| | df | 16 | | 32 | | | |
| | N | 26701 | | 26701 | | | |
| | Model Chi-Square | 3323.5 | | 4846.3 | | | |
| | Log-Likelihood | -15871.6 | | -20757.2 | | | |

Source: National Survey of Urban Employment (April-June, 1993).

Coefficients in boldface are significant at $p = 0.05$.

Reference categories: Age: 12-23; Education: Less than complete elementary; Marital Status: Currently Married; City: Mexico City.

Table 8. Multinomial Logistic Model of Female Labor Force Participation by City.

| | Ciudad Juárez | | | | Guadalajara | | | | Mérida | | | |
|------------------------------|---------------|-----|-------------|-----|-------------|-----|-------------|-----|-------------|------|-------------|------|
| | Col. 1 | | Col. 2 | | Col. 1 | | Col. 2 | | Col. 1 | | Col. 2 | |
| | Odds Ratios | SE | Odds Ratios | SE | Odds Ratios | SE | Odds Ratios | SE | Odds Ratios | SE | Odds Ratios | SE |
| Age | | | | | | | | | | | | |
| 25-34 | 2.69 | .35 | 2.04 | .51 | 3.10 | .32 | 2.66 | .43 | 4.38 | .66 | 3.62 | .95 |
| 35-44 | 2.45 | .38 | 2.50 | .67 | 3.37 | .42 | 3.56 | .62 | 4.01 | .69 | 5.01 | 1.33 |
| 45+ | .46 | .09 | 1.26 | .36 | .69 | .11 | 1.85 | .34 | 1.09 | .21 | 3.35 | .90 |
| Education | | | | | | | | | | | | |
| LT Secondary | 1.84 | .26 | .70 | .14 | 1.38 | .15 | .97 | .12 | 1.23 | .20 | .99 | .17 |
| LT Preparatory | 3.04 | .46 | .93 | .21 | 2.74 | .30 | 1.18 | .16 | 4.58 | .67 | .92 | .17 |
| Preparatory + | 3.18 | .55 | 1.65 | .40 | 3.45 | .44 | 1.18 | .21 | 6.57 | 1.10 | 1.23 | .29 |
| Marital Status | | | | | | | | | | | | |
| Formerly Married | 2.21 | .43 | .54 | .17 | 2.36 | .38 | 1.03 | .20 | 2.02 | .39 | 1.26 | .30 |
| Never Married | 2.29 | .29 | .70 | .16 | 4.35 | .45 | 1.25 | .18 | 3.60 | .52 | 1.56 | .34 |
| Household Head | 2.08 | .38 | 3.38 | .92 | 1.59 | .24 | 1.60 | .31 | 1.75 | .32 | 1.66 | .38 |
| No Child lt 7 | 1.29 | .13 | 1.27 | .22 | 1.09 | .09 | 1.20 | .14 | 1.07 | .12 | 1.14 | .18 |
| Non-nuclear household | 1.52 | .15 | .97 | .17 | 1.42 | .11 | .74 | .08 | 1.09 | .11 | .69 | .10 |

Source: National Survey of Urban Employment (April-June, 1993).

Note: Coefficients in boldface are significant at $p < 0.05$.

Col. 1 compares odds of wage work with not working; Col. 2 compares odds of non-wage work with not working.

Reference category for age: 12-24; for education: less than complete elementary school; for marital status: currently married.

Table 8 (cont'd). Multinomial Logistic Model of Female Labor Force Participation by City.

