Women at Work

Challenges for Latin America

CLAUDIA PIRAS, Editor

INTER-AMERICAN DEVELOPMENT BANK

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Challenges
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Claudia Piras
Editor

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The views and opinions expressed in this publication are those of the authors and do not necessarily reflect the official position of the Inter-American Development Bank.

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Foreword

The 10th anniversary of the Beijing Conference, to be celebrated in 2005, offers a unique opportunity to reflect on the achievements of Latin American women and the challenges still facing them in an area that is critical both to their individual development and to the development of the region as a whole; that is, their participation in the labor market. This book addresses the subject by focusing on the impact of globalization on women's work, the evolution of gender wage gaps and occupational segregation, and the inequalities that persist regarding social protection and pension systems.

Over the last few decades, women have entered the labor market in massive numbers, reaching participation rates of 50 percent. In the midst of the gloomy labor landscape that Latin America experienced during the 1990s, women's successes are particularly encouraging. But despite the good news, this book offers empirical evidence demonstrating that women still face considerable labor insertion problems. They are at a disadvantage in the job market in terms of salaries, social insurance, labor protection instruments, unemployment, occupational segregation, and leadership positions in the business world.

Latin America is currently in the process of transforming its productive structures to increase its competitiveness in international markets. In order to do that, it is crucial that the economies of the region use their human capital in an efficient manner. Nowadays women tend to be better educated than men, and yet the region is not making the most of their talents and potentials. In this sense, women's accomplishments in terms of their capabilities and their readiness to work must be supported through public policies that facilitate their increasing responsibilities concerning their productive role and encourage their participation through equal remuneration for their work.

The IDB has a long-standing commitment to advancing the economic, social, and political status of women in Latin America and the Caribbean. This book builds upon the knowledge developed over the years in

the area of labor markets and gender. The task ahead is to sustain the expansion of opportunities, particularly for poor, indigenous, and Afro-descendant women, through higher participation in the labor market on a more equal basis.

We hope that this volume will constitute a useful reference material for policymakers, researchers, and activists interested in improving the work situation of Latin American women, and their contribution to economic development.

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Introduction

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An Overview of the Challenges and Policy Issues Facing Women in the Labor Force

Claudia Piras

Initial versions of some of the chapters in this volume were presented at the seminar "Women at Work: A Challenge for Development," held in Santiago, Chile, in March 2001 in conjunction with the Inter-American Development Bank's Annual Meeting of the Board of Governors. The purpose of the seminar was to review the progress achieved by women in the labor market as well as challenges facing the Region of the Americas. The seminar explored ways of expanding economic opportunities for women, especially those from disadvantaged groups, such as youths, indigenous and Afro-descendant populations, and the poor. The IDB supports renewed debate on this subject as part of its broader initiative to promote social inclusion in Latin America and the Caribbean.

The chapters focus on a set of topics deemed to be particularly relevant in the current debate in the region about women's successes and challenges in the labor market. Most chapters include policy recommendations related to these topics. The first section of the book presents an overview of how much and in what conditions Latin American and Caribbean women are participating in the labor market. The second sec-

tion focuses on two of the challenges that women continue to face as they enter the labor market: gender wage gaps and occupational segregation. The final chapters provide an analysis of gender inequities in the informal economy and in the pension and social protection systems in Latin America. Rapid growth in female labor participation over the last two decades in the region makes the revision of these social institutions imperative.

What is happening to labor markets in Latin America and the Caribbean?[1]

To understand the significance of the changes that women have experienced in the world of work it is necessary to keep in mind the wider context. The 1990s can be characterized in Latin America and the Caribbean by moderate GDP growth and stagnant per capita GDP. In general, labor market outcomes have been disappointing. Not incidentally, labor market concerns have been at the top of the list in public opinion surveys across the region.

Labor markets have been affected by trade liberalization, although probably not to the degree that its promoters and critics expected. Trade and financial reforms generated sectoral reallocation of output and employment, but to a limited extent. The region has experienced a reduction in the share of manufacturing in total employment and an increase in the share of services. Several countries saw a reduction in public sector employment due to public administration downsizing and privatization of public services.

Overall, employment performance was weak during the 1990s. While participation rates increased for most groups of workers, particularly for women, slow economic growth meant a limited capacity to absorb the extraordinary increase in new workers. Nevertheless, female employment rates increased by 5 percentage points during the decade. In contrast, employment opportunities fell for older workers, particularly males.

The outlook regarding unemployment in Latin America and the Caribbean for the 1990s was bleak. Open urban unemployment became an acute problem in many countries. Since most workers in the region are

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[1] This section draws on Duryea, Jaramillo, and Pagés (2003), Saavedra (2003), and the Inter-American Development Bank (2004).

not covered by unemployment insurance, the welfare costs borne by the unemployed were very high.

Beyond the problem of rising unemployment, perhaps the most troubling development of the last decade has been the increase in the share of low quality jobs, both in the formal and informal sectors of the economy. There has been an increase in labor turnover and in the proportion of workers on temporary contracts, even for prime age male workers. Wages have remained virtually stagnant because labor growth productivity over the decade was almost zero. In terms of the distribution of labor income, another unexpected consequence of trade liberalization was the widening gap between wages for skilled and unskilled workers.

Among the few positive stylized facts that have characterized the evolution of Latin American labor markets during the past decade are the steady increase in female labor force participation and the closing gap between male and female wages. Both are significant factors for women economic empowerment.

By and large, workers have been subject to increased turnover and higher unemployment coupled with reduced social benefits and stagnant wages: the perfect recipe for economic insecurity. These issues are paramount in the discussion of the progress made and the challenges remaining for working women in the region.

What is the significance of women's insertion into paid employment?

From a macroeconomic point of view, bringing more women into the labor force is a positive development. It raises the quality of labor, which is drawn out of a larger pool of available workers, increasing productivity and growth. It also means more people are paying taxes. There are also significant microeconomic implications for the household, starting with higher spending power and increased financial security, but also regarding decisions about expenditures and time allocation of different family members, including children.

In the context of economic development, what is most relevant about women's paid work is its potential impact on poverty reduction. Increased employment opportunities for women have direct benefits for their own well-being and that of their household through higher income. In fact, during the 1990s, the main difference between the average Latin American family living below the poverty line and those living above it was women's labor force participation (IDB 1998). But what seems to be even

more significant from a public policy perspective is the effect that the income share controlled by women has on the resource allocation decisions within the household. By increasing expenditures on education, nutrition, and clothing, women's economic empowerment can raise the returns on investments in social infrastructure and in human capital of other family members, particularly children. Higher levels of employment and earnings for women thus contribute not only to current economic growth, but also to future progress by helping break the intergenerational cycle of poverty.

Empirical evidence demonstrates that increasing the share of women's income in the household considerably improves family and social welfare, given the likelihood that women will invest relatively more in children's human capital than their male counterparts (Thomas 1991, Handa 1994). In a study done in Brazil, Thomas and Strauss (1997) shows that more income under the control of women leads to greater health and nutrition expenditures. Increasing women's earnings and share of family income has also been shown to empower women by strengthening their bargaining power in the household. Quisumbing and Maluccio (2000) studied the asset position of women in Bangladesh, Ethiopia, Indonesia, and South Africa, and suggest that assets controlled by women have a positive and significant effect on expenditure allocations for the next generation, such as education and children's clothing. Engle (1993) found that a higher percentage of the family income earned by women in Guatemala was strongly associated with children's nutritional status. Similarly, Buvinic (1998) found that poor adolescent mothers in Chile who worked for pay and contributed to household income appear to have better nourished children than those who do not work. A growing number of social protection programs in Latin America are being designed based on this growing body of evidence that relates basic budget outlays to the asset or income share of women. A clear example is the new generation of conditional cash transfer programs in the region, which are being delivered directly to mothers.

Women's employment already plays a very important role in income generation at the household level. Analysis of household survey data for 18 countries reveals that at the end of the 1990s women were contributing, on average, 35 percent of household labor income in Latin America and the Caribbean. However, when we restrict the analysis to those households with at least one working woman over age 18, the share of household income earned by women soars to 53 percent. During the 1990s the trend shows a persistent increase in the economic contribution of women, as discussed in Chapter 2. Women's earnings are especially im-

portant for the growing number of female-headed households. As Figure 1.1 shows, according to an exercise done by ECLAC based on household surveys, without the income contribution of female spouses, the percentage of two-parent households below the poverty line would have increased between 5 and 19 percent.

Another important benefit from increased female labor supply is the enhanced financial security for the household. Having more family members participating in the labor market is an effective strategy to hedge against household income risk. This is particularly relevant in Latin America, where institutional mechanisms to protect workers against income risks cover only a minority of the working force.

Beyond its economic impact, access to paid work has also brought about other changes in gender relations. Women's work has altered perceptions, such as the value given to women by other members of the

FIGURE 1.1

Poverty in Two-Parent Households With and Without Female Spouse's Contribution to Household Income

Source: ECLAC. Women and Development Unit, based on tabulations of household surveys.
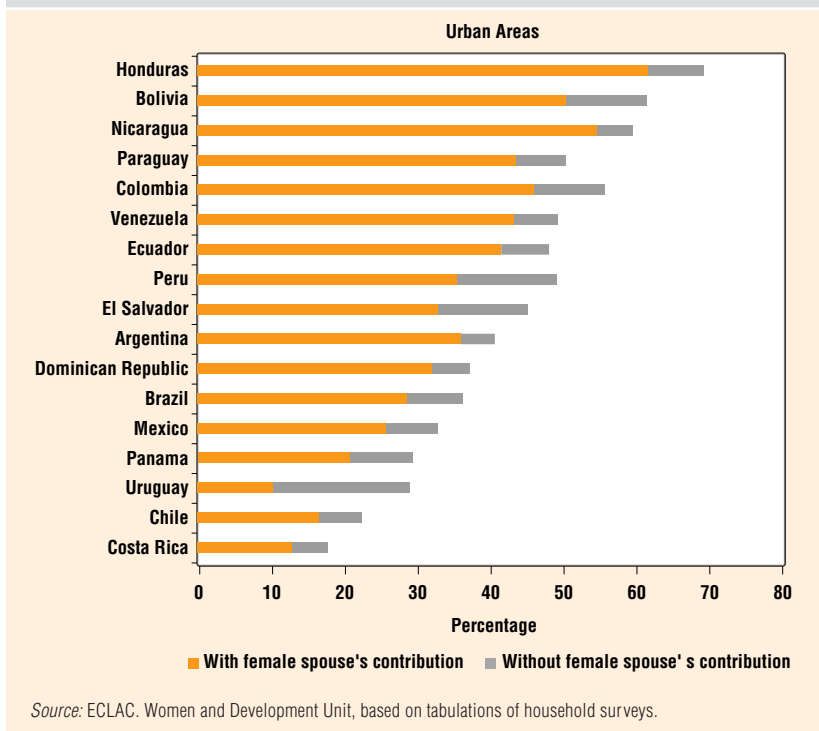
household or community, and most important, their own sense of self-respect, independence, and dignity. By contributing more economic resources, women have a greater say in household decision-making. In addition, by having responsibilities away from the household, women have gained freedom and opportunities to socialize and they are able to have a life apart from family. Economic empowerment has also allowed women to make various strategic life choices, such as postponing the age of marriage and childbearing. Finally, women's choice to work for pay has enabled them to leave abusive husbands or renegotiate the terms of their marriage.

Despite these positive aspects of female participation in the labor market, not enough attention has been given to the fact that women continue to bear the greatest responsibility for child rearing, caregiving, and chores in the home. These gender-defined roles, discussed by Benería in Chapter 3 and Lund in Chapter 7, are deep-rooted ones, and shape the choices women make about seeking and continuing with paid employment.

What explains the rapid increase in women's participation in the labor force?

