THE WILLIAM DAVIDSON INSTITUTE
AT THE UNIVERSITY OF MICHIGAN BUSINESS SCHOOL

Women in the LAC Labor Market:
The Remarkable 1990's

*By: Suzanne Duryea, Alejandra Cox Edwards
and Manuelita Ureta*

Women in the LAC Labor Market:
The Remarkable 1990's

Suzanne Duryea
Inter-American Development Bank
Research Department
Washington, D.C. 20577
suzanned@iadb.org

Alejandra Cox Edwards
California State University, Long Beach
Department of Economics
Long Beach, CA 90840
acoxedwa@csulb.edu

Manuelita Ureta
Texas A&M University
Department of Economics
College Station, TX 77843-4228
manuelita-ureta@tamu.edu

June 2001
Revised October 2001

JEL classification: J21, J16
Keywords: labor force participation, earnings, women, Latin America

Abstract

We examine levels and trends of labor market outcomes for women in the 1990's using household survey data for 18 Latin American countries covering several years per country. The outcomes we analyze include labor force participation rates, the distribution of employment of women across sectors of the economy (formal versus informal) and across industries (agriculture versus non-agriculture), unemployment, and earnings.

Overall we document substantial progress made by women in many areas. The gender wage gap is closing steadily in Venezuela, Costa Rica, Brazil and Uruguay, while Colombian women now enjoy higher earnings than those of men. Women's share of household labor earnings rose from 28% in the early 1990's to 30% in the late 1990's. Regarding the quality of jobs, we examine self-employment and employment in small firms as possible indicators of employment in the informal sector. There is no evidence of a systematic increase in self-employment nor in employment in small firms, and contrary to findings by the ILO, we find that the share of female employment accounted by domestic servants did not increase in the 1990's.

Perhaps the salient development of the 1990's for women in LAC countries was the brisk-paced, secular rise in their labor force participation rates. We examine this development from several angles. We explore the Singh-Goldin-Durand hypothesis that women's work status changes with economic development. Mammen and Paxson (2000) examine this hypothesis using data for 90 countries, and find that female participation of 45-59 year olds follows a U-shaped profile, with rates rising with GDP per capita increases above $3000. We find that female participation in LAC does not follow the Mammen-Paxson pattern.

Next, we examine the role of schooling in explaining the increase in female labor force participation in LAC countries. We find that increases in female schooling account for 30% of the overall increase in female participation rates. The remaining 70% is explained by increases in participation rates at given schooling levels. Finally, we analyze the role of wages, especially the returns to different schooling levels, as a partial explanation for the pattern of changes in labor force participation rates.

All of these findings suggest a fair degree of change in the role of women within households and in the labor market. We conclude that the macro economic picture of stagnation for LAC in the 1990s masks non-trivial developments in the division of labor and time allocation by gender.

Introduction

The decade of the 1990's in Latin America is characterized by moderate GDP growth and stagnant per capita GDP. Table A1 in the appendix summarizes per capita GDP growth trends for the 1980's and 1990's. A decade of stagnation followed by a mild recovery in the 1990's lead to a real per capita GDP growth of half a point per year between 1980 and 1998. The weak macroeconomic performance of the 1990's, compounded with a previous decade of crises and adjustment, helps explain the *unyielding* levels of poverty and inequality despite the considerable economic reforms enacted over the period. (Lora IPES). However, we find that the 1990's brought considerable, even remarkable, changes for women with respect to labor market outcomes. With important exceptions, many of the trends favored women. This paper illustrates different patterns of women's participation in market work in Latin American and Caribbean (LAC) countries and investigates the underlying determinants of the different patterns.

We begin with a brief summary of the literature on female labor force participation for the LAC region, and a description of this study's methodology.

Section II provides an overview of the standing of women in the LAC region labor markets. We examine levels and trends of labor market outcomes for women in the 1990's using household survey data for 18 LAC countries covering several years per country. The outcomes we analyze include labor force participation and employment rates, relative female wages, and the distribution of employment of women across sectors of the economy (formal versus informal). We examine female labor force participation rates in the region in the context of worldwide patterns referencing the Singh-Goldin-Durand hypothesis as was recently revisited by Mammen and Paxson. We find that female labor force participation in LAC countries does not follow the pattern predicted by Mammen and Paxson in their recent paper.

Section III explores other factors that may explain the brisk paced incorporation of women into the labor force, including the rising levels of schooling and lower fertility rates among recent cohorts, and a careful examination of the evolution of relative female

to male wages after controlling for individual characteristics. Section IV summarizes the findings.

I. Previous research and our contribution

The first fact-finding report on the status of women in the LAC countries examined ILO data from 1950 to 1980 for fifteen countries (see Psacharapoulos and Taznnatos (1992)). This report established that (1) female labor force participation had risen from a low 24% on average in the 1950's to about 33% in the 1980s; (2) that the increase in overall female participation was driven by rising participation rates among young women; and (3) that women had not been "pulled" into paid employment by high economic growth or labor shortages, as had been the pattern of industrialized countries in previous decades.

Edwards and Roberts (1993) used country-level World Bank data covering the 1970's and 1980's to measure the variation in female labor force participation across countries and through time, and tested the significance of contributing factors to that variation. They report that women's labor force participation increases with urbanization, with the level of education (measured by female secondary education coverage) and with reductions in predicted fertility. In their attempt to link female labor force participation to differences in country-level deviations from trend in per capita GNP, they find that cyclical effects are positive but declining as income per capita falls: the estimated coefficient becomes negative at a per capita GNP of $846 (1985 US$). Since the per capita incomes of most LAC countries are above this value, the implication is that deviations from trend in per capita GNP move female labor force participation in the same direction, except that the response is significantly smaller in low-income countries.

More recently, Leon (2000) used individual level data from household surveys and examined the experiences of women in the labor market in nine countries (Argentina, Bolivia, Brasil, Chile, Colombia, Costa Rica, Mexico, Uruguay and Venezuela). He argues that in Latin America female labor force participation reaches a maximum between age at first marriage and the end of the reproductive cycle—ages 25 to 44—, a

pattern unlike the one observed for developed countries. The evidence he presents suggests that during the 1980's and 1990's the increase in labor force participation of married women was more significant than the increase in participation for women aged 25 to 34, women living with their parents or female head of households. In addition, the Leon study cites another United Nations Economic Commission for Latin America study that finds that the number of households where the husband and wife both work in the paid labor market increased from 20 percent to over 30 percent from 1980 to 1992, and has increased above 40 percent in Colombia and Uruguay.

Numerous country case studies, including twenty-one published as Volume II of the Psacharopoulos and Tzannatos(1992) study, have examined micro-level data to estimate the determinants of female labor force participation. The majority of studies find that a woman's likelihood of working for pay increases with age up to age 45 (after controlling for fertility), is higher for urban residents (except for a few Caribbean countries), increases with schooling, declines with family responsibilities (measured by the number of young children living at home), and is negatively correlated with income and family wealth.

Our study

Our study focuses on the 1990's and uses individual-level data to create and analyze labor market aggregates by age and schooling. We are aware of the large diversity in the characteristics and underlying trends in the Latin American economies, so our analysis does not compare overall country averages; it compares country averages for several schooling and age categories.

The survey instruments include a question on the employment status of household members during the reference week of the survey. Employment is broadly defined as market-type activities, paid or unpaid, in formal establishments or home enterprises. Labor force participants include those who were actively seeking employment in the reference period along with those who were employed. Individual-level data were

aggregated across age and schooling categories, and these cell averages form the basis of our analysis.

Our data covers 18 LAC countries covering several years per country. Data are available for every year for a small group of countries, and every two or three years for a larger set of countries. In an effort to retain a large number of countries, we classified the 1990's into three periods, early 90's, mid 90's and late 90's. We are fortunate to have comparable surveys for all three periods for 8 countries, and we cover two of the three periods for the remaining countries.

Age groups

The focus of our study is the female working-age population, defined as women aged 15 to 64. In LAC countries there were 129 million women in this age category in 1990, and the figure is projected to increase to 220 million by 2020 (see Table 1).

The youngest women in the group, those aged 15 to 29, are very heterogeneous in terms of school enrollment, labor force participation and marital status. So, it is better to conduct an analysis of labor force participation for this age group at the micro level. Women aged 30 to 45 are typically balancing family-related responsibilities and labor market participation opportunities. This balance is very much affected by the overall fertility rate of the birth cohorts examined. Women aged 46 to 59 are likely to have relatively fewer home-related responsibilities, and are more likely to enter or re-enter the labor force. Their reservation wages are a function of their assets, including their household's assets, and their market wages vary with their schooling and previous labor market experience. Thus, labor force participation rates among women aged 30 to 45 fifteen years prior likely affect the rates of participation of women aged 46 to 59, all else constant.

Note that the relative weight of each of these age groups in the female population of the region is changing significantly: women aged 46 to 59 represent 17 percent of all women in 1990, and they are predicted to represent 26 percent by 2020.

Table 1: Distribution of the Female Population
Aged 15 to 64, by Age and Calendar Year
(in Millions and Percentages).

Population Distribution by Age category			
Year	1990	2000	2020
Total (millions)	129	162	220
Age Group			
15-29	47.62%	43.81%	35.23%
30-44	30.85%	32.75%	32.90%
45-59	17.41%	19.27%	25.66%
60-64	4.13%	4.17%	6.21%

Schooling groups

We divide schooling into six categories: no school, incomplete primary, complete primary, incomplete secondary, complete secondary, and post secondary schooling. In Table 2 we compare school attainment across four generations of women for the early and the late 90's. The first two columns of figures are for women aged 30 to 45 who are urban residents. The two right-most columns of figures are for women in earlier birth cohorts: women aged 46 to 59. We expect these women to have lower levels of school attainment because they include the rural population. The figures in Table 2 make it clear that there has been an important expansion in school attainment for women in LAC countries.

Table 2: Percentage of Women with Some Secondary or Higher
Schooling, by Age Group and Time Period, (Selected LAC Countries).

	Urban Women Aged 30 to 45		All Women Aged 46 to 59	
Country	Early 90's	Late 90's	Early 90's	Late 90's
BOLIVIA	60.8%	50.1%		
BRAZIL	53.2%	65.7%	22.5%	32.8%
CHILE	77.8%	85.5%	47.7%	56.1%
COLOMBIA	64.2%	69.5%	25.5%	33.6%
COSTA RICA	64.8%	70.2%	24.1%	29.3%
HONDURAS	39.4%	42.3%	12.0%	13.4%
PANAMA	75.9%	82.5%	37.5%	47.2%
URUGUAY	65.8%	71.4%	39.9%	52.2%
Average	62.7%	67.1%	29.9%	37.8%

Urban vs National

Some of the surveys have national coverage and many have urban coverage. Thus, our
analysis groups country indicators accordingly.

II. Overview of Women's Standing in the Labor Market

We begin examining the level and changes in female labor force participation, employment ratios, relative wages and composition of employment by sector.

A. Brisk-Paced, Secular Rise in Female Labor Force Participation Rates in the 1990's

Using comparable data from national surveys in 13 countries, we find a brisk-paced, secular rise in participation rates. While the range of average participation for the working age female population (15 to 64 year olds) stood in the 35 to 70 percent range in the early and late 1990's, country level participation ratios increased in eight cases, stayed fairly constant in four cases, and fell in only one case.

The two diagrams in Figure 1 plot labor force participation rates for women aged 15 to 64, by country and time period. The top diagram has three data points per country (early, mid and late 90's), and the bottom diagram has only two data points per country due to lack of data. All eight countries with close to annual household surveys—generally regarded as being comparable over time—have experienced increasing labor force participation of women over the decade, with rates in Mexico, Venezuela and Honduras rising by nearly 10 percentage points. The countries shown in the bottom panel have surveys that are less systematically administered and may be less comparable over time. Female labor force participation in Paraguay fell significantly from 1995 to 1998.