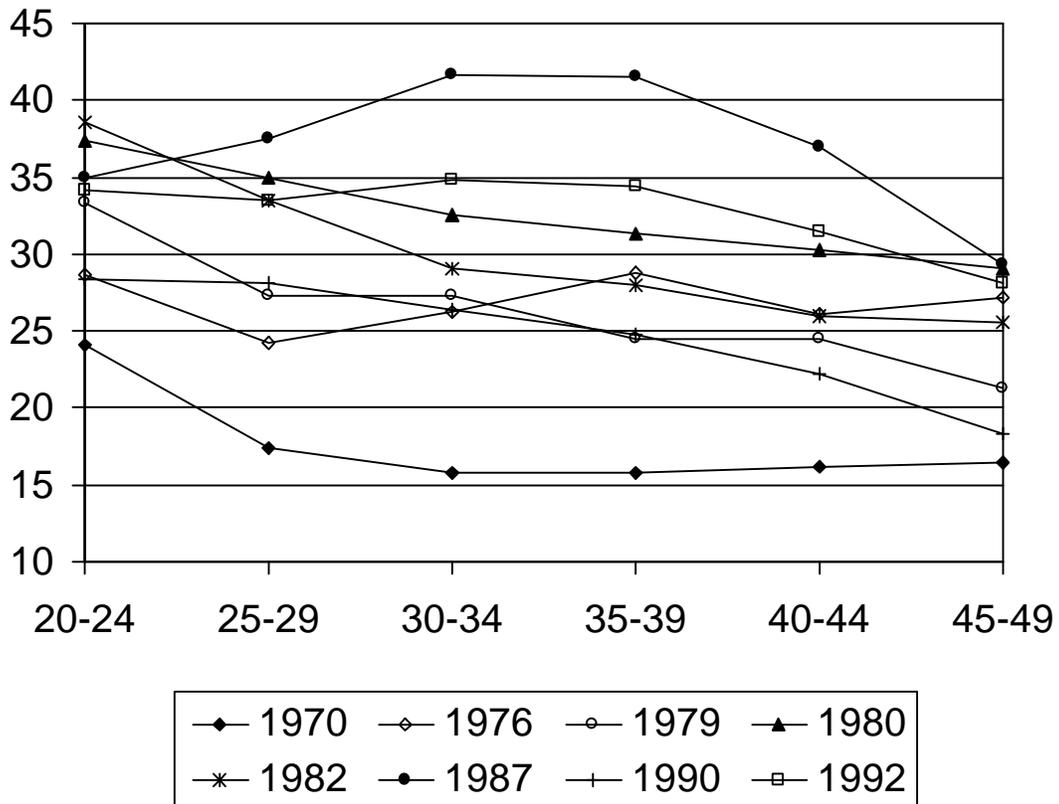
| | San Luis Potosí | | | | Veracruz | | | | Mexico City | | | |
|------------------------------|-----------------|-----|-------------|------|-------------|-----|-------------|------|-------------|-----|-------------|-----|
| | Col. 1 | | Col. 2 | | Col. 1 | | Col. 2 | | Col. 1 | | Col. 2 | |
| | Odds Ratios | SE | Odds Ratios | SE | Odds Ratios | SE | Odds Ratios | SE | Odds Ratios | SE | Odds Ratios | SE |
| Age | | | | | | | | | | | | |
| 25-34 | 4.28 | .60 | 6.69 | 1.68 | 3.96 | .56 | 4.17 | .80 | 4.13 | .33 | 3.10 | .42 |
| 35-44 | 4.46 | .75 | 9.39 | 2.58 | 3.85 | .63 | 6.84 | 1.36 | 5.46 | .53 | 3.77 | .56 |
| 45+ | .79 | .15 | 4.17 | 1.17 | 1.03 | .19 | 2.99 | .62 | 1.33 | .15 | 1.98 | .30 |
| Education | | | | | | | | | | | | |
| LT Secondary | 1.50 | .25 | .89 | .17 | 1.18 | .18 | .89 | .13 | 1.26 | .12 | .78 | .08 |
| LT Preparatory | 3.42 | .53 | 1.02 | .20 | 2.21 | .33 | .97 | .15 | 3.33 | .30 | .86 | .10 |
| Preparatory | 4.86 | .87 | 1.71 | .41 | 3.40 | .54 | 1.10 | .20 | 4.35 | .44 | .97 | .14 |
| Marital Status | | | | | | | | | | | | |
| Formerly Married | 1.67 | .33 | .98 | .26 | 1.89 | .35 | .99 | .19 | 2.12 | .24 | .93 | .14 |
| Never Married | 3.95 | .56 | 2.03 | .43 | 3.88 | .53 | 1.53 | .24 | 3.18 | .25 | 1.10 | .13 |
| Household Head | 2.40 | .45 | 1.30 | .33 | 1.80 | .28 | 2.05 | .34 | 2.15 | .24 | 2.82 | .40 |
| No Child lt 7 | 1.07 | .11 | 1.33 | .22 | 0.87 | .09 | .82 | .10 | 1.07 | .07 | 1.20 | .11 |
| Non-nuclear household | 1.55 | .16 | 1.36 | .22 | 1.13 | .11 | 1.03 | .12 | 1.32 | .08 | .99 | .09 |

Source: National Survey of Urban Employment (April-June, 1993).

Note: Coefficients in boldface, significant p=0.05.

Reference category for age: 12-24; for education: less than complete elementary school; for marital status: currently married.

Figure 1. Women's Labor Force Participation in Mexico, by Age



Sources:

1970: Censo general de población; from García and Oliveira, 1994.

1976: World Fertility Survey; from García and Oliveira, 1994.

1979: Encuesta continua de ocupación, first trimester; from García and Oliveira, 1994.

1980: Censo general de población; from García and Oliveira, 1994.

1982: Encuesta nacional demográfica; from García and Oliveira, 1994.

1987: Encuesta nacional de fecundidad y salud; from García and Oliveira, 1994.

1990: Censo general de población; calculated by Fussell.

1992: Encuesta nacional de la dinamica demográfica; calculated by Fussell.

Center for Demography and Ecology
University of Wisconsin
1180 Observatory Drive Rm. 4412
Madison, WI 53706-1393
U.S.A.
608/262-2182
FAX 608/262-8400
comments to: fussell@ssc.wisc.edu
requests to: cdepubs@ssc.wisc.edu