The proportion of women in the workforce has grown steadily in the last three decades in Latin America and the Caribbean. Several factors explain such a dramatic change in women's economic participation. Education is one of the most important driving forces behind women's rising participation rates. Higher education attainment increases expected wages, raising the opportunity cost of women's time allocated to the household. As several studies point out, with some important exceptions, women in the region have closed the gender gap in schooling. Relative educational attainment has changed dramatically since 1960. In 13 countries analyzed by Duryea and Szekely (1998), women have made larger gains than men. In half of these countries, the gain for women over a 30 year period was a year or more than the gain for men. What is most remarkable about the educational progress of young women is not only has the advantage of men over women been eliminated throughout the region, but with few exceptions, women now attain higher mean levels of schooling than men. Higher educational attainment provides young women the skills and knowledge base that the labor market requires, but perhaps even more valuable is the increasing sense of empowerment and self-esteem that allows women to take on productive roles. Particularly

in those countries where women's retention rate at the secondary school level and enrollment in tertiary level education are higher than for men, social roles for women ought to be changing.

However, despite the significance that rising levels of education for women has in its own right, increases in female schooling account for only 30 percent of the overall increase in female labor participation rates during the 1990s, as discussed by Duryea, Edwards, and Ureta in Chapter 2. Apart from schooling progress, there are other factors that have driven the sustained increase in female participation in the work force during the past decade. Clearly, a related factor is the measurable decline in fertility rates across the region. There has also been an increase in the productivity of housework—such as access to running water or electricity—and better opportunities for women within the labor market.

But, what if instead of responding to rising opportunities women are being "pushed" into the paid labor force in an effort to supplement falling household incomes? Recent research by the IDB (2004) explores the relationship between female labor force participation and the overall economic conditions of the family in an attempt to understand whether the increase in women's labor force participation in Latin America is related to the drop in real income of their spouses in recent years. The findings suggest that although this might have been the case in Mexico, there is no evidence to support this hypothesis in Argentina or Venezuela.

Another important but often forgotten factor that explains female labor participation rates is the age structure of the population. Since women's labor participation rates increase with age (generally seen in women up to age 45), a relative change in the age composition of the population can significantly alter the aggregate participation rate. Latin America's demographic transition has meant that the region is experiencing an increase in the average age of working women, which explains at least 20 percent of the increase in female participation rates during the 1990s.

The issues and the challenges of women's employment

Although most of the literature on this subject presents the exploitative character of women's employment by multinational corporations, the reality, as the case of Chile presented in Chapter 4 shows, is rather complex. In Latin America, gender gaps in education are not only closing, but have reversed in most of the countries; there is growing income inequality among women; there is less of a wage gap between genders; and there is a relative preference for women workers in some of the

export-led sectors. However, these advances have not been sufficient to overcome the greater vulnerability of women's jobs in comparison with men's. As the following discussion illustrates, there are many issues that remain open to debate.

Increasing female labor force participation

In Latin America and the Caribbean, as in other parts of the developing and developed world, one of the most salient labor market developments during the last three decades has been the impressive growth in the proportion of women in the labor force. Female labor force participation was only 23 percent in 1970, but the share doubled over the next 30 years, reaching almost 50 percent today.[2] As seen in Figure 1.2, female labor force participation rates are still relatively low in Latin America and the Caribbean compared with other regions of the world. However, the rapid growth is indicative of some convergence toward international levels.

During the last two decades female labor force participation rates increased in all countries of the region. In the Caribbean, women's labor force participation increased 20 percent, in Central America it increased 26 percent, and in South America it grew a staggering 56 percent. In some countries, such as Venezuela, Honduras, and Mexico, women's participation rates increased 10 percent during the 1990s. Despite this significant growth, there is still a 28 percent gap between the average participation rates of men and women in the region.

The increase in paid work among women in the region is not homogeneous: the average rise in female labor force participation rates varies by age group and schooling level. Duryea, Edwards, and Ureta (Chapter 2) find that the growth in female labor force participation and employment rates is particularly important among women aged 46 to 59 and among the less educated. These authors also point to increased earning opportunities for women and declining fertility rates as factors in the expansion of female labor force participation in the 1990s.

Closing the gender gap in earnings

No one seriously disputes the existence of a gendered wage differential. There are disagreements, however, about its causes. Is it the result of

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[2] Data from household surveys documenting this trend include both formal and informal sector work for pay, but exclude women's unpaid labor in the home.

FIGURE 1.2

Female Labor Force Participation Rate, 1997–2000

Source: KLIM 2001-2002. ILO.
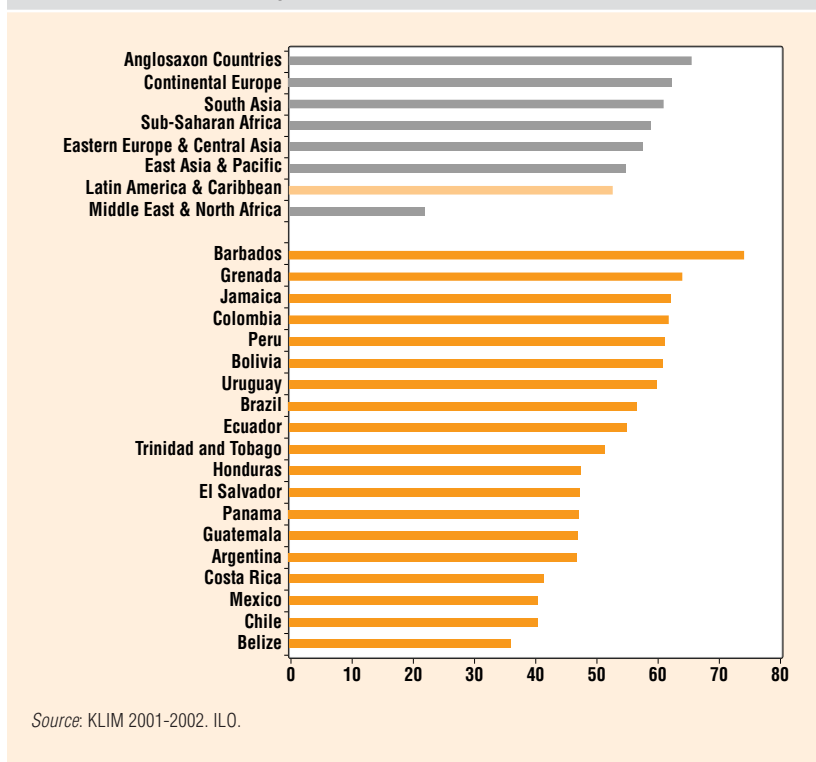
gender discrimination? Or is it the result of differences in other charac-teristics that are correlated with gender? The empirical evidence world-wide indicates that most of the male-female wage differential is due to gender-related differences in occupational choice, educational attainment, and prior work experience.

While wage gaps between men and women have narrowed over time, they persist in many countries. Compared to other developing regions in the late 1990s, women in Latin America and the Caribbean earned wages roughly comparable to those of men. According to Duryea, Jaramillo and Pagés (2003) in 15 of 18 countries the wage ratio is above 80 per-cent, and almost half the countries have wage ratios exceeding 90 per-cent. Duryea, Edwards, and Ureta in Chapter 2 document the general decline in the female wage penalty over the decade. After controlling for

the education and potential experience of workers, they find that the wage differential fell 7 percentage points over the decade, that is, the gap between women's and men's wages decreased from 25 percent to 17 percent.[3] Tenjo, Ribero, and Bernat revisit the study of gender wage gaps in six countries of the region from the early 1980s to the late 1990s in Chapter 5. By looking at the differences in *expected earnings* between men and women, the authors present a perspective rarely seen in the literature on wage gaps. Expected earnings can be interpreted as the product of employment opportunities, hourly income, and work hours. Through this novel approach we learn that there is a tendency toward the equalization of monthly incomes between men and women, but while differences in hourly incomes are decreasing, the differential in hours worked per week has been widening. Furthermore, the authors show that gaps in employment opportunities vary by country.

In the economic field, discrimination is traditionally measured by a technique known as "Oaxaca decomposition." The difference in earnings between women and men is decomposed into the shares that can be attributed to differences in characteristics and shares related to differences in returns to those characteristics. Tenjo's chapter uses this method to assess the levels, trends, and possible explanations for salary differences between men and women in Latin America. The authors find a clear tendency toward a decreased differential in hourly earnings in all countries, except Costa Rica. What may seem surprising to many is that in two of the countries studied—Argentina and Colombia—by the end of the 1990s women were earning higher hourly wages than men.

Most of the empirical literature on gender discrimination finds that a significant share of the gender gap in earnings is explained by gender-related differences in educational attainment. Contrary to the circumstances of most of the developing world, wage-earning women in Latin America and the Caribbean are increasingly achieving higher levels of education than wage-earning men. Since women in the region have been increasing their human capital very rapidly over the last two decades—surpassing men in many countries—differences in educational attainment between men and women should produce a *reverse gender*

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[3]Although some positive trends emerge for the region as a whole, we have to pay attention to the particular situation of any given sub-region or country. Duryea, Jaramillo, and Pagés (2003) find that the gender gap in wages is steadily declining in the Andean and Southern Cone countries, but no evidence of this trend is found in Mexico and Central America.

wage gap. In fact, Tenjo's chapter shows how the wage gap becomes smaller after controlling for observed skills compared to the unadjusted relative wages.

The persistence of extremely high occupational segregation

Occupational segregation by gender—the clustering of women in traditionally "female" occupations such as teaching, domestic service, and office work—has been recognized as a particularly pervasive constraint on labor market equality in Latin America and the Caribbean. To restrict a growing proportion of workers from a majority of occupations has significant costs for the region's economies in terms of flexibility, efficiency, and equity. With increasing pressure to compete in a global economy and rising participation rates of women in the labor force, it becomes even more important for countries to make efficient use of their human resources.[4]

Despite women's gains in education and labor market participation, the region continues to exhibit the highest levels of occupational segregation by gender in the world. As discussed in Chapter 6 by Deutsch, Morrison, Piras, and Ñopo, there is evidence that the phenomenon is firmly entrenched, and there has been little or no improvement in the 1990s. Confining women to a limited number of occupations contributes to less than optimal investments in female education, given the accurate perception that women lack access to the full range of occupations. Despite its importance, there has been relatively little research done on this topic for the region. To some extent, this can be attributed to data limitations. The authors of Chapter 6 address this by constructing comparable data sets for Costa Rica, Ecuador, and Uruguay for the 1989–1997 period.

In order to analyze the evolution of occupational segregation, the authors adapted a re-sampling technique to estimate standard deviations for the point estimates and to test for statistically significant changes in the estimates over time—an innovation in the literature on occupational segregation. The authors found that occupational segregation did not decrease during the 1989–1997 period in any of the three countries, despite important shifts in occupational structure and macro circumstances during the period studied.

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[4] For an excellent discussion of the worldwide segmentation of occupations on the basis of worker gender, see R. Anker (1998).

To address the same problem from a different approach, the authors conducted a random hiring experiment that compares the actual changes in the Duncan index to the changes that would have occurred if the new hiring had been random with regard to sex. In none of the three countries did the Duncan index change to the degree that would be predicted by a random hiring counterfactual, which is in itself strong evidence that hiring during this period was far from random, and that occupational segregation remains an enduring feature of these labor markets.

A second important result reported by Deutsch et al. is the finding—robust across all three countries—that occupational segregation is more severe among the less educated. As in many other policy areas, women with less education are more limited in their options than are their more educated counterparts.

High unemployment rates and unemployment duration

Continuing a trend from earlier decades, unemployment rates among women in the 1990s were almost 30 percent higher than among men in Latin America and the Caribbean, a gap that was appreciably higher than observed in other regions (see Figure 1.3). However, the ratio of female to male unemployment rate shows no clear trend during the decade. Half of the countries report an increase in the ratio, while the other half show a reduction in the gender gap. What about unemployment duration? In nine countries of the region women were unemployed for longer periods of time than men during the 1990s, in contrast to only four countries where the situation was the reverse (Figure 1.4). This could be the result of barriers to employment or discriminatory practices that make women's insertion into the labor market more difficult. An alternative explanation is that since women are not considered the main providers for their families, with the exception of female-headed households, they can take more time to look for suitable employment.

Recent studies done by the IDB (2004) on labor market transitions in Mexico and Argentina show that women tend to be at greater risk for losing their jobs than men. Results suggest that although women take more time to exit unemployment, once they do they have better chances than men of finding jobs with benefits. Job-to-job transition, however, shows that women have lower probabilities of moving from a job without benefits to a job with benefits.