During the 1990's, unemployment rates increased in several countries, and higher unemployment rates were also seen among women. Using the same sample of countries in Figure 1 but analyzing the share of women who are employed suggests that, for most countries, the increase in labor force participation rates is not due to increases in unemployment but, rather, to increases in the share of women actively participating in market type work. To establish that these shifts reflect changes in behavior and not

Figure 1: Rising Labor Force Participation Rates of Women

Labor Force Participation Rates for Women Ages 15-64 National (3 points)

Labor Force Participation Rates for Women Ages 15-64, National (2 periods)
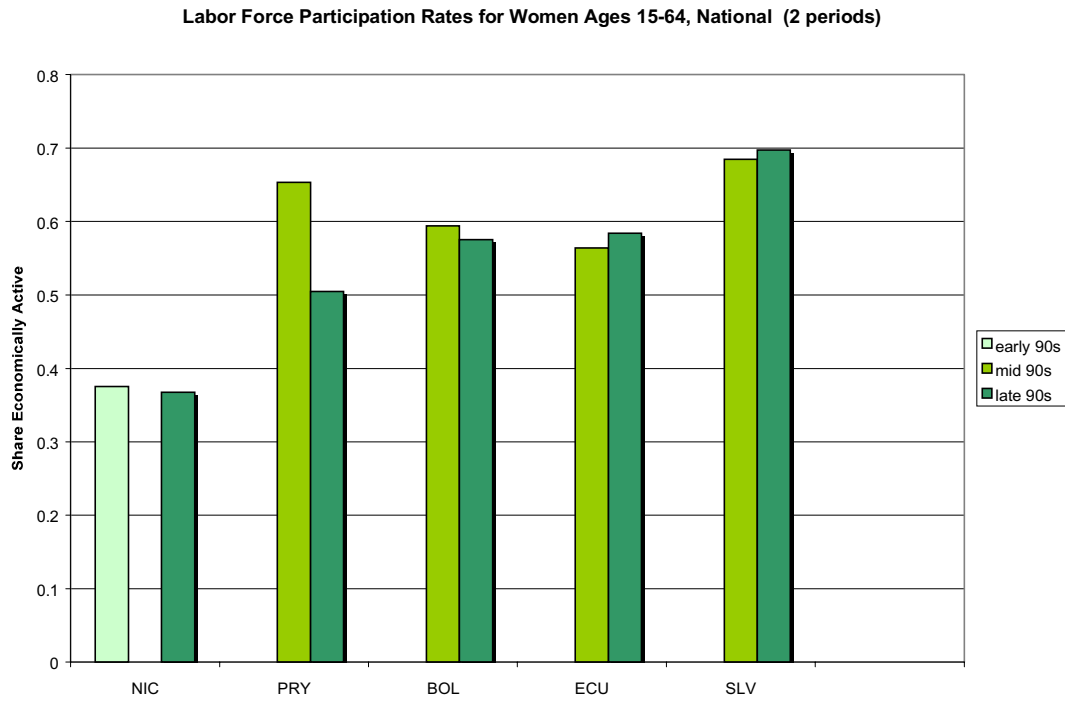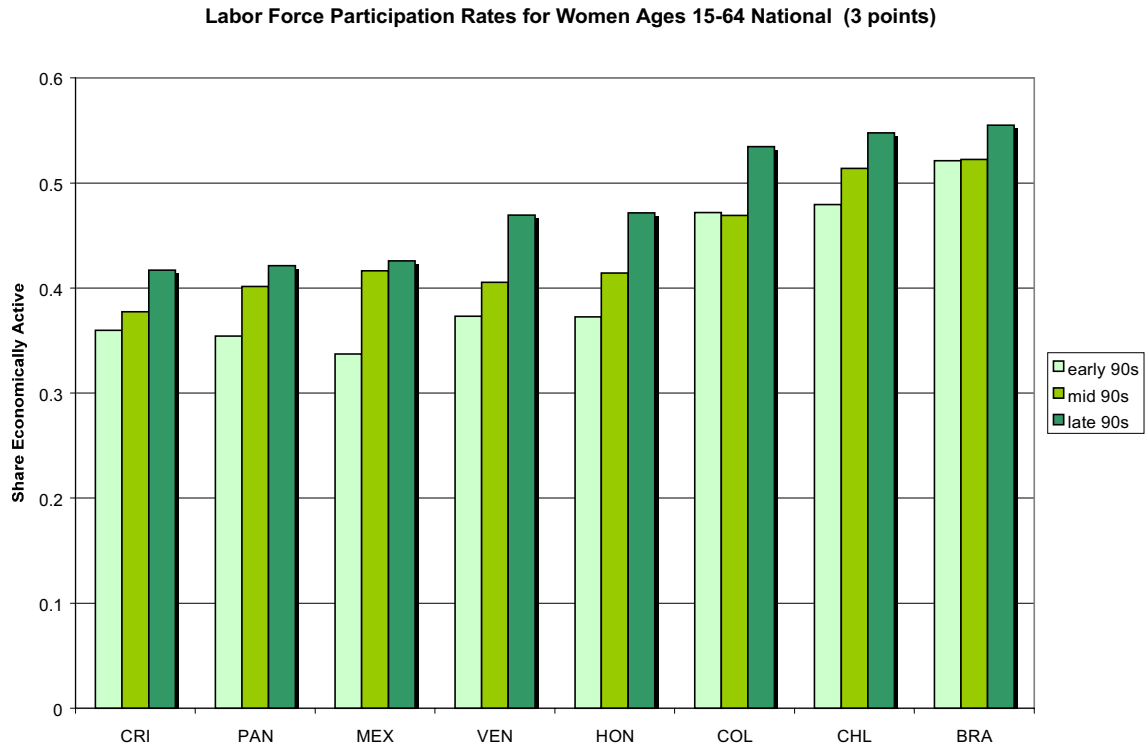
simply compositional changes in the age structure or region of residence, in Figure 2 we show changes in employment rates for the overall sample of women aged 15 to 64, and for more homogeneous groups: women aged 30 to 45 in urban areas and women aged 46 to 59 at the national level.

The six diagrams in Figure 2 plot employment rates for given age groups, by country and time period. The diagrams on the left have three data points per country (early, mid and late 90's), and the three on the right have two data points per country. Brazil and Uruguay show small increases in employment rates for the working age population, although there is some noticeable expansion for women in the 45-59 age range. Most likely, these two countries saw an expansion in secondary or tertiary schooling that kept a larger fraction of females in the 15-29 age range out of the labor force. Employment ratios among 30-45 year olds grew throughout the 90s in all countries except where employment ratios stood above 60% in the early 1990s –notable Colombia, Uruguay, Ecuador, Paraguay, and El Salvador.

As we examine employment ratios for women aged 46 to 59, we note a significant expansion in employment rates. To understand the forces behind this increase in participation, it is useful to think of these three time periods as windows through which we look at three different—although partially overlapping—cohorts of women aged 45 to 59. An increase in average employment rates is likely to be driven by a combination of higher participation rates among more recent birth cohorts of women aged 45 to 59 at the time of each survey, and an increase labor market attachment among women in that age group.

Overall we find a brisk-paced, secular rise in labor force participation rates, driven by increases in employment rates. The growth in labor force participation and employment rates is particularly important among women aged 46 to 59. Women in this age group have fewer household responsibilities stemming from childbirth and child rearing than do younger women.

# Figure 2: Rising Employment Ratios by Age
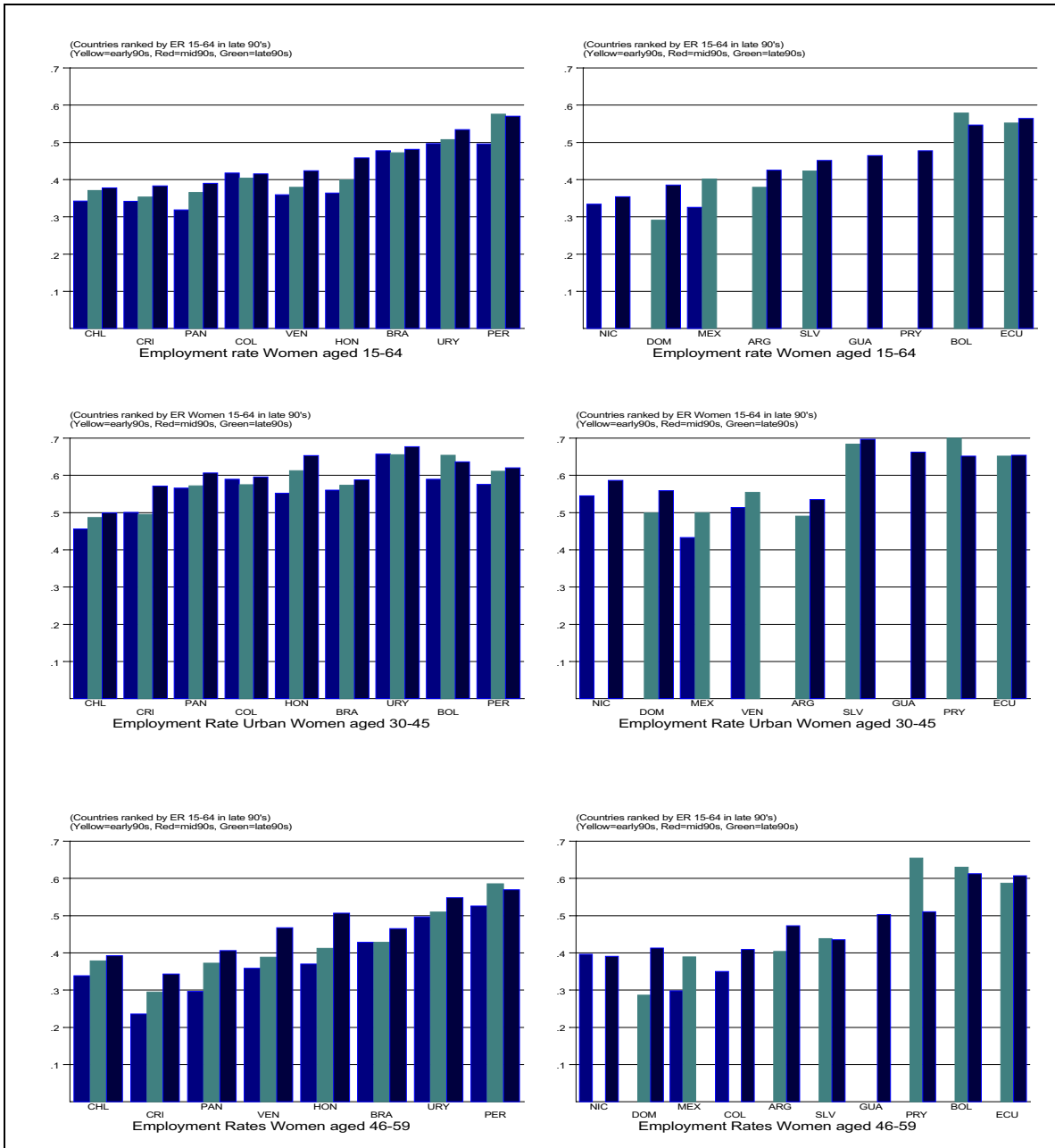
B. Rising Female Wages Relative to Male's

As we turn to examine relative wages and their changes throughout the 1990's, we focus on the eight countries for which the available data allows a more careful assessment of trends. Once again, we look at the entire working age population (ages 15 to 64) and at two sub-age categories. Female wages are around 80 percent of male wages, on average, and this ratio has typically increased during the 1990's. The exceptions are Honduras and Peru, were female/male wage ratios fell, and Costa Rica, were wage ratios fell early in the decade and recovered somewhat towards the late 1990's.