FIGURE 1.3

Ratio of Female/Male Unemployment Rate, 1990–2001
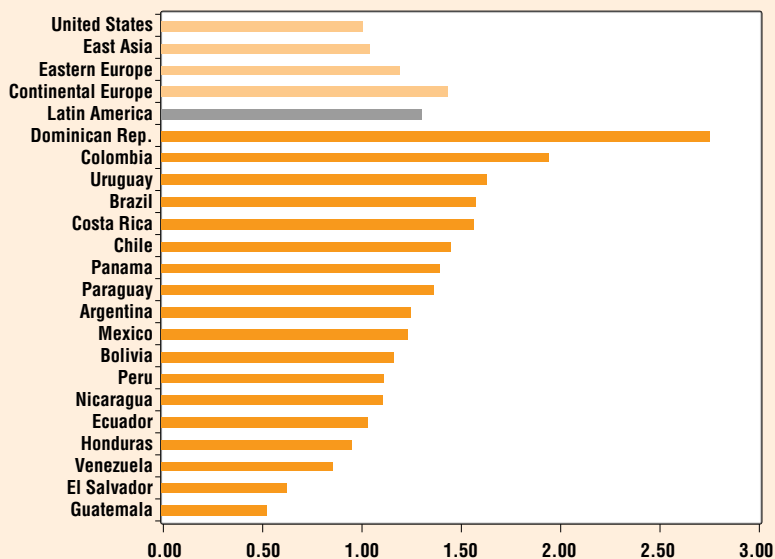
Source: Latin America: IDB calculations based on household surveys. East Asia: ILO LABORSTA Labour Statistics Database. OECD: OECD online database.

Low quality of jobs

An assessment of the changing features of the labor market in recent decades, particularly in developing countries, has to start by addressing the effects of economic restructuring on employment dynamics and on the nature of jobs. In Chapter 3, Lourdes Benería argues that since the 1980s there have been significant changes in the internal structure of firms that have impacted labor contracts, working conditions, the organization of production, employee training, and wage structures. The main trends at the micro level of this emerging mode of production identified by Benería include: the shift of employment from core business to outsourcing; reduced hierarchical levels within the firms; unstable employment contracts associated with the rapid expansion of informal, temporary, and part-time employment; increasing unemployment; growing income polarization; and changing workers' attitudes toward firms and the culture of work. One strong message that emerges from Benería's

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FIGURE 1.4

Mean Duration of Unemployment in Urban Areas, 1990–2001

*National Data
Source: IDB calculations based on household surveys.
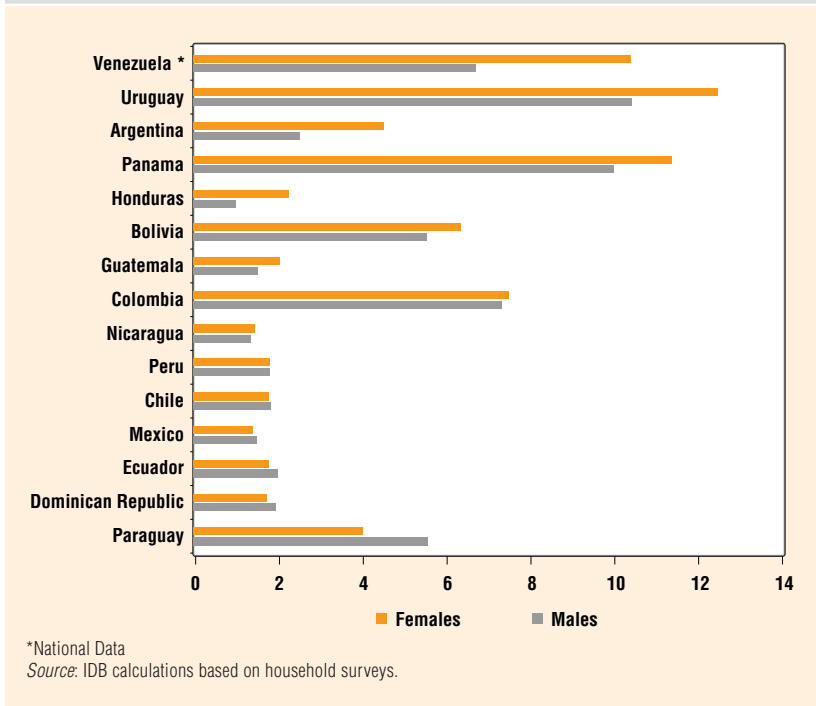
chapter is that the private sector should take responsibility for its part in creating precarious jobs.

The increase in precarious employment and economic insecurity in the last two decades has translated into poor living conditions and persistent poverty, particularly in developing countries. But what are the gender dimensions of these processes? Of course, many of these transformations have differential impacts on men and women. The chapter by Benería addresses in particular how the process of economic restructuring has affected the extent and nature of women's work worldwide.

While there are many benefits to the increasing participation of women in the labor market, there also is great concern among scholars and activists about the quality of jobs that women get. This is a generalized phenomenon, and there is substantial evidence that low quality jobs are held disproportionately by certain groups, including women; indigenous, Afro-descendant, and rural populations; and youth.

Part of this discussion has to do with the level of wages that a worker requires in order to live above the poverty line. There has been a great deal of concern about the low level of wages in the region recently. In fact, Duryea, Jaramillo, and Pagés (2002) show that the percentage of workers living below the poverty line increased during the 1990s in most of the region, with the exception of Brazil, Chile, Panama, and Uruguay. In terms of the incidence of "poverty wages" they find that in 12 out of 16 countries, women are more likely than men to be earning below the $1 purchasing power parity threshold.

The other side of the low quality job debate has to do with the conditions and benefits associated with the job. As discussed by Armando Barrientos in Chapter 8 of this book, in most of the countries of the region, women are over-represented in the informal sector. This means that only a minority of working women has access to formal social insurance and labor protection instruments such as health, accident, disability, pension, and unemployment protection. It also needs to be acknowledged that along with the benefits of economic security, women are increasingly exposed to work-related health and safety hazards, and occupation safety regulations have not been widely adopted or enforced in developing countries, particularly in the informal sector. When we take into account the fact that most of the jobs created during the 1990s in Latin America were in the informal sector of the economy, the adoption of policies that extend social protection for women in these jobs is an imperative.

In Chapter 7, Lund points out that when developing social protection policies for workers, it should be taken into account that women are involved in many types of work, along a continuum from wholly formal employment, to informal employment, with many gradations in between. As less and less work is under the aegis of labor regulation, more of the conditions of work are determined by rules, regulations, and practices, both formal and informal, which govern production in a particular sector or industry. Women are not proportionately represented in positions of leadership in these sectors, and their voices are not heard on important issues of policy and implementation.

Is trade liberalization to blame or to thank for changes in gender equality?

Trade liberalization has brought significant changes in the labor market, most of which are not gender neutral. The differential impact of globalization on women and men is a particularly contentious topic. Trade

creates or expands some activities and eliminates or reduces others. With examples of positive and negative effects on women, the literature has shown that it is difficult to make generalizations on this particular topic.

In some cases, trade liberalization has meant new job opportunities for women and increased bargaining power at home. In the agriculture sector, some non-traditional export products have expanded, where women's participation is very high and working conditions are quite attractive. For example, women working in the flower export sector of Ecuador earn wages that are 40 percent higher than women in other agricultural jobs. A similar case is found in the fruits export sector in Chile.

In Chapter 4, Contreras, Puentes, and Rau examine the consequences of globalization for working women in Chile over the last two decades. Addressing these issues in the case of Chile is particularly relevant since the country went through two different liberalization processes, a rapid one from 1974 to 1979 and a more gradual one from 1984 to 1992. Additionally, the Chilean economy has experienced rapid growth since the mid-1980s, allowing product per capita to double over the period.

Under these conditions, what have been the effects of trade and capital account liberalization on the labor market conditions faced by Chilean women? To address this question Contreras et al. examine salary differences, rate of participation, type of labor insertion, and changes in demand for women workers. The first question they ask is whether there is any relationship between the relatively low and more recent increase in women's labor force participation during the 1980s and 1990s and the processes of economic liberalization that Chile has experienced. Using two different measures of trade openness—average tariffs and an index of trade liberalization—they find that the liberalization process had a slight but negative effect on the rate of labor participation of women in the labor market. During the first liberalization period the participation rate was reduced by 1.5 percent and during the second period participation was reduced by 0.2 percent.

In examining the effect of trade liberalization on the gender wage gap in Chile, Contreras, Puentes, and Rau show that the degree of economic liberalization does not affect potential discriminatory behaviors by the employers in setting salaries. These results are in contrast to what Artecona and Cunningham (2002) obtained when looking at the effects of trade liberalization on the gender wage gap in Mexico's urban manufacturing sector. Using a different methodology they found weak evidence that lower trade barriers indirectly lead to a decrease in discrimination.

Finally, the chapter looks at the relationship between changes in the type of labor market insertion and trade liberalization. The authors con-

clude that part-time work by both men and women has declined in Chile in percentage terms when compared to total workers. A small part of the reduction in part-time work by women can be attributed to trade and capital account liberalization. However, the decline has been greater for men, given that part-time women workers have increased their share relative to all part-time workers.

Social security reforms are not gender neutral

Policy makers must pay attention to the differential impact that labor market and social protection laws and regulations can have on women and men. An interesting example of the impact of policy changes on women's wellbeing is the reform of the pension system in Chile, analyzed by Alejandra Cox Edwards in Chapter 9. By looking at the microeconomic impact of social security reforms at the individual and household level, the author makes a strong argument often missed in discussions on the benefits and costs of pension system reforms, emphasizing that its labor market effects are not homogeneously distributed among workers. In fact, the effects are most pronounced for certain groups of workers depending on their average wages and employment patterns across gender, schooling categories, and life expectancy. Some of the key features of a pension system's design can have strong implications for women's valuation of contributions.

The chapter by Edwards makes two important contributions. First, it provides an overview of the factors determining gender differences in gains from substituting the traditional defined benefits pension systems with pensions based on defined contributions. Second, the paper analyzes the effects of Chile's pension reform, which took place in 1981, on female employment in the formal sector. Two interesting findings emerge: 1) female contributions to social security increased when benefits were tied to their contributions, and 2) there are significant differences in effects among women of different schooling groups, marital status, and attachment to the labor force. Less educated women, who were heavily taxed in the old system, show the largest increase in the rate of pension contributions.

Gender roles in the domestic sphere

Changes in the domestic sphere have not kept pace with the increased participation of women in the labor market. Traditional gender roles are deeply entrenched in Latin America, even among those with more edu-

cation. Despite their new roles in the labor force, women continue to assume far greater responsibility than men for the care of children and family. Gender norms place constraints on women's participation in labor market or decision-making positions, restricting their mobility, independence, and productivity. Men and women can attempt to follow the same path in the labor market, but what happens in the home conditions what women do in the workplace.

Some case studies in the region show that changes within the family have been very slow. In some instances, this has caused an increase in violence against women or in the workload that women have to bear when combining paid work with domestic chores and child rearing (Arraigada 2001).

As Benería discusses in Chapter 3, women's primary involvement in domestic and child care responsibilities continues to be a source of vulnerability for them, not only because this is unpaid work but also because it diminishes women's mobility and autonomy in designing their labor market strategies. The effort to account for and analyze unpaid work and its consequences for women's participation in paid production has not been sufficiently translated into practical action and policies.

Gender norms affect human capital acquisition, opportunities, and decisions to participate in the labor market, negotiations about the domestic division of labor, and control over resources. Changing social norms about masculinity and feminity can be a slow process, requiring actions in both the public and private spheres, through the education system, the media, family and peers (Wainerman 2003).

Women have made major advances over the past two decades. However, the playing field is the least level inside the home. To fully achieve gender equality in the labor market the biggest challenge will be to break gender stereotypes and maintain attention to gender perspectives in public policy.

Looking beyond the averages

As most social indicators in Latin America and the Caribbean show, women's involvement in the labor market is by no means homogeneous, with stark differences among women. If there is any clear conclusion arising from this volume, it is that there is uneven progress among women of different income levels, education, race, and ethnicity.

When we consider labor force participation rates for a broad spectrum of women (between the ages of 15 and 64 in both urban and rural areas) we see a wide variance, ranging from under 40 percent participa-

tion in Nicaragua and the Dominican Republic to over 60 percent in El Salvador and Uruguay.

Furthermore, *within countries* there are important differences between women who are rich and poor, black and white, indigenous and non-indigenous. The Latin American and Caribbean region has the dubious distinction of having the highest levels of inequality in the world, a feature that is clearly reflected in the labor market. As was previously mentioned, education, fertility, spouse's income, and household productivity are determinants of women's participation in the labor force. However, these factors are not equally available to women of different income groups or ethnic origin. Women earning higher incomes are better educated, have fewer children, tend to marry men earning higher wages, and live in houses with access to all public utilities. On the other hand, women who are poor, indigenous, or Afro-descendant have lower levels of schooling, higher fertility rates, and are more likely to lack electricity or running water making child rearing and housework responsibilities more time consuming. As a consequence, their ability and decision to work for pay reflects and perpetuates these inequities.

The problem of precarious employment becomes more evident when we assess the situation of the indigenous or Afro-descendant female populations. Analysis of comparative household surveys in Peru show that only 4 percent of indigenous female workers have social security coverage, compared to 19 percent of non-indigenous female workers, and 26 percent of non-indigenous male workers. A similar picture emerges with respect to Afro-descendants in Brazil, where 41 percent of female Afro-descendant workers are covered by social security, compared to 57 percent of white female workers and 60 percent of white male workers (Duryea and Genoni 2004).

Latin America's experience clearly demonstrates that progress is possible for women in the labor market. However, in the world of work, as in other spheres of life, poor and socially excluded women face more constraints. Gains have been significantly superior for richer, more educated women who are not members of groups facing racial or ethnic discrimination. The challenge ahead is to extend the same opportunities to all women.

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SECTION
II

Globalization and Women's Work

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2

Women in the Latin American Labor Market: The Remarkable 1990s

Suzanne Duryea
Alejandra Cox Edwards
Manuelita Ureta

Despite widespread reforms enacted in Latin America over the last decade, weak macroeconomic performance—on the heels of the debt crisis of the 1980s—has contributed to unyielding levels of poverty and inequality.[1] A closer look at the 1990s, however, reveals considerable, even remarkable, changes for women with respect to labor market outcomes. With important exceptions, many of the decade's trends favored women. This chapter illustrates different patterns of women's labor participation in Latin American and Caribbean (LAC) countries and investigates the underlying determinants of these patterns from several angles.

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[1] A decade of stagnation followed by a mild recovery in the 1990s led to real per capita GDP growth of half a point per year between 1980 and 1998. Table 2.A.1 in the appendix summarizes per capita GDP growth trends for the 1980s and 1990s. See Lora and Panizza (2000) for a detailed analysis of Latin American reforms.

Previous research

The first fact-finding report on the status of women in the LAC countries examined ILO data from 1950 to 1980 for 15 countries (see Psacharapoulos and Tzannatos 1992). This report established that: (1) female labor force participation had risen from an average of 24 percent in the 1950s to about 33 percent in the 1980s; (2) the increase in overall female participation was driven by rising participation rates among young women; and (3) 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 1970s and 1980s 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, the level of education (measured by female secondary education coverage), and reductions in predicted fertility. In their attempt to link female labor force participation to differences in country-level deviations from trends 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 trends in per capita GNP move female labor force participation in the same direction, although the response is significantly more modest in low-income countries.

More recently, Leon (2000) used individual-level data from household surveys to examine the experiences of women in the labor markets of nine countries (Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Mexico, Uruguay, and Venezuela). He argues that Latin American 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 1980s and 1990s 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 heads of households. In addition, the Leon study cites another ECLAC study, which 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 surpassed 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.

A word about the data and methodology

This study focuses on the 1990s and uses individual-level data to create and analyze labor market aggregates by age and schooling. Given the large diversity in the characteristics and underlying trends in the Latin American economies, our analysis does not compare overall country averages; rather, 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 1990s into three periods: early, middle, and late. We are fortunate to have comparable surveys for all three periods for eight countries, and we cover two of the three periods for the remaining countries. Appendix Table 2.A.2 lists years of the surveys referred to as early, mid, or late for each country. Table 2.A.3 lists the names of the surveys.

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, a figure projected to reach 220 million by 2020 (see Table 2.1).

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. It is therefore 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 responsibilities and employment opportunities. This balance is strongly 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 household 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.

Schooling groups

We divide schooling into six categories: no school, incomplete primary, complete primary, incomplete secondary, complete secondary, and postsecondary. Table 2.2 compares school attainment across two generations of women for the early and late 1990s. The first two columns of

TABLE 2.1

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
30–45	30.85	32.75	32.90
46–59	17.41	19.27	25.66
60–64	4.13	4.17	6.21

TABLE 2.2

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

Country	Urban Women Aged 30 to 45		All Women Aged 46 to 59	
	Early 1990s	Late 1990s	Early 1990s	Late 1990s
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	63.0	69.6	29.9	37.8

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: those aged 46 to 59. We expect these women to have lower levels of school attainment, not only because they were born in an earlier period, but also because they include the rural population. There has clearly been an important expansion in school attainment for women in LAC countries.

Urban vs. national

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

Overview of women's standing in the labor market

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

Brisk-paced, secular rise in female labor force participation rates in the 1990s

Using comparable data from national surveys in 14 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 1990s, 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 2.1 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 1990s), and the bot-

FIGURE 2.1

Rising Labor Force Participation Rates of Women

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

legend: ■ early 90s ■ mid 90s ■ late 90s
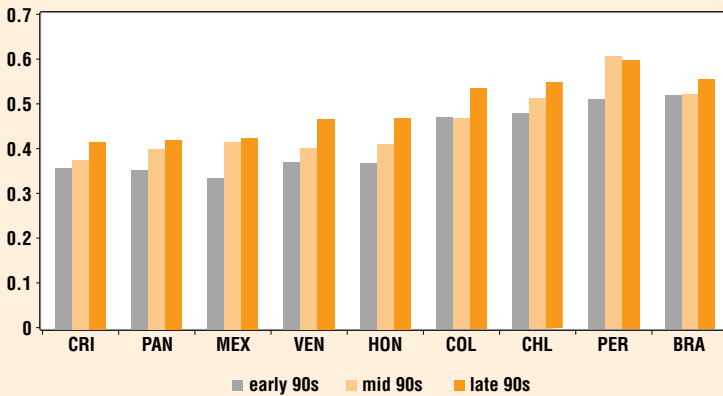
Labor Force Participation Rates for Women Ages 15–64, National (2 points)

legend: ■ early 90s ■ mid 90s ■ late 90s
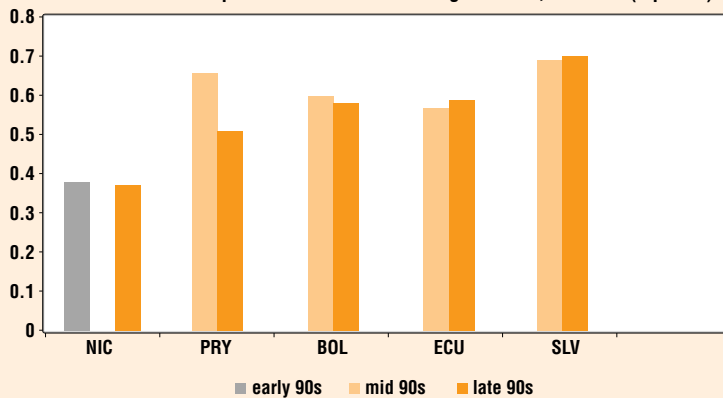
Note: The top panel contains the nine countries for which three points are available using national data (see Appendix Table 2.A.2). The bottom panel contains the five countries for which two points are available using national data. The four remaining countries lack either national or time series data.

tom diagram has only two data points per country due to lack of data. All nine 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. Note that female labor force participation in Paraguay fell significantly from 1995 to 1998.

During the 1990s, unemployment rates generally increased for all sectors of the population. Using the same sample of countries in Figure 2.1 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 expansions in the share of women actively participating in market-type work. To establish that these shifts reflect changes in behavior and not simply compositional changes in the age structure or region of residence, Figure 2.2 displays 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 2.2 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 1990s), 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 a noticeable expansion for women in the 46–59 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- to 45-year-olds grew throughout the 1990s in all countries except where employment ratios stood above 60 percent in the early 1990s—notably Colombia, Ecuador, El Salvador, Paraguay, and Uruguay.

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 46 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 46 to 59 at the time of each survey, and an increase in labor market attachment among women in that age group.

FIGURE 2.2

Rising Employment Ratios, by Age

(Countries ranked by ER Women 15–64 in late 90's)

Employment Rates Women aged 15–64

(Countries ranked by ER Women 15–64 in late 90's)

Employment Rates Women aged 15–64

(Countries ranked by ER Women 15–64 in late 90's)

Employment Rates Urban Women aged 30–45

(Countries ranked by ER Women 15–64 in late 90's)

Employment Rates Urban Women aged 30–45

(Countries ranked by ER Women 15–64 in late 90's)

Employment Rates Women aged 46–59

(Countries ranked by ER Women 15–64 in late 90's)

Employment Rates Women aged 46–59

■ early 90s   ■ mid 90s   ■ late 90s

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.

Rising female wages relative to male's

As we turn to examine relative wages throughout the 1990s, we focus on the eight countries for which available data allows the most careful assessment of trends. Once again, we look at the entire working age popu-
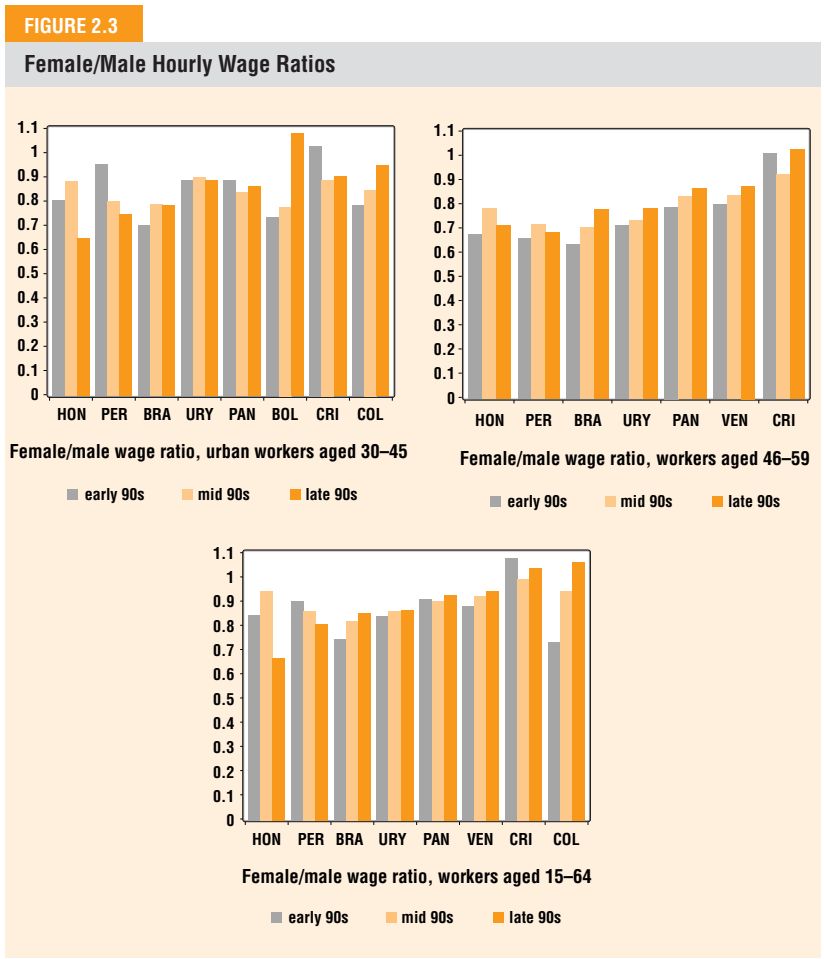
FIGURE 2.3

Female/Male Hourly Wage Ratios

Female/male wage ratio, urban workers aged 30–45

■ early 90s ■ mid 90s ■ late 90s

Female/male wage ratio, workers aged 46–59

■ early 90s ■ mid 90s ■ late 90s

Female/male wage ratio, workers aged 15–64

■ early 90s ■ mid 90s ■ late 90s

lation (ages 15 to 64) and at two sub-age categories. Female hourly wages are around 80 percent of male wages, on average, and this ratio has typically increased during the 1990s. The exceptions are Honduras and Peru, where female/male wage ratios fell, and Costa Rica, where wage ratios fell early in the decade and recovered somewhat toward the late 1990s.