When we graph the wage ratios for urban women aged 30 to 45, and all women aged 45 to 64, we notice the absence of a systematic pattern for relative wages among women aged 30 to 45. However, relative wages for women aged 45 to 64 rise in almost all cases.

Figure 3: Female/Male Wage Ratios
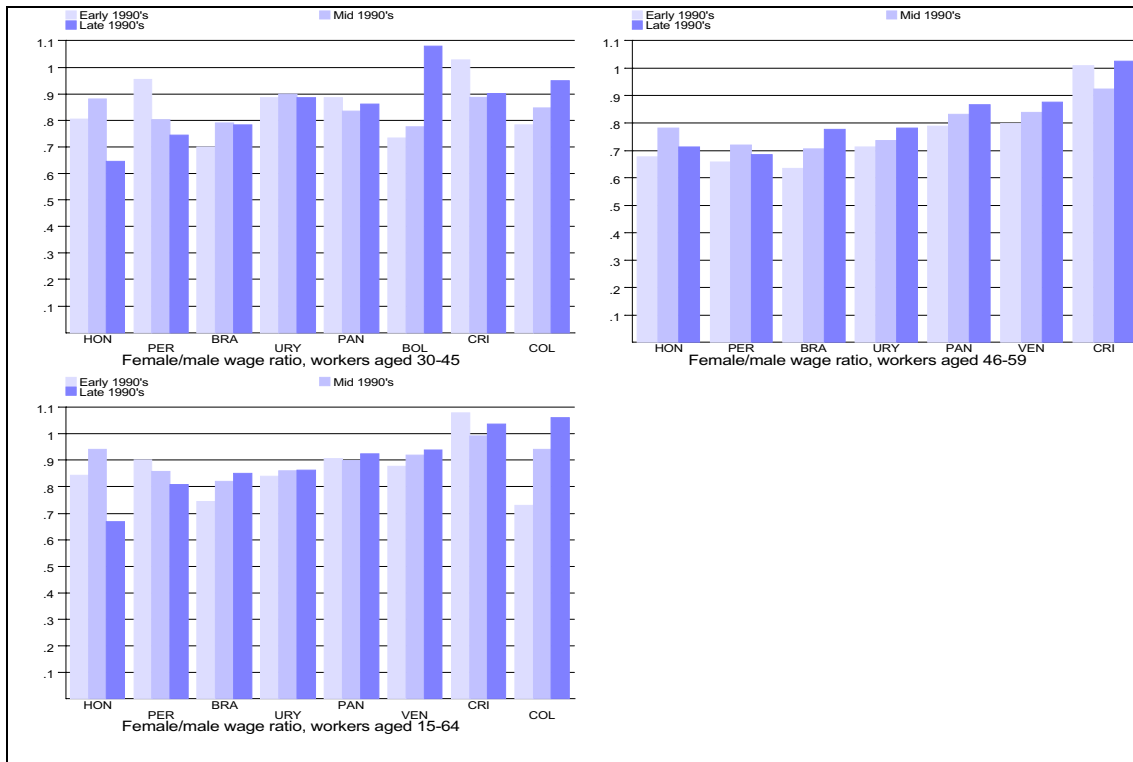
C. Access to quality jobs

Increases in employment rates of women could stem mainly from increases in employment in the typically low-paying informal sector. If that were the case for the LAC region, then the recent developments we document earlier in this article would be a cause for concern. One possible scenario is that women are being "pushed" into the paid labor force in an effort to supplement falling household incomes. A less grim scenario is that women are being "pulled" into the labor force by rising opportunities, much like the experience of women in the United States. We look briefly at this issue by examining the levels and trends of rates of self-employment of women.

In Figure 4 we present the fraction of working women who are self-employed and do not employ others in their business for the latter part of the 1990's. The bottom diagram plots the figures for women aged 15 to 64 for the 18 countries in our sample. The countries are ordered by the rate of female self-employment for this age group. The top two diagrams repeat the exercise for women aged 30 to 45 who are urban residents (left diagram), and all women aged 46 to 59 (right diagram). In the two top diagrams we repeat the country ordering of the bottom diagram.

As we have seen with all other characteristics of women in LAC countries, the most striking feature of the three diagrams is the wide range of values seen across countries. Of working women aged 15 to 64, women in Chile have the lowest rates of self-employment: about 15 percent. At the opposite end of the distribution, women in Guatemala have self-employment rates of about 40 percent.

With the exception of Bolivia, one pattern is common to all countries. It is the women aged 46 to 59 who have by far the highest rates of self-employment. Note that in most of the countries we examine this age group also shows the largest increases in labor force participation. A number of possible explanations come to mind. Self-employment often requires working capital. Older women are more likely to have had time to save from

their earnings, or to have access to credit because they own property that can be used as collateral. Under this scenario, high rates of self-employment need not be a reason for concern.

An alternative explanation is that older women have significantly lower levels of education and, thus, reduced access to the formal sector, than do younger women. In this case, self-employed women are likely to be "marginal" workers, but the situation will correct itself as education levels continue to rise. That is, self-employment rates will decline over time as the older cohorts of women retire.

Figure 4. Percent of Working Women Who Are Self-Employed, by Age Group and Country, Late 1990's.
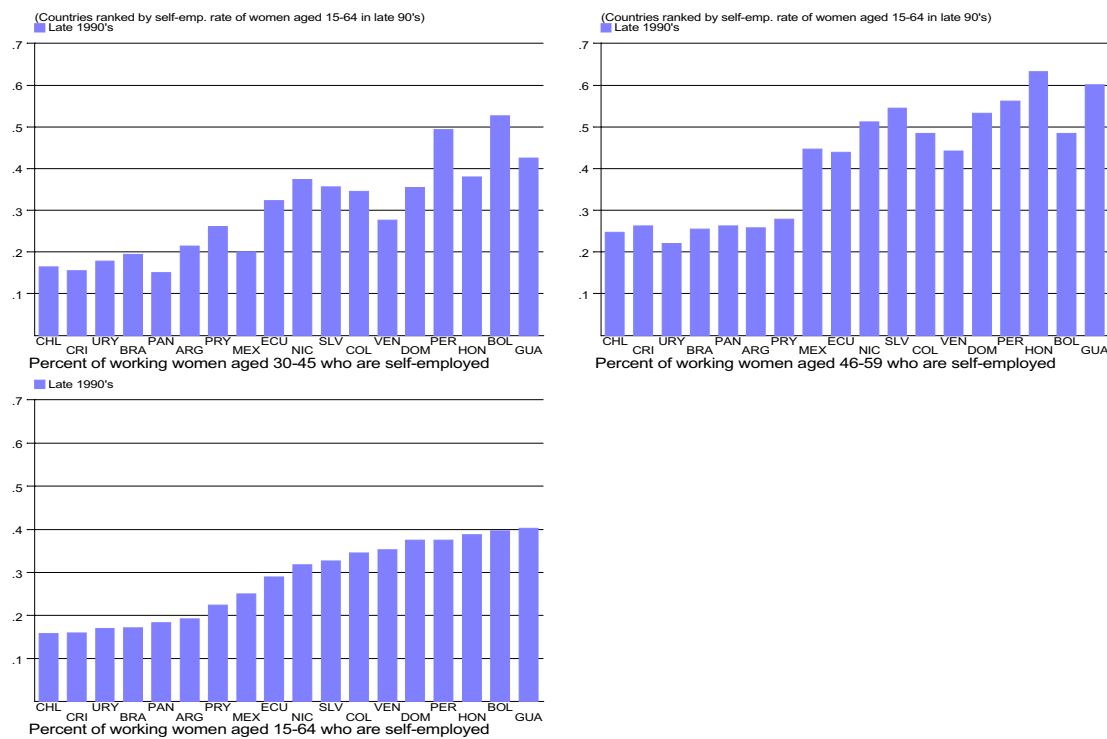

Now we turn our attention to the trends in rates of self-employment. In Figure 5 we graph rates for the 8 countries for which we have data for the early, middle and late periods of the decade of the 1990's. In the bottom diagram we plot rates for women aged 15 to 64, and we order the countries by the rates observed in the late 1990's. The two top

diagrams plot the self-employment rates for women aged 30 to 45 who are urban residents (left diagram), and for all women aged 46 to 59 (right diagram).

Figure 5. Trends in Rates of Self-Employment among Working Women, by Age Group and Time Period (Selected Countries).
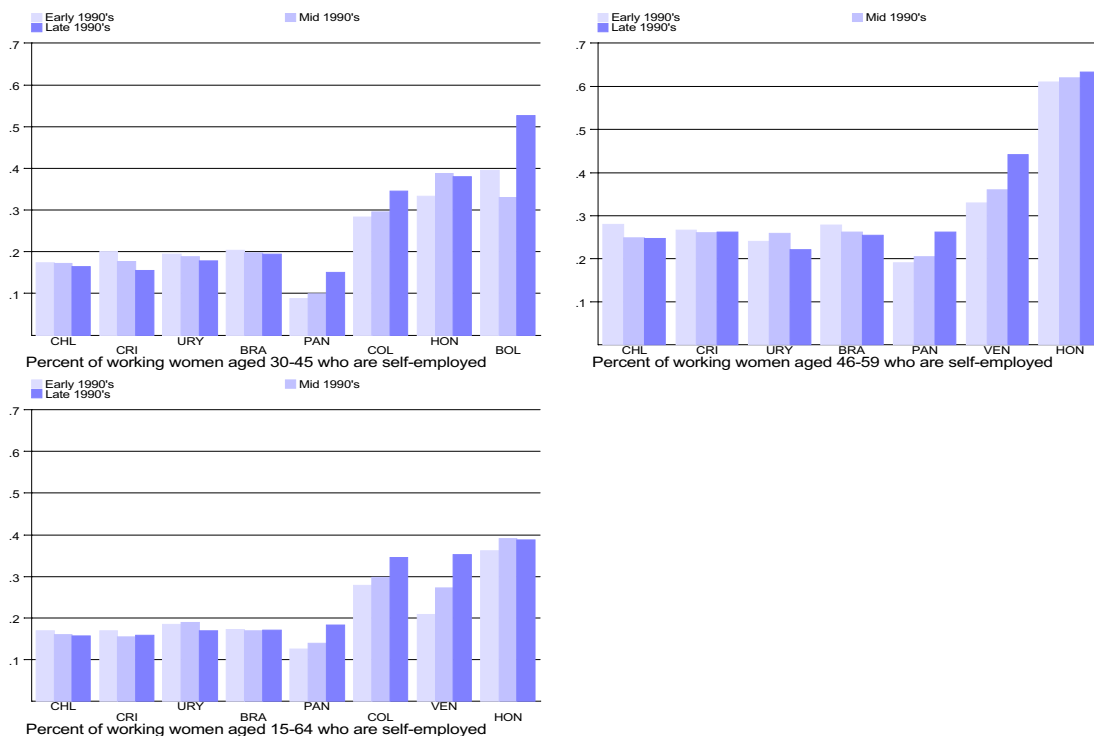

The diagram for women aged 15 to 64 shows that (except for the case of Panama), during the decade of the 1990's self-employment rates fell in those countries where the rates were low, and rose in countries where the rates were high at the beginning of the decade. The differences in self-employment rates of women across countries have been magnified over time.

The main message of Figure 5 is that the overall self-employment rate for women, that is, for women aged 15 to 64, did not increase during the 1990's in four of the eight countries. Self-employement rates stayed about the same in Honduras, and they rose in Panama, Colombia and Venezuela. Thus, the pervasive increase in labor force participation rates over this period was not accompanied by widespread increases in self-employment rates across most or all the countries in our sample.

16

Increase in LFP: A Long-Term Trend Unaffected by Macro-Economic Conditions?

Section II D. GDP and Female Labor Force Participation

Figure 6

Percent of females aged 46-59 in the labor force---1998-1999 average
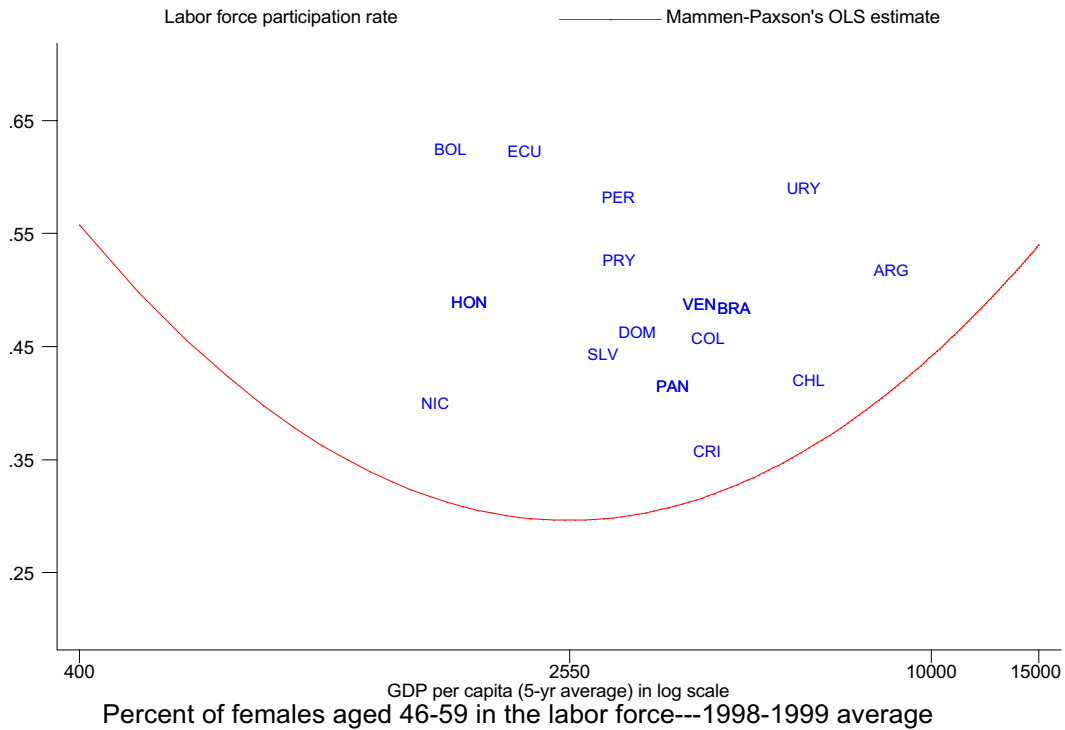
The literature that examines the relationship between women's labor force participation and economic development includes works by Singh (1967), Goldin (1995) and Mammen and Paxson (2000), who argue that the relationship is U-shaped. Economic development is first accompanied by decreases in women's labor force participation as industrialization results in fewer family farms or businesses where women typically work and the new blue-collar jobs in urban areas are taken up mostly by men. As the pace of industrialization continues and women's levels of education rise, white-collar jobs become available to women and their participation rates increase.

Arguably, there is no satisfactory single indicator of economic development. Lacking a better choice, we follow the practice in Mammen and Paxson (2000) and examine the pattern of labor force participation rates of women aged 46 to 59 against GDP per capita in several Latin American countries. Focusing on those aged 46 to 59 yields a sample of women for whom child-rearing responsibilities are minimal if at all present. In Figure 6 we plot labor force participation rates against per capita Gross Domestic Product (GDP) measured in 1985 dollars. The U-shaped function also appearing in the graph is the Mammen-Paxson OLS estimate of the relationship observed for 90 countries. The graph, then, allows us to gauge whether the behavior of women in Latin American countries conforms to the pattern seen elsewhere.[1]

We do not find a pattern common to all the countries in our sample. Rather, the countries fall into three groups. First, given the levels of GDP per capita in Nicaragua, Costa Rica and Chile, women aged 46 to 59 have a labor force participation rate that conforms to the Singh-Goldin hypothesis. In a second group of countries, Honduras, El Salvador, Dominican Republic, Panama, Venezuela, Colombia and Argentina, women have participation rates that are considerably higher than we would expect given the Mammen-Paxson estimate.

In the remaining countries for which we have data for the late 1990's—Bolivia, Ecuador, Peru, Paraguay, and Uruguay—the labor force participation rates of women aged 46 to 59 do not follow the pattern suggested by the Mammen-Paxson estimate at all. The observed labor force participation rates are as much as 30 percentage points higher than is predicted by the OLS estimate, given the levels of GDP per capita in those countries. It is noteworthy that, with the exception of Uruguay, these countries have a significantly larger agricultural sector than the average for the region.

---

[1] In their estimation of the U-shaped function, Mammen and Paxson use the means over 5-year intervals, from 1970 to 1985, of GDP per capita taken from the Penn World Tables Mark 5.6a, where the GDP figures are the RGDPCH series, Real GDP per capita expressed in constant 1985 dollars (Chain Index). To the best of our knowledge, the RGDPCH series is not available beyond 1990. So we use a PPP GDP series in current dollars and deflate it by a seasonally adjusted, chain-type price index for the U.S. Gross Domestic Product. We set 1985 as the base year, and compare the resulting series to the one used by Mammen and Paxson. While not identical, the series are quite close in terms of levels and trends.

On the whole, then, for given levels of GDP per capita, women aged 46 to 59 in Latin American countries, on average, display significantly higher labor force participation rates than what is observed in the rest of the world.

Figure 7.

Percent of females aged 15-64 in the labor force---1998-1999 average
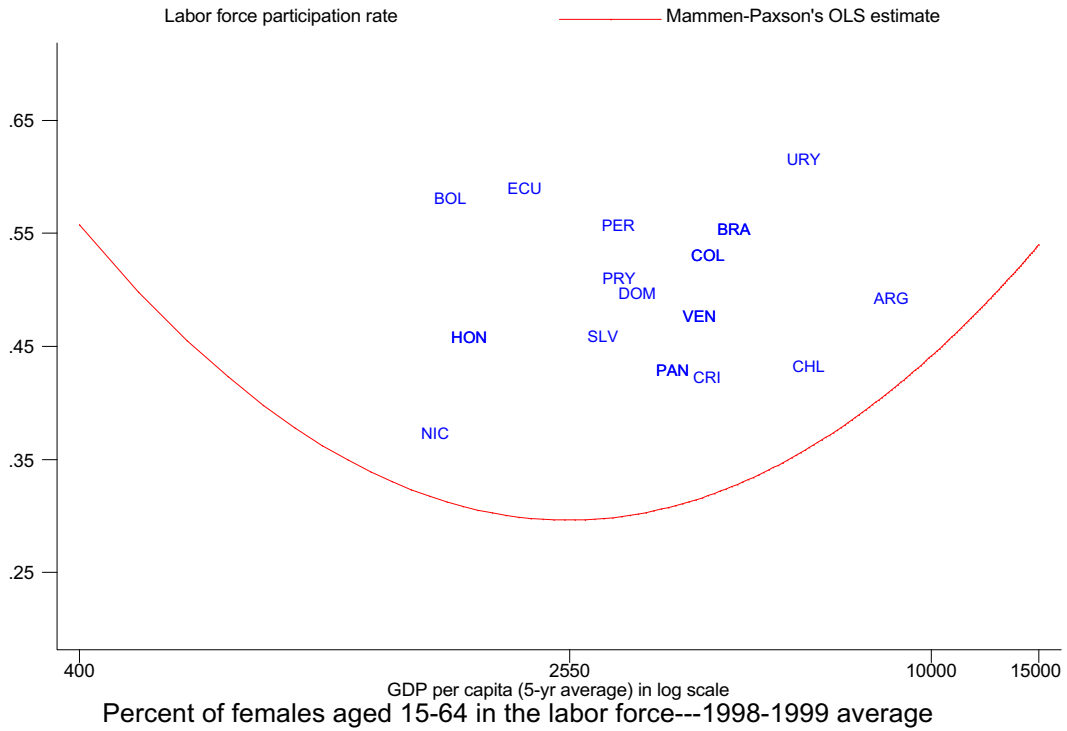
Mammen and Paxson report obtaining similar results when younger women were included in their samples. In Figure 7 we present evidence for a sample of women aged 15 to 64, and the resulting pattern is just as much at odds with the Mammen-Paxson OLS estimate as the pattern evident in Figure 6. Moreover, the observed pattern of participation rates is quite similar to the pattern that obtains using data for women aged 46 to 59.

Figure 8.