Plotting the hourly wage ratios for urban women aged 30 to 45, and all women aged 46 to 59, we notice the absence of a systematic pattern for relative wages among women aged 30 to 45. However, relative wages for women aged 46 to 59 rise in almost all cases.

Access to quality jobs

Higher employment rates for 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 aforementioned recent developments 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 self-employment rates among women.

Figure 2.4 presents the fraction of working women who are self-employed and do not employ others in their business for the latter part of the 1990s. 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). The two top diagrams 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, those 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: women aged 46 to 59 have by far the highest rates of self-employment. Note that in most of the countries examined 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

FIGURE 2.4

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

(Countries ranked by self-emp. rate of women 15–64 in late 90's)

Percent of urban working women aged 30–45 who are self-employed

(Countries ranked by self-emp. rate of women 15–64 in late 90's)

Percent of working women aged 46–59 who are self-employed

Percent of working women aged 15–64 who are self-employed
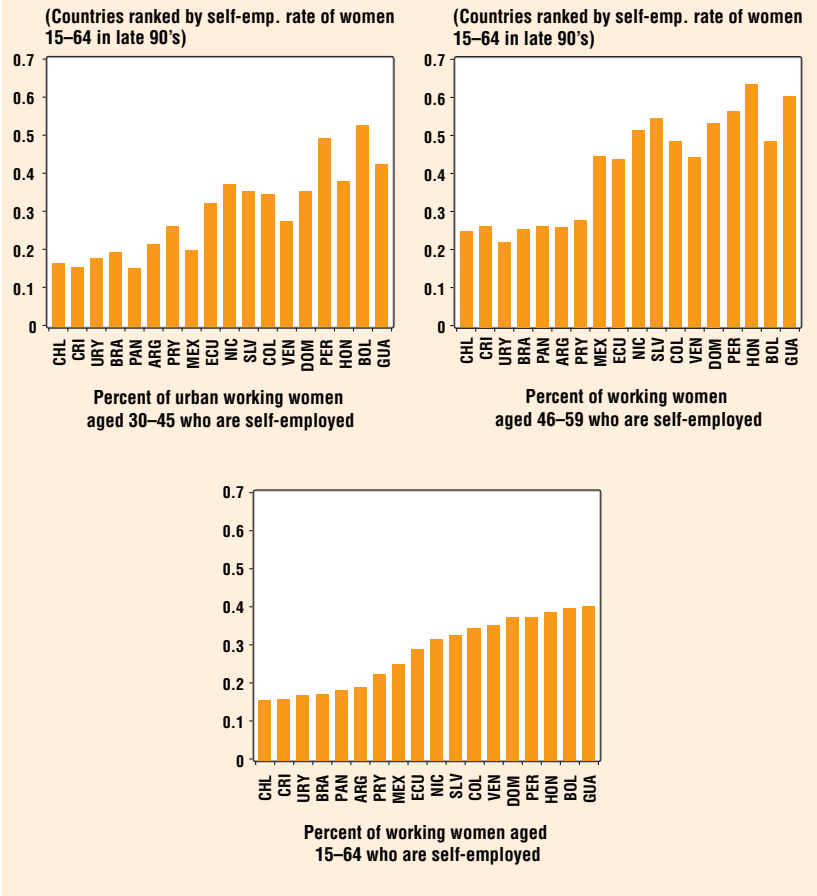
capital. Older women are more likely to have had time to save, or to have access to credit because they own property that can be used as collateral. Under this scenario, high rates of self-employment need not be a reason for concern.

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 lev-

els continue to rise. That is, self-employment rates will decline over time as the older cohorts of women retire.

Now we turn our attention to the trends in rates of self-employment. In Figure 2.5 we graph rates for the eight countries for which we have data for the early, middle and late periods of the decade of the 1990s. In the bottom diagram we plot rates for women aged 15 to 64, ordering the countries by the rates observed in the late 1990s. 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 2.5

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

Percent of urban working women aged
30–45 who are self-employed

Percent of working women aged
46–59 who are self-employed

Percent of working women aged
15–64 who are self-employed

■ early 90s   ■ mid 90s   ■ late 90s
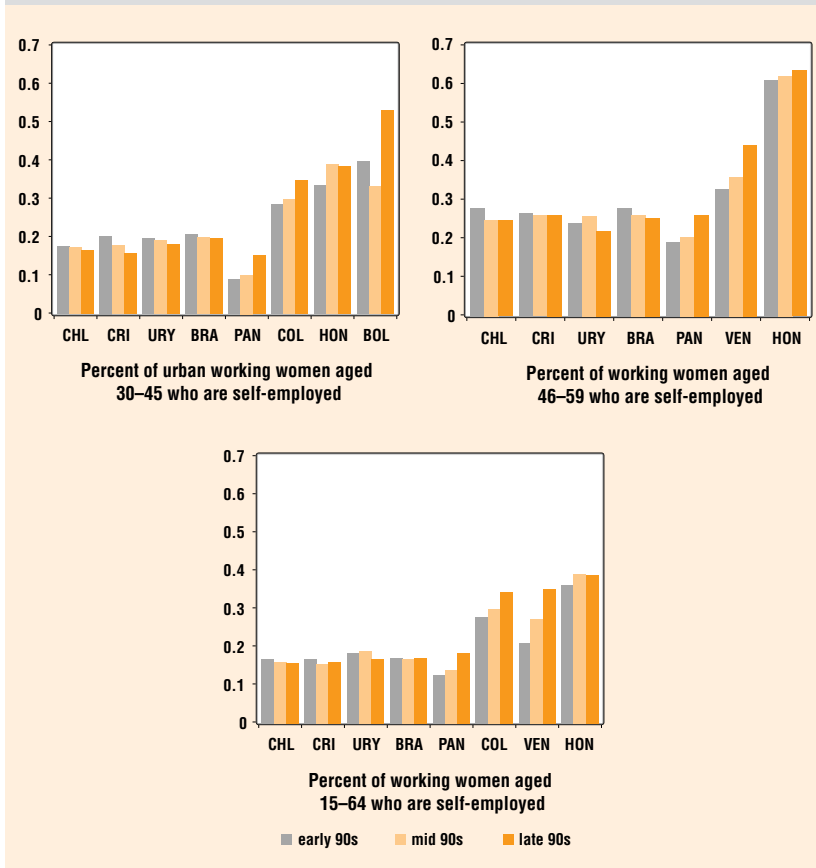
The diagram for women aged 15 to 64 shows that (with the exception of Panama) during the 1990s self-employment rates fell in those countries where the rates were low, and rose in countries where the rates were high at the beginning of the decade. The differences in self-employment rates of women across countries have been magnified over time.

The main message of Figure 2.5 is that the overall self-employment rate for women—that is, for women aged 15 to 64—did not increase during the 1990s in four of the eight countries. Self-employment rates stayed about the same in Honduras, and rose in Colombia, Panama, 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.

GDP and female labor force participation

Is the increase in female labor force participation a long-term trend unaffected by macroeconomic conditions? 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 mostly by men.[2] 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 per capita gross domestic product (GDP) in several Latin American countries. Focusing on those aged 46 to 59 yields a sample of women for whom child-rearing responsibilities for one's own children are minimal if at all present. Figure 2.6 plots labor force participation rates against per capita 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

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[2] Esther Boserup's seminal work (1970) first examined how men's and women's division of labor in agricultural areas in Africa shifted as development proceeded.

FIGURE 2.6

Labor Force Participation for Women Ages 46–59 by GDP per Capita, Average, 1998–1999

GDP per capita (5-yr average) in log scale

—— Mammen-Paxson's OLS estimate
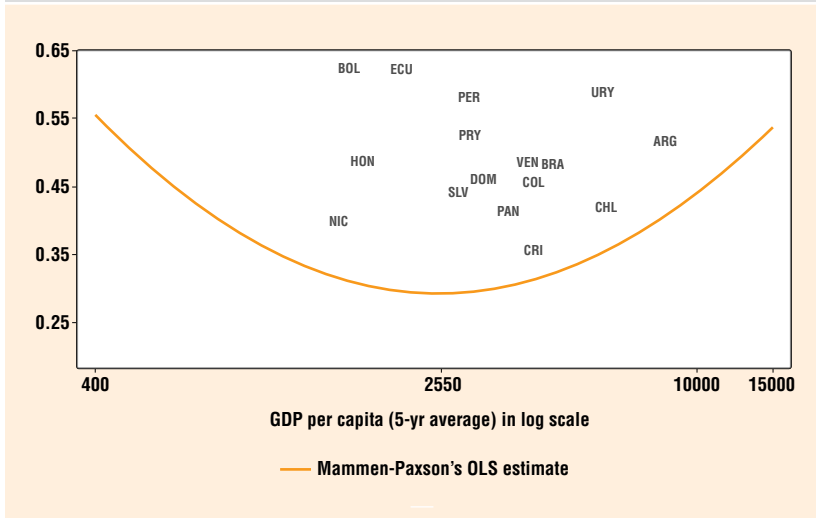
graph, then, allows us to gauge whether the behavior of women in Latin American countries conforms to the pattern seen elsewhere.[3]

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 Chile, Costa Rica, and Nicaragua, women aged 46 to 59 have a labor force participation rate that conforms to the Singh-Goldin hypothesis. In a second group of countries, Argentina, Brazil, Colombia, the Dominican Republic, El Salvador, Honduras, Panama, and Venezuela, women have participation rates that are considerably higher than we would expect given the Mammen-Paxson estimate.

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[3] 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 U.S. GDP. 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.

In the remaining countries for which we have data for the late 1990s—Bolivia, Ecuador, Paraguay, Peru, 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 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 significantly larger-than-average agricultural sectors for the region.

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.

Mammen and Paxson report obtaining similar results when younger women were included in their samples. In Figure 2.7 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 2.6. Moreover, the observed pattern of participation rates is quite similar to the pattern obtained using data for women aged 46 to 59.

FIGURE 2.7

Labor Force Participation for Women Ages 15–64 by GDP per Capita, Average, 1998–1999
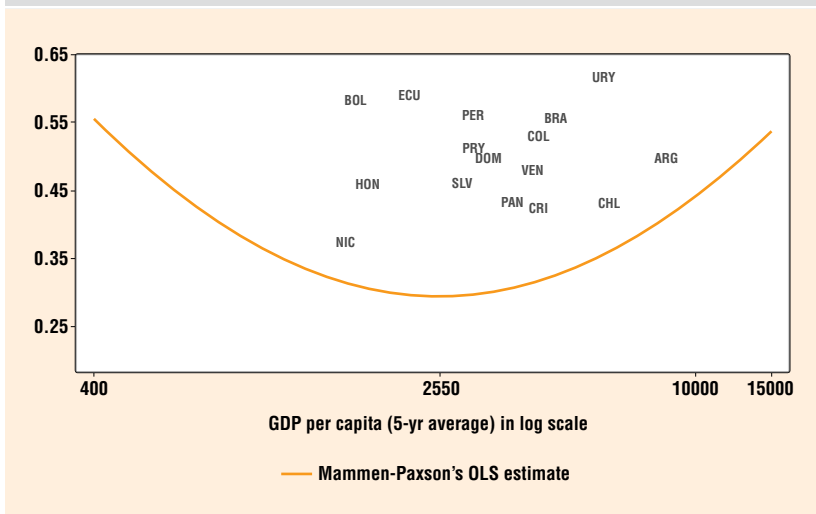
The Singh-Goldin hypothesis predicts an initial decline followed by a rise in labor force participation rates as GDP per capita grows. We examine this issue by plotting the labor force participation rate of women aged 46 to 59 over time for the countries for which we have several surveys spanning sometimes as much as two decades. In Figure 2.8 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. Yet these three countries are unusual. In Figure 2.9 we graph the data for the remaining countries, and the pattern that emerges is common to all countries and quite different from the pattern seen in Figure 2.8.

This next group of countries, Brazil, Honduras, Mexico, Panama, Peru, 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, which often exceed 20 percentage points over the course of approximately two decades.

Rising labor force participation without economic growth: What's 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 family, or education, 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 1980s— 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

FIGURE 2.8

Labor Force Participation for Women Ages 46–59 by GDP per Capita in Chile, Costa Rica and Uruguay, 1983–1999

GDP per capita in log scale

— Mammen-Paxson's OLS estimate
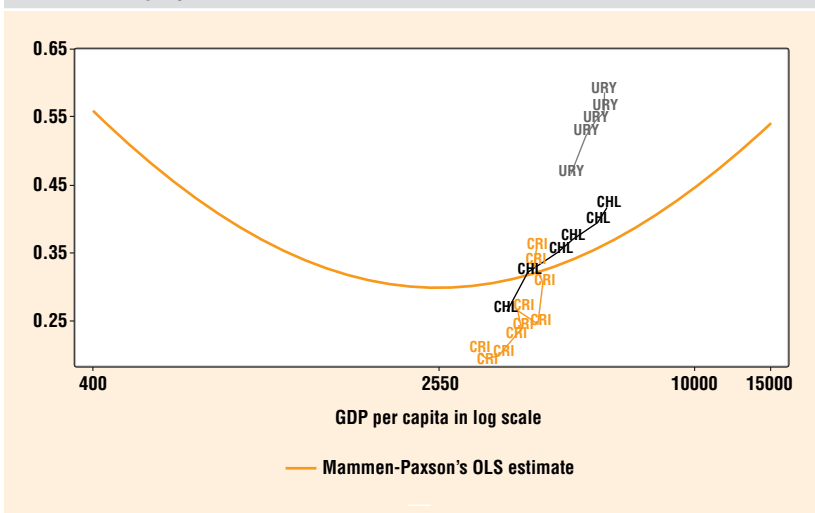
FIGURE 2.9

Labor Force Participation for Women Ages 46–59 by GDP per Capita in Brazil, Honduras, Mexico, Peru and Venezuela, 1983–1999
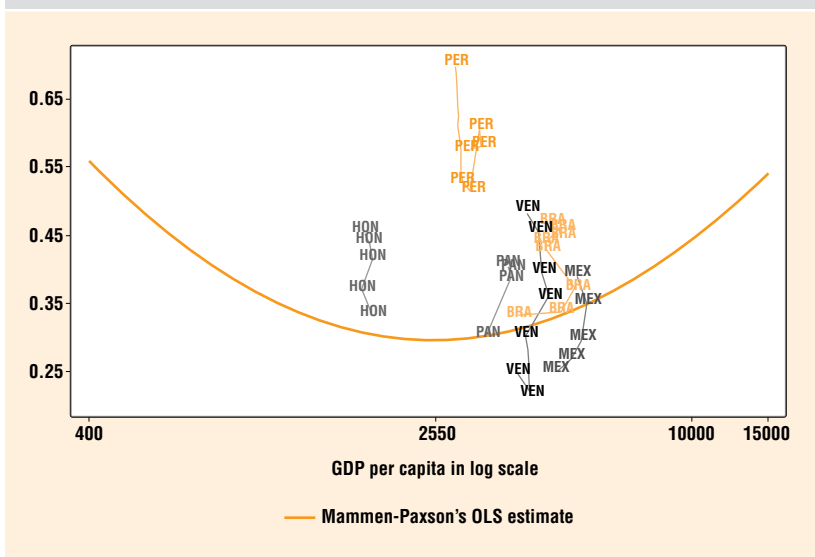
GDP per capita in log scale

— Mammen-Paxson's OLS estimate

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 to be 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 current 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 was the case with the introduction of the "pill,"[4] the average number of children born to each woman will typically fall, causing a likely increase in female labor force participation.

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 raises 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 raise 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.

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[4] In "Career and Marriage in the Age of the Pill," Claudia Goldin and Lawrence F. Katz (2000) use demographic data to document that federal approval of the Pill spurred women to pour into professional schools, postpone marriage, and sharply reduce their fertility. The effect, which took years to arrive after the pill's approval 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."

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 1990s, 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 2.10. The averages correspond to women aged 30 to 45 who reside in urban areas. In the late 1990s labor force participation is roughly 55 percent for women aged 30 to 45 who have less than secondary schooling, 60 percent for women with some secondary schooling, 65 percent for women with complete secondary schooling, and more than 80 percent for women with post-secondary schooling.

The averages reported in Figure 2.10 mask considerable variation across countries. As seen in Figure 2.11, women in Brazil, Uruguay, and Venezuela generally have 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 women in Argentina.

FIGURE 2.10

Labor Force Participation by Schooling Level in LAC Urban Women Ages 30–45 Average of 18 Countries, Late 1990s
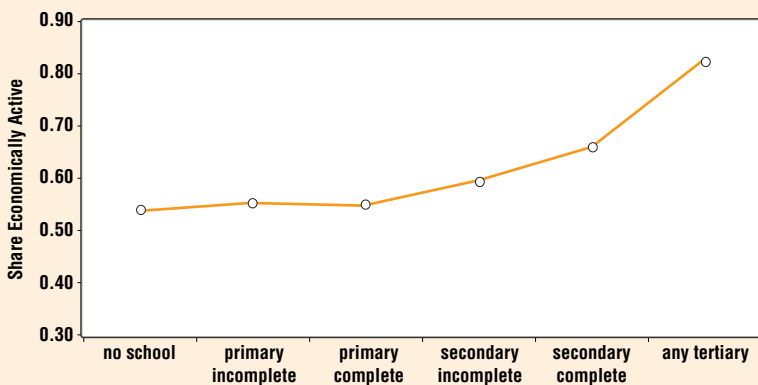
FIGURE 2.11

Labor Force Participation Rates of Urban Women Aged 30 to 45, by Schooling Level (Six Countries)
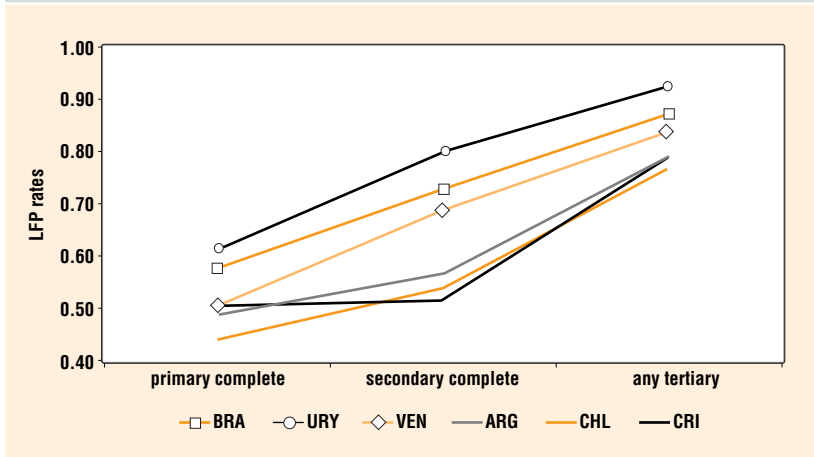
Furthermore, secondary schooling does not display the same relationship with female labor force participation in all countries studied. In Brazil, Uruguay, and Venezuela, completed secondary schooling draws women into the labor market: completing secondary school is associated with a 15-percentage point increase in labor force participation. Figure 2.11 shows that the secondary degree does not translate into large increases in participation rates for countries such as Argentina, Chile, and Costa Rica. In Argentina, 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 access to social security benefits in Uruguay is strictly based on documented work experience.

Despite country-to-country variations, 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 female population in the LAC region

during the 1990s, and gauge its contribution to the rise in participation rates, we report a decomposition of the increase in participation rates in Table 2.3.

TABLE 2.3

Decomposition of the Change in Labor Force Participation Rates of Women (Selected Countries)

	Decomposition of Change in Labor Force Participation Rates					
Country	Participation in early 90s	Participation in late 90s	Changes in schooling composition weighted by each group's participation rate in the early 90s	Within schooling group change in participation rates weighted by schooling composition in the early 90s	Interaction	Change in participation from early 90s to late 90s
Women Aged 30 to 45 in Urban Areas						
	(1)	(2)	(3)	(4)	(5)	(2) − (1) = (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
All Women Aged 46 to 59						
	(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 2.3, 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 46 to 59 is shown in the bottom panel of Table 2.3. 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 rapid expansion in participation rates within schooling groups.

Note that participation rates within schooling groups have increased relatively more for the less schooled. In Figure 2.12 we graph the same schooling-participation relationship shown in Figure 2.10 for the late 1990s, adding the early 1990s for comparison. Clearly, the shift in the participation function is not parallel; it 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 1990s. The next two subsections examine the evidence on market wages and fertility.

FIGURE 2.12

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

Less Educated Women Have Increased Employment Rates More than Highly Ed.
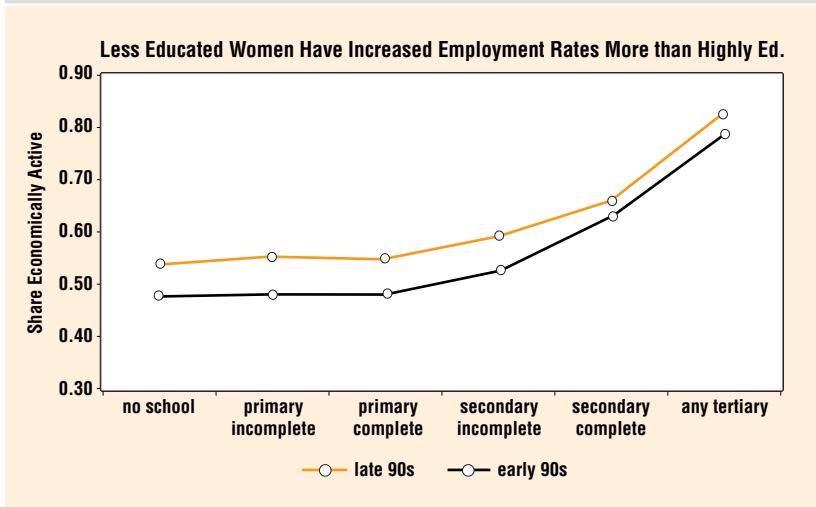
Wages

For a few countries we have enough data to examine the trends in relative hourly wages spanning two decades. This is the case for Brazil, Costa Rica, Uruguay, and Venezuela, as shown in the figure below. Of the fifteen countries appearing in the "snapshot" of relative wages, 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 therefore represents the middle to the top end of the distribution. It is remarkable that the trends in relative hourly 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.

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

FIGURE 2.13

**Female to Male Hourly Earnings Ratio, Ages 15–64
Smoothed, Moving Average**
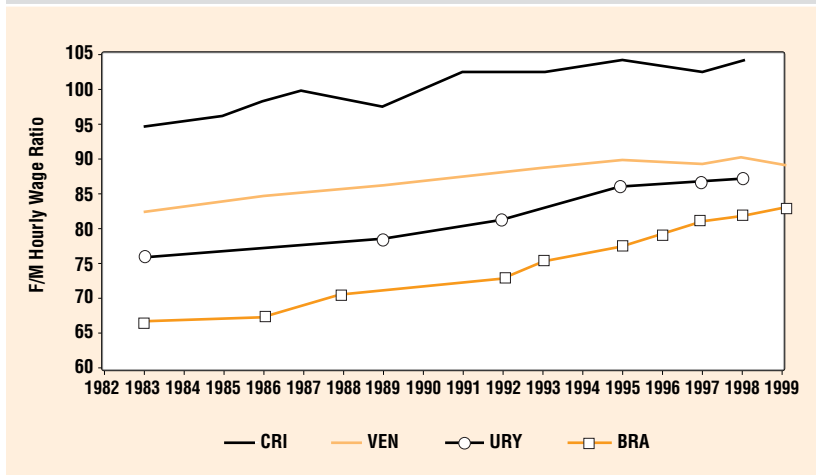
(potential) experience. Using the micro data we run log wage regressions on an indicator variable for female while simultaneously controlling for experience, experience squared, and single years of completed schooling.[5] The first stage coefficients are then used as the dependent variable in a second regression in which the female wage penalty is regressed on a year trend and country fixed effects, with Brazil being the omitted country.[6]

Table 2.4 shows that in the 1990s 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 went from lagging men's by 25 percent to lagging by 17 percent. While the year trend for the 1990s is significant at the 10-percent level, if we expand the sample to include the 1980s 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.