CHL=Chile,CRI=Costa Rica,URY=Uruguay

Percent of females aged 46-59 in the labor force---1983-1999
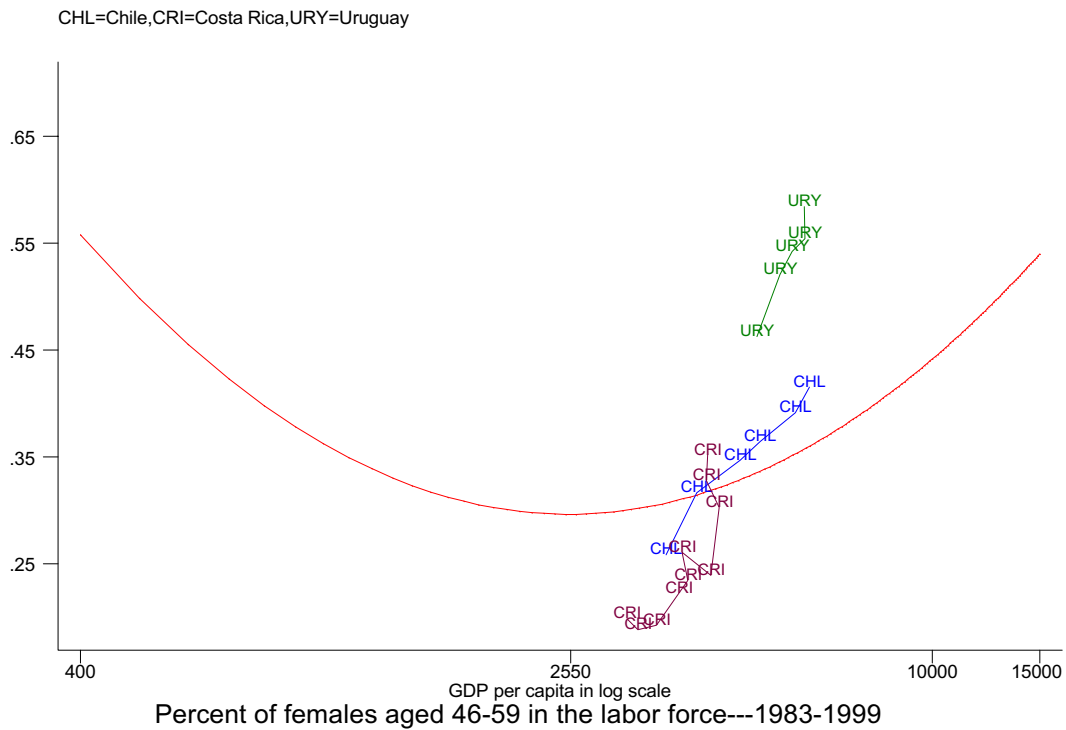
The Singh-Goldin hypothesis predicts an initial decline followed by a rise in labor force participation rates as GDP per capita grows. We examine this issue by plotting the labor force participation rate of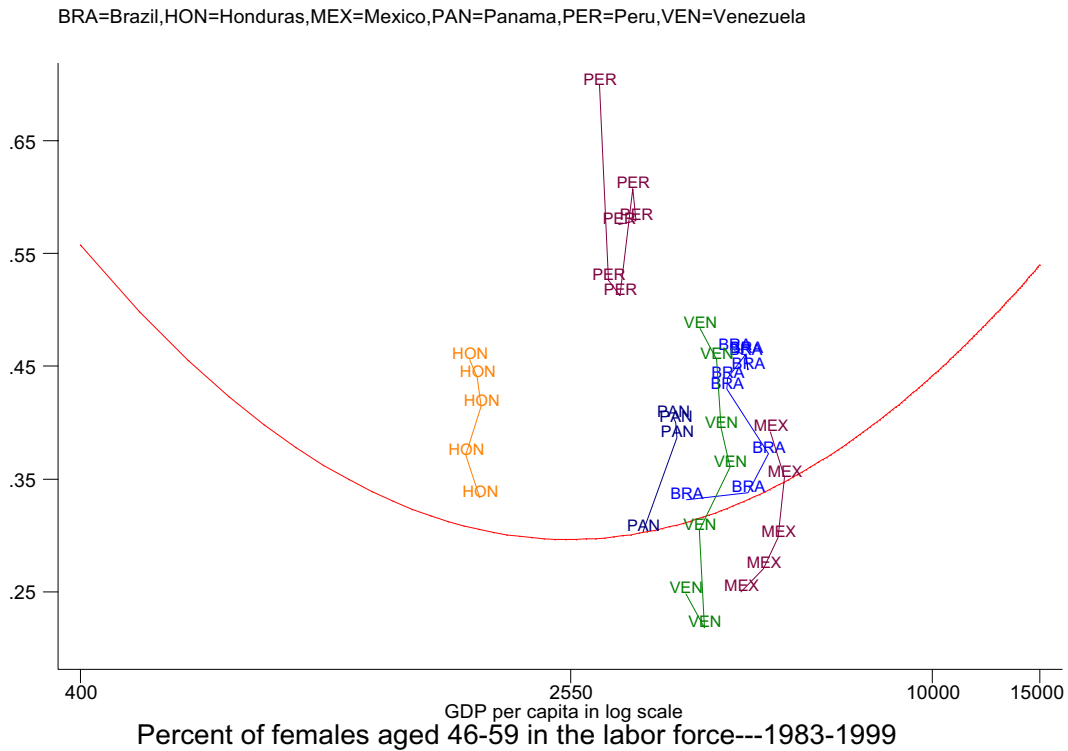 women aged 46 to 59 over time for the countries for which we have several surveys spanning sometimes as much as two decades. In Figure 8 we find that in only two cases, Chile and Uruguay, the path followed by participation rates over time clearly suggests increasing participation alongside rising GDP per capita. (Though it is only Chile that shows a path and a *level* of participation that is in agreement with the Mammen-Paxson estimate.) In the case of Costa Rica, the very substantial increase in participation rates observed was accompanied by a modest rise in GDP per capita. But, these three countries are unusual. In Figure 9 we graph the data for the remaining countries, and the pattern that emerges is common to all countries and quite different to the pattern seen in Figure 8.

Figure 9.

BRA=Brazil,HON=Honduras,MEX=Mexico,PAN=Panama,PER=Peru,VEN=Venezuela

Percent of females aged 46-59 in the labor force---1983-1999

The next group of countries, Honduras, Peru, Panama, Brazil, Mexico and Venezuela, share roughly the same behavior of participation rates over time: steady increases that were not accompanied by increases in GDP per capita. Clearly, the forces at work in the Singh-Goldin hypothesis cannot explain the increases in participation rates in these countries, that often exceed 20 percentage points inside of two decades, fully or partly.

III. Rising Labor Force Participation in the Absence of Economic Growth: What Are the Forces Behind the Trend?

Decisions on the allocation of time between home, school, and the labor market are a function of the relative values of these alternatives to individuals. Assuming that a woman's time can be allocated to the labor market, the home, or school, a change in her labor force participation must be accompanied by a corresponding change in the time she devotes to the household and/or to schooling. Likewise, if a country experiences an expansion of secondary and post secondary schooling, a fraction of young women that would otherwise have been at home or in the labor force would stay in the school system, causing some reduction in labor force participation. If the labor market becomes very tight due to an acceleration of economic growth –as we saw in East Asia in the 1980's – female wages increase drawing more women into the labor force. If a country establishes a generous social security system, some of the women that would have continued working might retire, resulting in a reduction in labor force participation. If farm employment is more of a complement to household work than is a job in the city, growth in the urban population relative to the rural population is likely accompanied by a reduction in female labor force participation.

A different relationship exists between earlier choices –such as completed schooling or the number of young children in the household—and contemporaneous labor force participation. This relationship arises through the link between the relative values of time allocated to the market and the household. For example, if an increase in schooling results in an increase in a woman's market wage relative to the value of her time in the household, then the likelihood of her joining the labor force will increase, or the number of hours of work –had she been in the labor force—are likely to expand. If an exogenous shock increases women's control over their fertility, as it was the case with the introduction of the "pill"[2], the number of children born to a woman will typically fall, causing a likely increase in female labor force participation.

---

[2] In "Career and Marriage in the Age of the Pill" - *American Economic Review, Papers & Proceedings* (May 2000), Claudia Goldin and Lawrence F. Katz use demographic data to document that the federal approval of the Pill spurred women to pour into professional schools, postpone marriage, and sharply

Aggregate female labor force participation reflects the decisions of the entire population. Thus, it is natural to attempt to link this aggregate to indicators that drive changes in market wages, or the opportunity cost of household time. These include schooling, urbanization, and total fertility.

A positive relationship between completed schooling and female labor force participation is expected at the theoretical level, and has been measured at the aggregate and micro levels. Additional schooling increases expected wages, increasing the opportunity cost of time allocated to the household. In addition, economic theory predicts that at higher schooling levels, desired fertility rates will be lower. Assuming that the cost of controlling fertility is negligible, an increase in schooling will increase the likelihood of participation in paid employment. Cross-country studies have shown that where schooling levels are higher, and where fertility rates are lower, female labor force participation is higher. Micro data analysis has shown that the probability of a woman's participation in the labor force rises with her level of schooling, and falls with the number of young children living at her home, holding other variables constant.

III. A. Relationship between Schooling and Labor Force Participation

In this section we examine the link between schooling and labor force participation rates in the LAC region during the 1990's, in an attempt to establish how much of the observed increase in participation is due to the higher levels of schooling of women.

We report the simple average of labor force participation rates across 18 LAC countries by schooling levels in Figure 10. The averages correspond to women aged 30 to 45 who reside in urban areas. In the late 1990's labor force participation is roughly 55 percent for women aged 30 to 45 who have less than secondary schooling, it is 60 percent for women with some secondary schooling, it is 65 percent for women with complete

---

reduce their fertility. The effect, which took years to arrive after the Pill's approval by the Food and Drug Administration in 1960, was nevertheless powerful. Thus, "young women's control over their fertility directly reduced the costs to them of engaging in long-term career investments."

secondary schooling, and it is more than 80 percent for women with post secondary schooling.

Figure 10

Labor Force Participation by Schooling Level in LAC
Urban Women Ages 30-45
Average of 18 Countries, Late 1990s
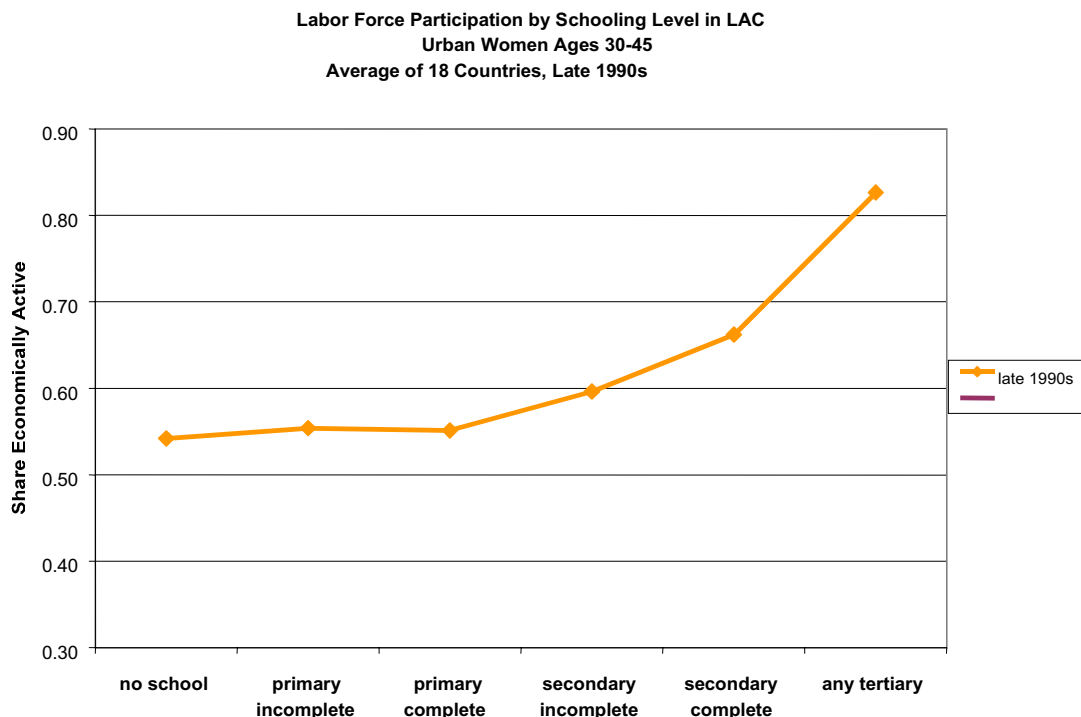
The averages reported in Figure 10 mask considerable variation across countries. As seen in Figure 11, women in Uruguay, Brazil and Venezuela have generally higher levels of labor force participation than their urban counterparts in Argentina, Chile and Costa Rica. For example, urban women aged 30 to 45 who have completed some tertiary education in Uruguay have participation rates that are 20 percentage points higher than their Argentine counterparts. Uruguayan women who have completed primary schooling have participation rates that are 12 percentage points higher than have women in Argentina.

There is also dispersion between countries in how secondary schooling correlates with female labor force participation. In Uruguay, Brazil and Venezuela, completed

secondary schooling draws women into the labor market: completing secondary school is associated with a 15-percentage point increase in labor force participation. Figure 11 shows that the secondary degree does not translate into large increases in participation rates for countries such as Costa Rica, Chile, and Argentina. For example, Argentinian urban women aged 30 to 45 who have completed secondary school have labor force participation rates that are only 7 percentage points higher than the rates of women who have completed primary school. The schooling-participation gradient is even flatter in Costa Rica. The fact that secondary school does not translate into high participation rates for women may reflect conditions particular to the Argentine, Chilean and Costa Rican labor markets. It may also reflect a different cultural context for middle-class women. Lastly, perhaps the participation rates in Uruguay differ from those in Argentina and Chile because in Uruguay access to social security benefits is strictly based of documented work experience.

Figure 11: Labor Force Participation Rates of Urban Women Aged 30 to 45, by Schooling Level (Six Countries).