The obvious implication of the increase in participation and relative wages is that women now contribute a larger share to the incomes of their households and, by extension, the economy as a whole. The most extreme case is Uruguay, where women contribute nearly half of household labor income. In most countries in the region, women contribute around a third of household labor earnings. Table 2.5 shows the change over the decade for the panel of nine nationally representative surveys used in Figure 2.1. Women's share of household labor earnings rose from an average of 30 percent in the early 1990s to an average of 34 percent in the late 1990s.[7, 8] One concern was that the trend could be reflecting the growth of female-headed households. For robustness we confirmed

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

[6] There are 17 countries included in the regressions, with the Dominican Republic being excluded. Brazil is the omitted category in the regressions. While it is included in the analysis, it does not have an extra constant term shown in the table. Since we had only one observation for the Dominican Republic and the fixed effect estimation requires at least two observations per country, we were forced to drop the Dominican Republic from the sample.

[7] This calculation only considers labor income earned by adult household members aged 18 and older. The share of total household labor income earned by women can range from 0 to 100 percent in each household. The country estimate is the average over all households with positive total labor earnings.

[8] If the sample includes the urban surveys of Argentina, Bolivia, and Uruguay the share earned by women rises by a similar amount, from 32 to 36 percent.

TABLE 2.4

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
El Salvador	−0.005	0.060	−0.080	0.021	0.054	0.390
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
Paraguay	0.299	0.070	4.280	0.325	0.063	5.130
Peru	0.259	0.051	5.090	0.276	0.042	6.620
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.

TABLE 2.5

Share of Household Labor Income Earned by Females

National Surveys

	Years	Early	Late	Change
Brazil	1993, 1999	0.34	0.38	0.04
Chile	1992, 1998	0.30	0.34	0.04
Colombia	1993, 1999	0.32	0.36	0.05
Costa Rica	1993, 1998	0.27	0.30	0.03
Honduras	1992, 1999	0.27	0.35	0.08
Mexico	1992, 1998	0.22	0.31	0.10
Panama	1991, 1999	0.37	0.38	0.01
Peru	1991, 1997	0.30	0.29	0.00
Venezuela	1993, 1999	0.33	0.37	0.04
Average		0.30	0.34	0.04

that the trend was the same if we restricted the sample to households with both heads and spouses present.

Women's education and potential for GDP growth

In the 1990s 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.[10]

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.[11]

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 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 (Lam and Duryea 1999, Mammen and Paxson 2000).

Using the data we have gathered, we can begin to get a picture of how women's standing in the labor market and their schooling will evolve in the next decade. As we saw in Figure 2.12, which shows the average relationship between women's labor force participation (including informal sector) and schooling levels using data for 18 LAC countries, for any one period, once schooling reaches the secondary level women tend to be quickly drawn into the labor force. As shown in Table 2.2, many

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[9] See Pritchett (1996) and Barro and Sala-I-Martin (1995).
[10] See Krueger and Lindahl (2000).

FIGURE 2.14

Gender Difference in Schooling Attainment
Average of 18 LAC Countries. Based on Household Surveys, late 1990s
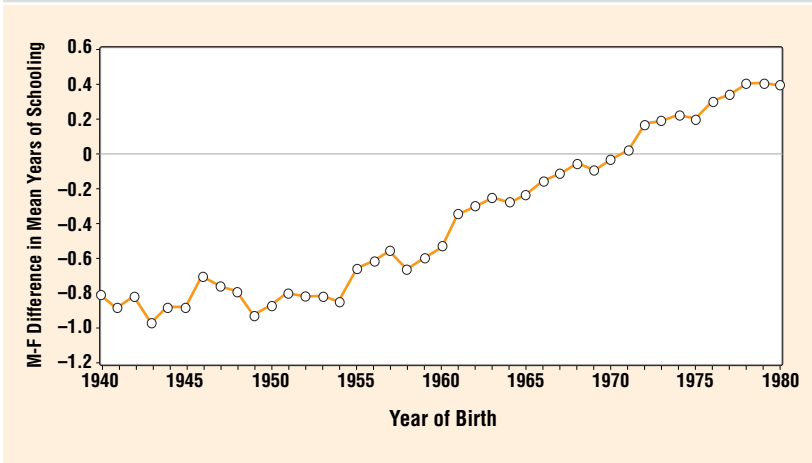
countries in the region currently have critical masses of women achieving at least some secondary school. Figure 2.14 shows that on average the gender gap in schooling has been reversed in the region. Over the next decade as schooling levels continue to rise and women are pulled into market work, many countries in LAC are well positioned to register the higher economic productivity associated with increases in aggregate schooling levels.

Cumulative effects of long-term fertility declines

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 (Centro Latinoamericano de Demografia, or 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 2.15, in the first half of the 1970s, the TFR was above 5 children, and by the first half of the 1990s 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 close attention to these trends for years. In a collection edited by Guzman, Singh, Rodriguez, and Pantelides (1996), several articles examine the forces at work behind these trends. An important fact is that in the 1950s few countries in the region had a TFR below 5: Argentina (with TFR of 3.2 in the first half of the decade) and Uruguay (with a 2.7 also in the first half of the 1950s). Chile joined the low TFR group in the second half of the 1960s; Brazil, Colombia, Costa Rica, Panama, and Venezuela followed in the first half of the 1970s. The Dominican Republic and Mexico joined in the second half of the 1970s, with Ecuador, Paraguay, and Peru following in the early 1980s. Finally El Salvador joined in the late 1980s. As shown in Figure 2.15, by the late 1990s total fertility rates were below 5 in all countries, and in most they are below 3.[12]

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." 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 Demographic Health Survey (DHS) asks:

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[11] In Figure 2.15 we have restricted the sample to the 18 countries for which we had household survey available and were analyzed elsewhere in the chapter. According to CELADE 1998, Cuba's TFR was below 5 in the 1950s. The TFR for Haiti fell under 5 only in the late 1980s.

FIGURE 2.15

Trends in Total Fertility Rate, 1970–1995
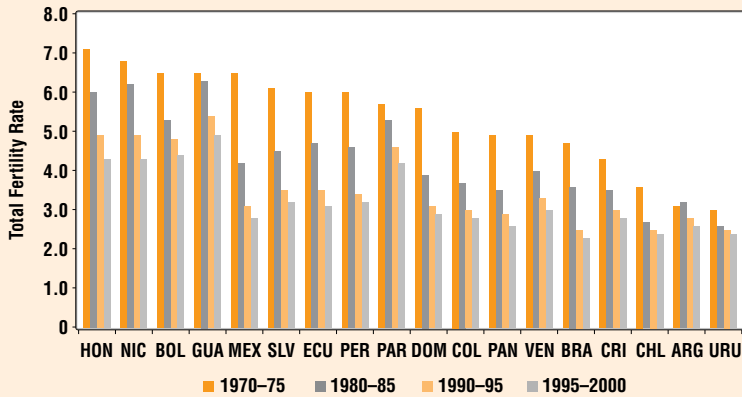
Source: CELADE (2002)

"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.

Conclusions

Perhaps the salient development of the 1990s for women in LAC countries was the brisk-paced, secular rise in their labor force participation rates. We examine this development from several angles, first by exploring the Singh-Goldin 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 46–59 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 70 percent 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. Overall we document substantial progress made by women in many areas. The gender wage gap is closing steadily in Brazil, Costa Rica, Uruguay, and Venezuela, while Colombian women now enjoy higher earnings than those of men. Women's share of household labor earnings rose from an average of 30 percent in the early 1990s to an average 34 percent in the late 1990s. 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 or in employment in small firms. We conclude that the macroeconomic picture of stagnation for LAC countries in the 1990s masks non-trivial developments in the division of labor and time allocation by gender.

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TABLE 2.A.1

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

Country	GDP pc 1980–89	GDP pc 1990–98	GDP pc 1980–98
Countries addressed in paper			
Argentina	0.00	3.41	0.84
Bolivia		1.14	0.00 *
Brazil	0.00	1.13	0.00
Chile	3.04	5.73	4.80
Colombia	2.35	0.00	0.00
Costa Rica	0.00	1.20	1.44
Dominican Republic	2.16	2.94	1.59
Ecuador	0.00	0.00	0.47
El Salvador	0.00	2.45	1.52
Guatemala	0.00	0.00	0.00
Honduras	0.00	0.00	0.00
Mexico	0.00	0.00	0.43
Nicaragua	−2.86	1.01	−1.56
Panama	0.00	1.96	0.78
Paraguay	0.00	0.00	0.00
Peru	0.00	3.09	0.00
Uruguay	0.00	2.60	1.70
Venezuela	0.00	0.00	0.00
Additional Countries			
Bahamas	3.21	−1.64	0.00
Belize	0.00	0.00	2.8
Guyana	−2.64	4.83	0.00
Haiti	0.00	−4.33	−2.74
Jamaica	0.00	−1.22	1.07
Trinidad and Tobago	−1.94	0.00	−0.72
Regional Average	**0.14**	**1.01**	**0.52**

Source: The data on GDP per capita is from the World Development Indicators, while the data on for US GDP deflator is from the St. Louis Federal Reserve Bank.
Note: Estimates are based on 11 years of data with the GDP 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 not significantly different from zero, we report a best estimate of zero.

TABLE 2.A.2

**Survey Years for Periods, Age Groups and Countries
Definitions of Early, Mid and Late 1990s**

National (age groups 15–64 & 46–59)				Urban (age group 30–45)			
Country	Early 90s	Mid 90s	Late 90s	Country	Early 90s	Mid 90s	Late 90s
Argentina*				Argentina*		1996	1998
Bolivia		1996	1999	Bolivia	1993	1996	1999
Brazil	1993	1996	1999	Brazil	1993	1996	1999
Chile	1992	1996	1998	Chile	1992	1996	1998
Colombia	1993	1996	1999	Colombia	1993	1996	1999
Costa Rica	1993	1995	1998	Costa Rica	1993	1995	1998
Dominican Rep.		1996		Dominican Rep.		1996	
Ecuador		1995	1998	Ecuador		1995	1998
El Salvador		1995	1998	El Salvador		1995	1998
Guatemala			1998	Guatemala			1998
Honduras	1992	1996	1999	Honduras	1992	1996	1999
Mexico	1992	1996	1998	Mexico	1992	1996	1998
Nicaragua	1993		1998	Nicaragua	1993		1998
Panama	1991	1995	1999	Panama	1991	1995	1999
Paraguay		1995	1998	Paraguay		1995	1998
Peru	1991	1996	1997	Peru	1991	1996	1997
Uruguay*				Uruguay*	1992	1995	1998
Venezuela	1993	1995	1999	Venezuela	1993	1995	

* Surveys for Argentina and Uruguay cover urban areas only, comprising approximately 90 percent of the population.
Geographical code for urban or rural area is not available in 1999 survey for Venezuela.