Schooling Level and Participation Rates, Urban Women Ages 30-45
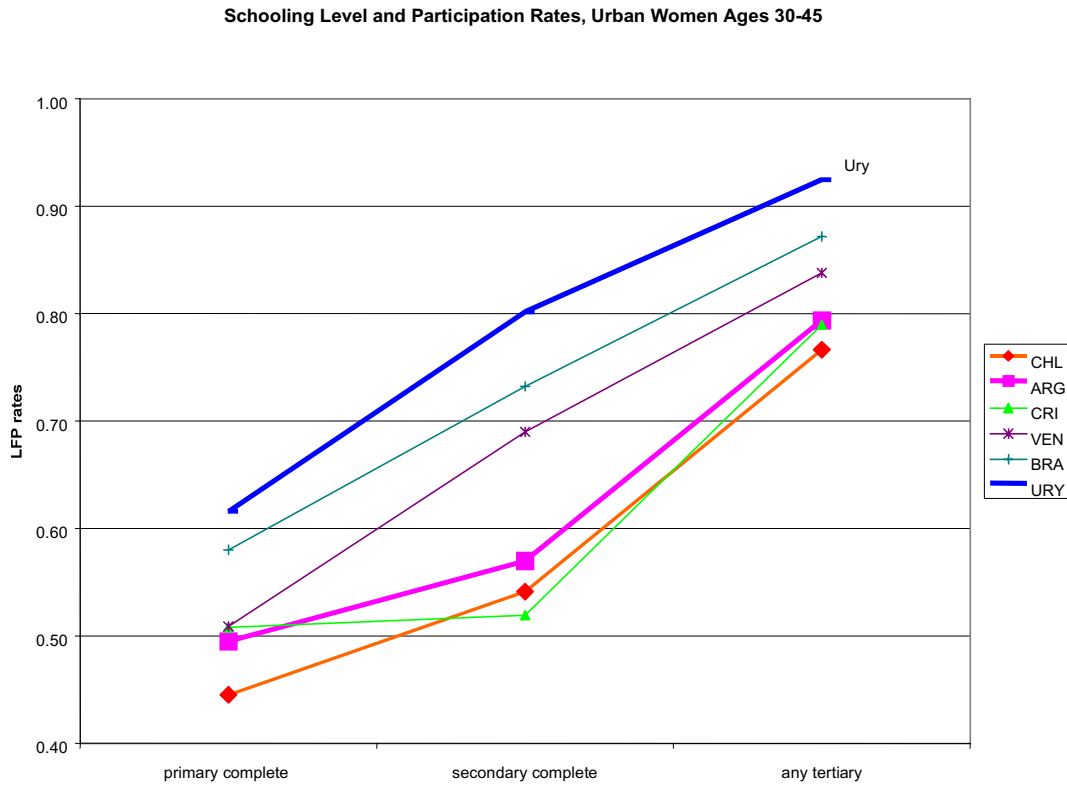
There is ample evidence that participation rates are higher among women with complete secondary schooling. To establish the magnitude of the change in the schooling composition of the working age population in the LAC region during the 1990's, and gauge its contribution to the rise in participation rates, we report a decomposition of the increase in participation rates in Table 3.

Table 3 : Decomposition of the Change in Labor Force Participation Rates of Women
(Selected Countries).

Women Aged 30 to 45 in Urban Areas.

Country	Participation in early 90's	Participation in late 90's	Changes in schooling composition weighted by each group's participation rate in the early 90's	Within schooling group change in participation rates weighted by schooling composition in the early 90's	Interaction	Change in participation from early 90's to late 90's
						(2) – (1) =
	(1)	(2)	(3)	(4)	(5)	(3) + (4) + (5)
BOLIVIA	0.6130	0.6578	-0.0016	0.0525	-0.0060	0.0448
BRAZIL	0.5981	0.6519	0.0131	0.0401	0.0007	0.0538
CHILE	0.4776	0.5437	0.0259	0.0436	-0.0033	0.0661
COLOMBIA	0.6409	0.7158	0.0137	0.0637	-0.0025	0.0749
COSTA RICA	0.5110	0.5913	0.0194	0.0630	-0.0021	0.0803
HONDURAS	0.5690	0.6677	-0.0122	0.1018	0.0091	0.0987
PANAMA	0.6161	0.6410	0.0283	0.0042	-0.0075	0.0249
URUGUAY	0.7038	0.7396	0.0216	0.0147	-0.0006	0.0357
Average	0.5912	0.6511	0.0135	0.0479	-0.0015	0.0599

Table 3 :   (Continued)

All Women Aged 45 to 59

Country	Participation in early 90's	Participation in late 90's	Decomposition of Change in Labor Force Participation Rates			Change in participation from early 90's to late 90's
			Changes in schooling composition weighted by each group's participation rate in the early 90's	Within schooling group change in participation rates weighted by schooling composition in the early 90's	Interaction	
	(1)	(2)	(3)	(4)	(5)	(2) – (1) = (3) + (4) + (5)
BRAZIL	0.4393	0.4914	0.0117	0.0382	0.0021	0.0520
CHILE	0.3455	0.4115	0.0539 **??**	0.0284	-0.0162	0.0660
COLOMBIA	0.3624	0.4498	0.0241	0.0646	-0.0013	0.0874
COSTA RICA	0.2374	0.3499	0.0192	0.0922	0.0012	0.1126
HONDURAS	0.3712	0.5107	0.0159	0.1265	-0.0029	0.1395
PANAMA	0.3031	0.4133	0.0320	0.0761	0.0022	0.1102
URUGUAY	0.5179	0.5835	0.0220	0.0427	0.0008	0.0656
VENEZUELA	0.3515	0.4790	0.0285	0.0949	0.0041	0.1276
Average	0.3660	0.4611	0.0259	0.0704	-0.0012	0.0951

As seen in Table 3, the average increase in female labor force participation rates varies by age group. Average participation rose from 59 to 65 percent, or 6 percentage points among urban women aged 30 to 45. A small fraction of this increase can be explained by the change in the schooling composition of the female working age population, and the bulk of it is explained by changes in participation rates within schooling groups. The corresponding decomposition for women aged 45 to 59 is shown in the bottom panel of Table 3. Their participation rates rose by 9.5 percentage points, starting from a much lower participation rate equal to 37 percent. Once again, the bulk of the explanation for this change is the fast expansion in participation rates within schooling groups.

Note that participation rates within schooling groups have increased relatively more for the less schooled. In Figure 12 we graph the same schooling-participation relationship shown in Figure 11 for the late 1990's, while this time we add the early 1990's for

comparison. Clearly, the shift in the participation function is not parallel; the shift is more pronounced at lower levels of schooling. These findings lead us to search for other potential explanatory forces behind the expansion of female labor force participation in the 1990's. Section IIIB examines the evidence on market wages, and section IIIC looks at fertility.

Figure 12: Labor Force Participation by Schooling Level in LAC Countries, Average of 18 Countries

Labor Force Participation by Schooling Level in LAC
Urban Women Ages 30-45
Average of 18 Countries, Early and Late 1990s
Less Educated Women Have Increased Employment Rates More than Highly Ed.
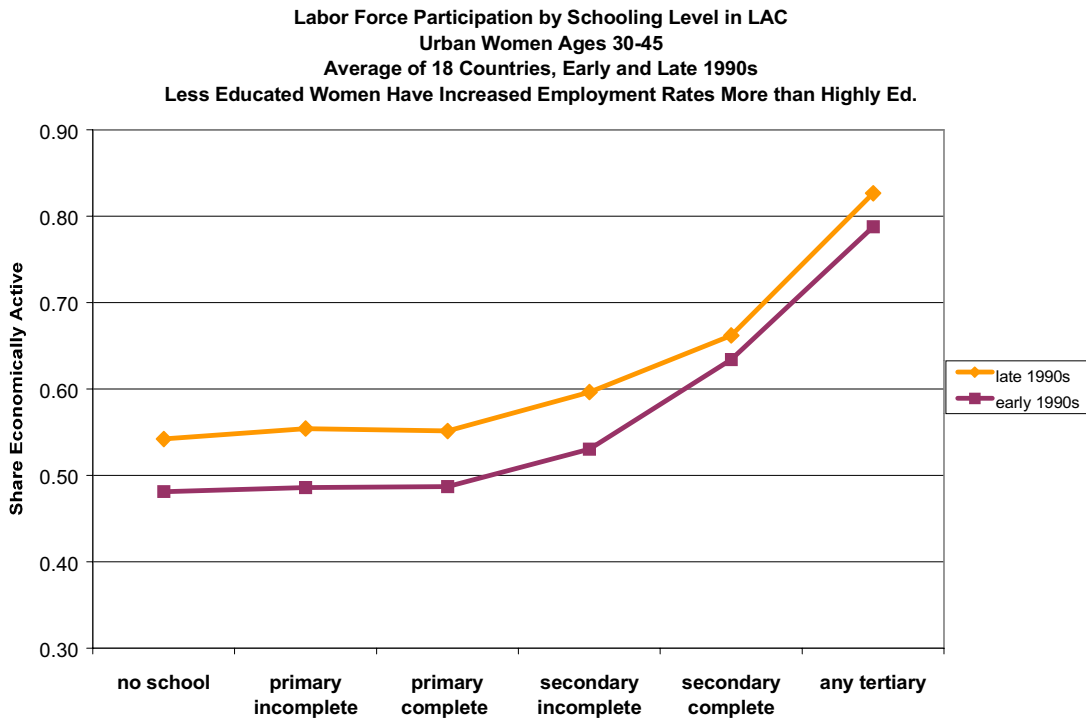
III. B Wages

For a few countries we have enough data to examine the trends in relative wages spanning two decades. This is the case for Costa Rica, Brazil, Uruguay and Venezuela. Of the fifteen countries appearing in the "snapshot" of relative wages (as seen in Section II), Costa Rica has the second highest relative wages of women aged 15 to 64, Venezuela is ranked fourth, Uruguay is ranked seventh, and Brazil is ranked ninth. This group of countries, thus, represents the middle to the top end of the distribution. It is remarkable that the trends in relative wages for the four countries so closely mirror one another. On average, unadjusted relative wages have been rising slowly but steadily for nearly two decades.

Figure 13.

Female to Male Hourly Earnings Ratio, Ages 15-64
Smoothed, Moving Average
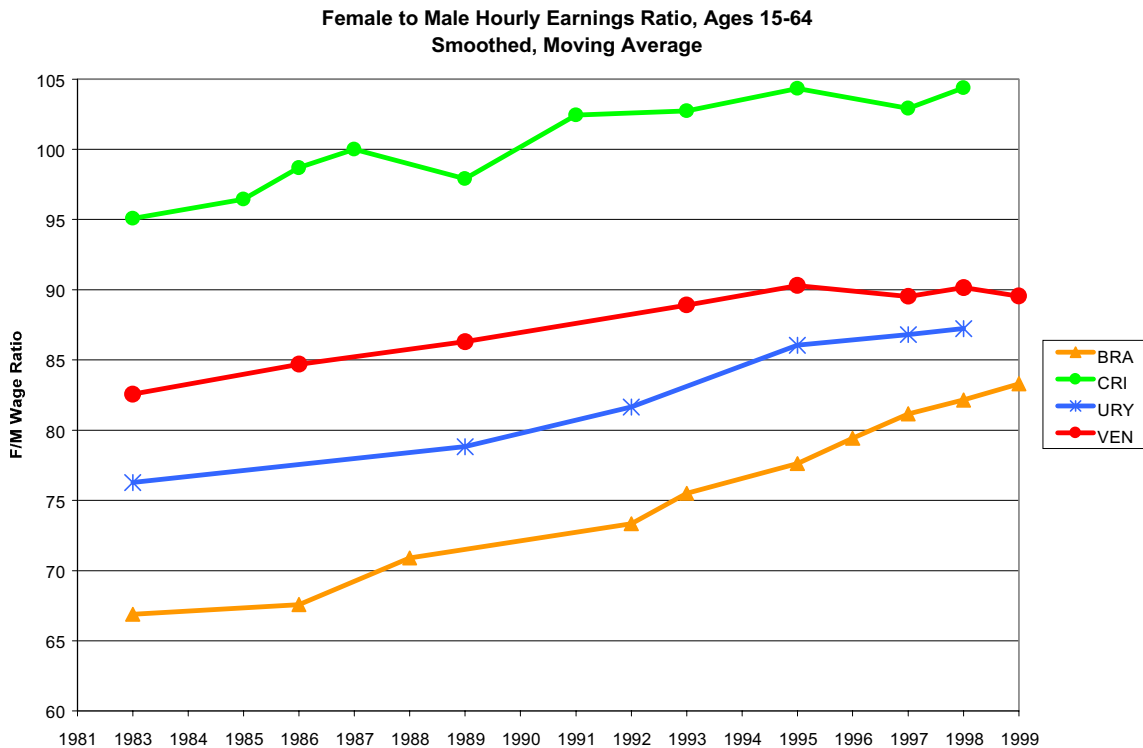
One may wonder how representative these four countries are for the region as a whole. The trends in unadjusted wage gaps for our larger sample of countries in the 1990s are visually quite noisy, especially for countries with small samples and few observations. Also, the unadjusted wages of females relative to males may be rising over time due to

compositional changes such as faster increases in the schooling attainment of female workers. We implement a two-step estimation procedure to assess the change in the wage gap after controlling for schooling and (potential) experience. Using the micro data we run log wage regressions on an indicator variable for female while simultaneously controlling for experience, experience squared and single years of completed schooling.[3] The first stage coefficients are then used as the dependent variable in a second regression in which the female wage penalty is regressed on a year trend and country fixed effects, with Brazil being the omitted country.

Table 4 Fixed Effect Regressions of Female Wage Penalty
Unbalanced Sample of Countries and Years
Dependent Variable is the Female Wage Penalty as estimated of workers 15-64
after controlling for schooling and experience

	1990s sample (N=68)			Full Sample (N=91)		
	Coef.	Std. Err.	t	Coef.	Std. Err.	t
constant	-15.071	8.562	-1.760	-15.039	3.346	-4.490
year	0.007	0.004	1.720	0.007	0.002	4.370
country						
Argentina	0.226	0.061	3.740	0.251	0.048	5.250
Bolivia	0.235	0.048	4.860	0.252	0.040	6.350
Chile	0.148	0.055	2.720	0.175	0.048	3.640
Colombia	0.166	0.045	3.680	0.192	0.038	5.010
Costa Rica	0.223	0.051	4.370	0.231	0.036	6.440
Ecuador	0.008	0.070	0.110	0.034	0.063	0.540
Guatemala	0.054	0.093	0.570	0.080	0.086	0.930
Honduras	-0.137	0.051	-2.680	-0.071	0.042	-1.690
Mexico	0.156	0.055	2.860	0.213	0.040	5.380
Nicaragua	0.248	0.070	3.550	0.274	0.063	4.340
Panama	0.079	0.051	1.560	0.108	0.042	2.600
Peru	0.259	0.051	5.090	0.276	0.042	6.620
Paraguay	0.299	0.070	4.280	0.325	0.063	5.130
El Salvador	-0.005	0.060	-0.080	0.021	0.054	0.390
Uruguay	0.115	0.054	2.110	0.129	0.041	3.110
Venezuela	0.122	0.070	1.740	0.176	0.042	4.200

Notes: The samples for Argentina and Uruguay are urban only.

---

[3]

Hourly wages from primary job is the dependent variable except for Colombia and Ecuador in which it is hourly wages from all jobs.

Table 4 shows that in the 1990's the adjusted female wage penalty was closing at a rate of nearly 1 percentage point per year, such that over the decade women's wages rose from lagging men's by 25 percent to lagging by 17 percent. While the year trend for the 1990's is significant at the 10 percent level, if we expand the sample to include the 1980's we find similar parameters, much more precisely estimated. These results suggest that women's earning opportunities in the labor force relative to men's have been steadily gaining over the decade and may have played a role in attracting women to the labor force.

III. C   The Cumulative Effect of Long Term Fertility Declines and Schooling Expansion. Is it Causing a New Division of Labor within Households?

Women's Education and Potential for GDP Growth

In the 1990's many researchers attempted to link aggregate schooling measures to national productivity and income. Using cross-country data, most found that the initial level of schooling within countries was linked to subsequent increases in national income. However not all studies showed strong links between changes in schooling levels and income growth; some even found an empirical link between increases in women's schooling and slowdowns in growth.[4]

Is it possible to reconcile the conflicting results in the relationship between schooling and countrywide productivity? There are a variety of reasons driving inconsistencies in the aggregate investigations. One is that it is extremely difficult to collect comparable measures of schooling across countries. For example, the schooling level classified as completed primary in one country may be considered completed first cycle of secondary in another country. Average levels of quality may differ widely. The resulting measurement error would bias the results from finding that aggregate measures of schooling affect income growth.[5]

---

[4] See Pritchett (1996), and Barro and Sala-i-Martin (1995).
[5] See Krueger and Lindahl (2000).

The relationship between women's activities and measured productivity may also play a role in the inconsistent aggregate findings. Since female labor supply tends to increase rapidly at high levels of schooling but not necessarily at basic levels, some of the benefits of increased schooling are not measured at lower levels of schooling. These benefits include healthier children and better-educated children, as women tend to use their productivity increases within the household even though their reservation wages in the market increase with additional schooling at low levels.[6] (Lam and Duryea, Mammen and Paxson).

Figure 14 shows the average relationship between women's labor force participation (including informal sector) and schooling levels using data for 18 LAC countries.[7] In any one period, once schooling reaches the secondary level women tend to be quickly drawn into the labor force. As shown in figure 14 many countries in the region currently have critical masses of women achieving at least some secondary school. Over the next decade as schooling levels continue to rise and women are pulled into market work, many countries in LAC are well positioned to register the higher economic productivity associated with increases in aggregate schooling levels.
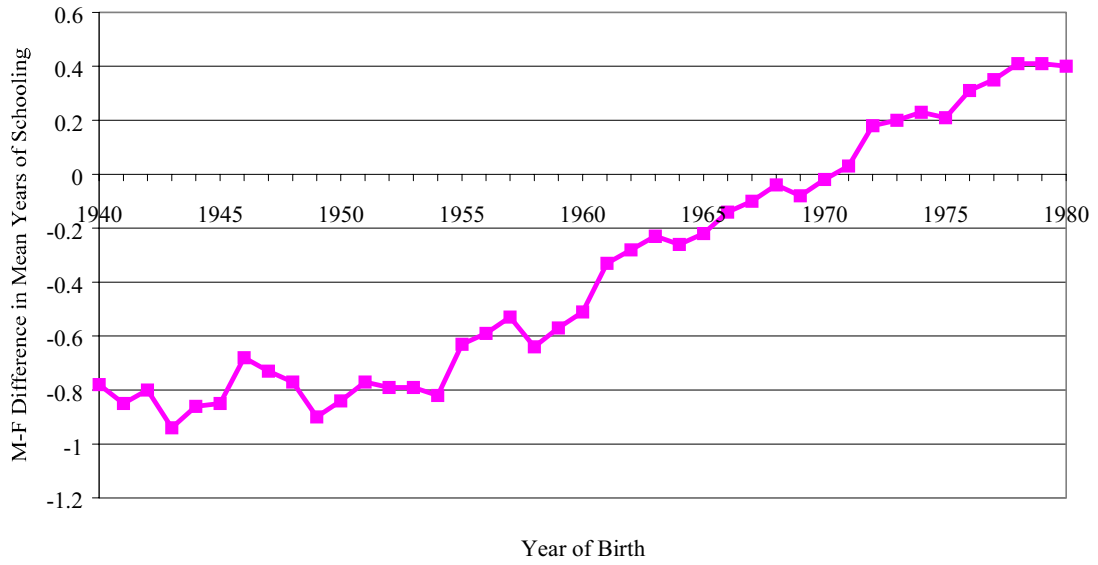
[6] See Lam and Duryea (2000), Mammen and Paxson (2000).
[7] Source: Duryea, Edwards and Ureta (2000).

Figure 14

Gender Difference in Schooling Attainment
Average of 18 LAC Countries
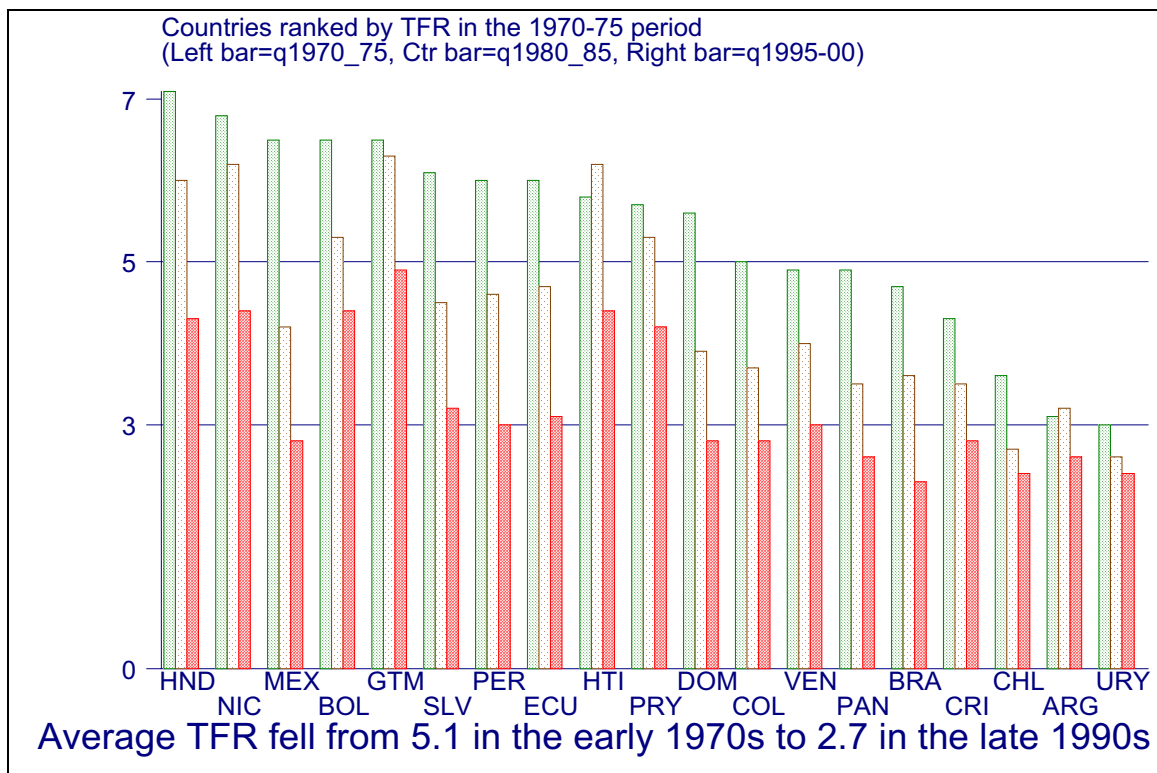Based on Household Surveys late 1990s

Year of Birth

III. D   The Cumulative Effects of Long Term Fertility Declines and Schooling Expansion.

One of the contributing factors to the fast expansion in labor force participation likely originated at the household level. Even if labor market conditions have not improved, reductions in fertility result in an expansion of available time, which can translate in increases in labor force participation.

The measured Total Fertility Rate (TFR) estimates the average number of children that would be born alive to a woman during her lifetime, if she were to bear children at each age in accordance with prevailing age-specific fertility rates. Data from the Latin American Center for Demography (CELADE) indicate there have been important reductions in the TFR for the region as a whole, and especially for some countries.   As shown in Figure 15, in the first half of the 1970's, the TFR was above 5 children, and by the second half of the 1990's it had fallen to 2.7 children. Remarkably, a close similarity in TFRs across countries emerges by the end of the period.

Demographers have been paying attention to these trends for years. In a collection edited by Guzmán, Singh, Rodriguez, and Pantelides (1996) several articles examine the forces at work behind these trends. An important fact is that in the 1950's there were only three countries in the region with a TFR below 5: Cuba (with TFR of 4.1 and 3.7 in the first and second half of the decade), and Argentina (with 3.2 and 3.1) and Uruguay (with 2.7 and 2.8).   Chile joined the low TFR group in the second half of the 1960's; Venezuela, Panama, Costa Rica, Colombia and Brazil joined in the first half of the 1970's. Mexico and the Domenican Republic joined in the second half of the 1970's; Ecuador, Peru and Paraguay joined in the early 1980's. Finally Haiti and El Salvador joined in the late 1980's.   As shown in Figure 15, by the late 1990's total fertility rates are below 5 in all countries, and in most they are below 3.

Figure 15.

Countries ranked by TFR in the 1970-75 period
(Left bar=q1970_75, Ctr bar=q1980_85, Right bar=q1995-00)

Average TFR fell from 5.1 in the early 1970s to 2.7 in the late 1990s

The reductions in TFRs have not been evenly spread across countries, regions within countries or schooling groups. In particular, urban areas started with lower TFRs and the overall reductions have been driven by the declining relative importance of rural areas along with some reduction in rural TFRs. Similarly, fertility rates were initially lower among women with post secondary schooling, and overall reductions in TFRs have been driven by the expansion of schooling and a more pronounced reduction in fertility rates among the lesser-educated groups.

The variation across groups and countries provides an opportunity to examine the most important determinants of the fertility decline using cross sectional data. Moreno and Singh (1996) state that "at the simplest level, increases in contraceptive use have accounted for the greatest decline in fertility in Latin America. By comparison, marriage patterns and breast-feeding duration have changed little in absolute terms." (pp. 113) Bongaarts and Lightbourne (1996) examined differences in desired fertility between

countries and over time. Desired fertility is measured by means of fertility surveys. For example, the US Department of Heath Services (DHS) survey asks: "If you could go back to the time you did not have any children and could choose exactly the number of children to have in your whole life, how many would that be?"   The authors conclude that most of the variation in actual fertility observed is not due to variation in the number of children wanted but instead due to differential success in controlling fertility to desired levels. The positive finding is that the extent of "unwanted fertility" has been declining in the region, particularly among the rural population and the less educated.

IV   Summary and Conclusions

Perhaps the salient development of the 1990's for women in LAC countries was the brisk-paced, secular rise in their labor force participation rates. We examine this development from several angles. We explore the Singh-Goldin-Durand hypothesis that women's work status changes with economic development. Mammen and Paxson (2000) examine this hypothesis using data for 90 countries, and find that female participation of 45-59 year olds follows a U-shaped profile, with rates rising with GDP per capita increases above $3000. We find that female participation in LAC countries does not follow the Mammen-Paxson pattern.

Next, we examine the role of schooling in explaining the increase in female labor force participation in LAC countries. We find that increases in female schooling account for 30 percent of the overall increase in female participation rates. The remaining 70percent is explained by increases in participation rates at given schooling levels. Finally, we analyze the role of wages, especially the returns to different schooling levels, as a partial explanation for the pattern of changes in labor force participation rates.

All of these findings suggest a fair degree of change in the role of women within households and in the labor market. We conclude that the macro economic picture of stagnation for LAC countries in the 1990's masks non-trivial developments in the division of labor and time allocation by gender.

References

Barro, Robert. and Xavier Sala-I-Martin (1995). Economic Growth. New York.

Bils, Mark and Peter Klenow (2000). "Does Schooling Cause Growth?", *American Economic Review*. Vol. 90.

Bongaarts, John and Robert Lightbourne (1996). "Wanted Fertility in Latin America: Trends and Differentials in Seven Countries." Chapter 12 in The Fertility Transition in Latn America edited by Guzman et all (cited).

Duryea, Suzanne, Alejandra Cox Edwards and Manuelita Ureta (2000). "Women in the LAC Labor Market." Women in Development Working Paper.

Edwards, Alejandra Cox and Judith Roberts (1992). "Macroeconomic Influences on Female Labor Force Participation: The Latin American Evidence," Estudios de Economia V20 Special Isssue on Economic Growth , June 1993.

Goldin, Claudia (1995). "The U-Shaped Female Labor Force Function in Economic Development and Economic History," in T. Paul Schultz, ed. Investment in Women's Human Capital. Chicago: University of Chicago Press.

Goldin, Claudia and Lawrence Kats (2000). "Career and Marriage in the Age of the Pill," *American Economic Review: Papers & Proceedings* .May.

Guzman, Jose Miguel, Sisheela Singh, German Rodriguez, and Edith Pantelides (1996) The Fertility Transition in Latn America Oxford: Clarendon Press.

Krueger, Alan and Mikael Lindahl (2000). "Education for Growth: Why and For Whom", NBER Working Paper No. W7591.

Lam, David and Suzanne Duryea. (1999). "Effects of Schooling on Fertility, Labor Supply, and Investments in Children, With Evidence from Brazil," *Journal of Human Resources*.

Leon, Francisco (2000): "Mujer y trabajo en las reformas estructurales latinoamericanas durante las décadas de 1980 y 1990" CEPAL

Mammen, Kristin and Christina Paxson (2000). "Women's Work and Economic Development", *Journal of Economic Perspectives*, Vol. 14. Fall.

Moreno, Lorenzo and Susheela Singh (1996). "Fertility Decline and Changes in Proximate Determinants in the Latin American and Caribbean Regions." Chapter 6 in The Fertility Transition in Latn America edited by Guzman et all (app. cited).

Pritchett, Lant (1996). "Where Has All the Education Gone," World Bank Policy Research Department Working Paper 1581.

Psacharapoulos, George and Zafiris Tzannatos (1992). <u>Women's Emploment and Pay in Latin America</u>. Overview and Methodology. World Bank Regional and Sectoral Studies

Singh, J.N. (1967). "Dynamics of Female Participation in Economic Activity in a Developing Economy," in <u>Proceedings of the World Population Conference</u>. United Nations.

Table A1: After a decade of stagnation in the 1980s and a mild recovery in the 1990s,
average GDP pc grows by half a point per year between 1980 and 1998

Country	1980-89	1990-98	1980-98
ARG	0.00%	3.41%	0.84%
BHS	3.21%	-1.64%	0.00%
BLZ	0.00%	0.00%	2.89%
BOL		1.14%	0.00%*
BRA	0.00%	1.13%	0.00%
BRB			
CHL	3.04%	5.73%	4.80%
COL	2.35%	0.00%	0.00%
CRI	0.00%	1.20%	1.44%
DOM	2.16%	2.94%	1.59%
ECU	0.00%	0.00%	0.47%
GTM	0.00%	0.00%	0.00%
GUY	-2.64%	4.83%	0.00%
HND	0.00%	0.00%	0.00%
HTI	0.00%	-4.33%	-2.74%
JAM	0.00%	-1.22%	1.07%
MEX	0.00%	0.00%	0.43%
NIC	-2.86%	1.01%	-1.56%
PAN	0.00%	1.96%	0.78%
PER	0.00%	3.09%	0.00%
PRY	0.00%	0.00%	0.00%
SLV	0.00%	2.45%	1.52%
SUR			
TTO	-1.94%	0.00%	-0.72%
URY	0.00%	2.60%	1.70%
VEN	0.00%	0.00%	0.00%
REGION'S AVERAGE	0.14%	1.01%	0.52%

* based on eleven years of data.
Note: Estimates are based on GDPpc figures estimated by the IDB in dollars, and deflated by the US GDP
deflator (Chain Index). Growth rates were estimated by fitting a regression to the log of real GDP per
capita. If coefficients were non significantly different from zero, we report a best estimate of zero.

DAVIDSON INSTITUTE WORKING PAPER SERIES - Most Recent Papers

The entire Working Paper Series may be downloaded free of charge at: www.wdi.bus.umich.edu

CURRENT AS OF 9/23/02

Publication	Authors	Date
No. 500: Women in the LAC Labor Market: The Remarkable 1990's	Suzanne Duryea, Alejandra Cox Edwards and Manuelita Ureta	June 2001
No. 499: Human Capital, Growth and Inequality in Transition Economies	Michael Spagat	July 2002
No. 498: Understanding Czech Long-Term Unemployment	Štěpán Jurajda and Daniel Münich	Aug. 2002
No. 497: Rent Seeking and Government Ownership of Firms: An Application to China's Township-Village Enterprises	Jiahua Che	Sep. 2002
No. 496: Labor Market Flexibility in Central and East Europe	Jan Svejnar	Aug. 2002
No. 495: When Information Dominates Comparison: A Panel Data Analysis Using Russian Subjective Data	Claudia Senik	May 2002
No. 494: Corruption and Cross-Border Investment: Firm Level Evidence	Beata K. Smarzynska and Shang-Jin Wei	Aug. 2002
No. 493: Modeling Sequences of Long Memory Positive Weakly Stationary Random Variables	Dmitri Koulikov	Aug. 2002
No. 492: Effects of Ownership and Financial Status on Corporate Environmental Performance	Dietrich Earnhart and Lubomír Lízal	Aug. 2002
No. 491: Does Economic Uncertainty Have an Impact on Decisions to Bear Children? Evidence from Eastern Germany	Sumon Kumar Bhaumik and Jeffrey B. Nugent	July 2002
No. 490: The Reallocation of Workers and Jobs in Russian Industry: New Evidence on Measures and Determinants	J. David Brown and John S. Earle	Aug. 2002
No. 489: The Incidence and Cost of Job Loss in a Transition Economy: Displaced Workers in Estonia, 1989-1999	Hartmut Lehmann, Kaia Phillips and Jonathan Wadsworth	Aug. 2002
No. 488: Integration: An Empirical Assessment of Russia	Daniel Berkowitz and David N. DeJong	Feb. 2002
No. 487: Dual Inflation under the Currency Board: The challenges of Bulgarian EU accession	Nikolay Nenovsky and Kalina Dimitrova	July 2002
No. 486: Worker Flows, Job Flows and Firm Wage Policies: An Analysis of Slovenia	John Haltiwanger and Milan Vodopivec	July 2002
No. 485: Do Schumpeterian Waves of Creative Destruction Lead to Higher Productivity? Panel Data Evidence from Poland	Frederic Warzynski	July 2002
No. 484: Labor Market Institutions and Restructuring: Evidence from Regulated and Unregulated Labor Markets in Brazil	Jasper Hoek	July 2002
No. 483: The Balassa-Samuelson effect in Central and Eastern Europe: Myth or reality?	Balázs Égert, Imed Drine, Kirsten Lommatzsch and Christophe Rault	July 2002
No. 482: Real Exchange Rates in Transition Economies	Boštjan Jazbec	July 2002
No. 481: Labor Force Participation Dynamics in the Romanian Labor Market	Alexandru Voicu	July 2002
No. 480: Equilibrium Real Exchange Rates in Central Europe's Transition Economies: Knocking on Heaven's Door	Balázs Égert	July 2002
No. 479: The Impact of Minimum Wages on Wage Inequality and Employment in the Formal and Informal Sector in Costa Rica	Fatma El-Hamidi and Katherine Terrell	Apr. 2001
No. 478: Beyond Oaxaca -Blinder: Accounting for Differences in Household Income Distributions	François Bourguignon, Francisco H. G. Ferreira and Phillippe G. Leite	Feb. 2002
No. 477: Participation Behavior of East German Women after German Unification	Holger Bonin and Rob Euwals	July 2002
No. 476: Duration and Risk of Unemployment in Argentina	Sebastian Galiani and Hugo A. Hopenhayn	Oct. 2001