TABLE 2.A.3

Names and Years of Household Surveys

Country	Survey Name	Years Surveys	Number of Surveys	Number in the 1990s
Argentina[1]	Encuesta Permanente de Hogares	1980, 1996, 1998, 1999	4	3
Bolivia[2]	Encuesta Continua de Hogares	1986, 1990, 1993, 1995, 1996, 1997, 1999	7	6
Brazil	Pesquisa Nacional por Amostragem de Domicilios	1981, 1983, 1986, 1988, 1992, 1993, 1995, 1996, 1997, 1998, 1999	11	7
Chile[3]	Encuesta de Caracterización Socioeconómica Nacional	1987, 1990, 1992, 1994, 1996, 1998	6	5
Colombia	Encuesta Nacional de Hogares Fuerza de Trabajo	1990, 1991, 1993, 1995, 1996, 1997, 1998, 1999	8	8
Costa Rica	Encuesta Nacional de Hogares Empleo y Desempleo Encuesta de Hogares de Propósitos Múltiples	1981, 1983, 1985, 1987, 1989, 1991, 1993, 1995, 1997, 1998	10	5
Dominican Republic	Encuesta Nacional de Fuerza de Trabajo	1996	1	1
Ecuador	Encuesta de Condiciones de Vida	1995, 1998	2	2
El Salvador	Encuesta de Hogares por Muestreo	1995, 1997, 1998	3	3
Guatemala	Encuesta Nacional de Ingresos y Gastos Familiares	1998	1	1
Honduras	Encuesta Permanente de Hogares de Propósitos Múltiples	1992, 1996, 1997, 1998, 1999	5	5
Mexico	Encuesta Nacional de Ingreso Gasto de los Hogares	1977, 1984, 1989, 1992, 1994, 1996, 1998	7	4
Nicaragua	Encuesta Nacional de Hogares de Medición de Calidad de Vida	1993, 1998	2	2
Panama	Encuesta de Hogares	1979, 1991, 1995, 1997, 1998, 1999	6	5
Paraguay	Encuesta Permanente de Hogares	1995, 1998	2	2
Peru	Encuesta Nacional de Hogares Sobre Medición de Niveles de Vida	1985, 1991, 1994, 1997, 2000	5	3
Uruguay[1]	Encuesta Continua de Hogares	1981, 1989, 1992, 1995, 1997, 1998	6	4
Venezuela	Encuesta de Hogares por Muestreo	1981, 1983, 1986, 1989, 1993, 1995, 1997, 1998, 1999	9	5

[1] Surveys for Argentina and Uruguay cover urban areas only, comprising approximately 90% of the population.
[2] Surveys before the 1990s for Bolivia are not all nationally representative.
[3] Wages are not available in Chile 1987 or Chile 1990.

3

Changing Employment Patterns and the Informalization of Jobs: General Trends and Gender Dimensions[1]

Lourdes Benería

Many still question claims that the patterns of working life are changing. But in the United States, the anecdotal signs are increasing: more frequent job changes, more freelancing, more working at home, more opportunity, but also more uncertainty. The old social contract between employers and workers is being shredded. It is still unclear what will replace it. (*The Economist*, 1/29/2000)

During the 1970s and early 1980s, relocation of production from high- to low-income countries gave rise to a large body of literature focusing

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[1] An edited version of this paper was included as Chapter 4 in the author's book *Gender Development and Globalization. Economics as if All People Mattered*, Routledge, 2003.

on the threats of deindustrialization in high-income countries (Froebel et al. 1980; Bluestone and Harrison 1982). Although since then, many industrial processes have indeed shifted to lower income countries and the fears expressed in some of these studies did not materialize; the enormous growth of the service sector, including the financial sector, and the development of high-tech industries have maintained the predominance of high-income countries in the world economy. However, this has not prevented the appearance of deteriorating working conditions for specific working populations despite otherwise prosperous conditions. In high- and low-income countries, labor market deregulation and increasing flexibility of the work process generated new challenges, particularly as market competition induced a search for lower production costs (Piore and Sabel 1984; Harrison and Bluestone 1988). In addition, other factors such as trade liberalization schemes have reinforced the competitive pressures of global markets. Taken together, these developments have resulted in profound processes of reorganization of production, technological innovation, and changes in the structures of firms and in employment conditions.

Since the 1980s, there has also been a growing body of literature focusing on the ways in which economic restructuring has made possible further decentralization of production, both geographically and within firms (Dicken 1998). Institutional changes at the micro level have been deep—from downsizing and outsourcing to changes in work organization, skill requirements, and transformations in the composition of the workforce. Trade liberalization has had significant effects on changing skill requirements and on the dynamics of employment and relative wages within and across countries, particularly in terms of shifting labor-intensive processes of production to low-wage countries (Wood 1994). Needless to say, many of these transformations are gendered, with differential impacts on men and women that can be traced to a variety of factors. At the same time, we have witnessed the continuing process of "feminization" of the labor force at the domestic and international level, where "feminization refers both to an increase in women's labor force participation and to the deterioration of working conditions in previously male jobs (Anker 1998; Standing 1999).

These changes have profoundly affected productive processes and even the financial structures of firms, transforming most firms' functions and modes of operation as well as their employment patterns and capital/labor relations. As a result, labor market structures have been de-stabilized and reorganized. Most importantly, the changing landscape of production at the micro level has led to deep changes in job

creation and the generation of new forms of employment. For this reason, it is important to understand the changes at the micro level of the firm and how they affect the labor market. The old social contract between employers and workers is indeed being shredded. The "organization man" of the post-Second World War period, based on stable employment and loyal dependency on the firm, is being replaced by a much less stable workforce, with profound consequences for lifetime work experiences and attachment to a specific firm (Capelli 1999; *The Economist* 3/27/00) and with important distributive consequences. Speaking from a business perspective, Capelli goes so far as to state: "the old employment system of secure, lifetime jobs with predictable advancement and stable pay is dead" (p. 17). The result has been declining employment and other types of security and increases in the risks that employees and labor in general must bear. At the same time, a decline in labor union membership has taken place in many countries, contributing to the relative loss of power among labor and to rising income inequality (Katz 2000).

This chapter's main focus is on the expansion of contingent and informal activities, particularly with respect to women in developing countries. It examines the effects of economic restructuring on employment dynamics and on the nature of jobs and their characteristics. What are the main trends? Can we generalize across countries? In what ways do they affect men and women differently? What are the implications of the increasing informalization of employment and jobs? What emerging trends in informal activities do we observe both in high- and low-income countries? What are the gender dimensions of these processes? The chapter first summarizes the changes taking place at the micro level of the firm in order to put into context repercussions on employment dynamics and informalization processes.

The micro foundations

Since the 1980s, market penetration into the internal employment dynamics of firms has become increasingly common, often dismantling former internal labor market structures and increasing the direct influence of the market on the ways in which business are conducted. External labor market conditions have increasingly had a direct influence on capital labor contracts, working conditions, the organization of production, employee training, and wage structures. At the same time, the internal structures of the firms and the new forms of capital/labor relations

have had repercussions on the dynamics of the external labor market. The following summarizes the major trends in these areas.

First, there has been a *shift of employment from "core" to "periphery" activities* that are located in smaller firms and with independent contractors (Harrison 1994; Hsiung 1996; Ybarra 2000). This has resulted in the reduction in the size of large firms, with downsizing being parallel to outsourcing and subcontracting. In the United States, the drive toward leaner production and shrinking workforce became particularly prevalent during the 1980s and 1990s, affecting not only low-skill workers but management ranks as well. The trend has been accompanied by the continuous pressures resulting from global competition toward lowering production costs. As Capelli (1999) has pointed out, downsizing refers to the dismissal of workers for reasons that are not related to their performance. These reasons have to do with the pressures on firms to "perform" and compete at the global level. Strategically, globalization has facilitated the reduction of the core firm's size by paving the way for the geographic expansion of the "periphery" to new outsourcing sites in other countries (Dicken 1998).

Second, there has been a *reduction in hierarchical levels within the core firms themselves* as a result of several tendencies: (*a*) the dismantling of internal labor markets based on merit, seniority, and other promotional factors; (*b*) the elimination of middle management and the formation of "worker teams" and different types of job rotation; and (*c*) the concentration of high-skill jobs in the core firms and the shifting of low-skill activities to locations outside of the core (Harrison 1994; Batt 1996; Osterman 1996; Cappelli 1999). Highly skilled, educated professionals tend to concentrate in the increasingly technologically based jobs at the core, including management, research, and specialized work such as that provided by financial and legal experts. At the same time, these professionals are benefiting from an expanded market at the global level and from opportunities provided by what has been referred to as a "global driver's license" or the high degree of employability enjoyed by professional and technical labor across countries. However, at least in the United States, the most pronounced divide has evolved between top executives and other employees due to the power of these executives and their highly remunerative compensation schemes which have been well documented during the past two decades (Capelli 1999).

Third, except for the core of most privileged labor, the changing employment contract shows a clear tendency toward unstable employment. At the bottom of the income scale affecting low-skill labor, *the*

fastest growing part of the labor force in many areas is to be found in informalized work or in temporary and part-time employment. This includes increasing reliance of firms on contingent work and decentralized production systems (Leigh 1995; Recio 2000). In the United States, for example, it estimated that in the state of California the fastest growing part of the economy is the business of providing temporary workers.[2] In the euro area, a recent study by Morgan Stanley Dean Witter and Company, an investment bank, found that most of the net jobs created between 1994 and 1998 were either part-time or temporary (*The Economist* 6/10/00). Although the ways in which this informalization occurs might vary considerably by country and region, it is taking place both in high- and low-income countries and is part of the increasing economic insecurity registered even in countries experiencing sustained economic growth, such as in the United States during the 1990s. In developing countries, this trend has contributed to the high growth of the informal sector.

Fourth, the processes of informalization and decentralization affecting current labor market trends have implied a *sharp increase in employment instability and in the number of workers experiencing the stressful consequences of unemployment.* Job and labor market insecurity affects in particular workers at the lower end of educational and labor market hierarchies (Leigh 1995; Capelli 1999; Katz 2000). However, an important feature of current insecurity is that it is felt throughout the wide range of the occupational spectrum (Standing 1999; ILO 1999). In the United States, job tenure for men aged 35 and over has decreased since 1983, and the average 32-year-old has already worked for nine different firms.[3] For the working population, the chronically high unemployment rates registered in many countries represent a constant threat of losing access to income. This threat is felt in countries with relatively high unemployment rates such as in many European countries, but also by those with relatively low unemployment, such as the United Sates where the threat of being dismissed has been on the increase. Despite almost a decade of uninterrupted economic growth in the United States, layoffs during 1998 and 1999 have been more widespread than ever, and there

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[2] Estimates indicate that during the late 1990s the service industry in California, which has a large proportion of temporary workers, has added as many jobs as the software and electronic equipment industries combined (*The Economist* 1/29/00).

[3] The decrease in job tenure for men 55 and over has been particularly sharp, with an acceleration of this trend since the early 1990s. For more detail, see "Career Evolution," *The Economist,* 1/29/2000.

is evidence that persistent worker insecurity is intensified by capital mobility (Bronfenbrenner 2000; *The Economist* 1/29/00). However, the problem is particularly acute in developing countries with chronically high rates of unemployment and underemployment. Standing (1999) has indicated that the "effects of GDP growth on employment (and unemployment) suggest that to make a substantial difference there would have to be a long and sustainable period of high rates of economic growth" (p. 153). Instead, many developing countries have registered low or fragile economic growth.

Fifth, these tendencies have resulted in *growing income polarization in most countries*, resulting, on the one hand, in increasing job opportunities for skilled labor and, on the other, in a parallel reduction of opportunities for low-skilled workers. In 1979, the average college graduate in the United Sates earned 38 percent more that the average high school graduate; the current gap is 71 percent (*The Economist* 1/29/00). In high-income countries, the outsourcing of production to low-wage areas, particularly in labor- intensive industries, has led to a gradual deterioration of earnings for those displaced (Wood 1994). Studies show that when displaced workers find new jobs, the large majority tends to move to more precarious positions with lower pay (Benería and Santiago 2001; Tiffany 2003). Likewise, trade liberalization has been shown to have a negative effect on unskilled workers (Wood 1991 and 1994; Rodrik 1997). Statistics on income distribution are unambiguous about these growing inequalities, leading to pessimistic views about the effects of globalization, technological change, and "the new economy" (UNDP 1999). For the 1980s and 1990s, this has been the case for OECD countries as well as for developing countries and Eastern Europe, threatening to undermine the progress made through democratization processes. In Latin America, despite the recovery of many economies during the 1990s, the concentration of income has remained the same or worse, with the continuous huge gap between the top and bottom 20 percent in the income scale. However, there have been variations across countries, with different country tendencies during the 1980s and 1990s (UNDP 1999). Additionally, the dismantling of wage structures associated with the firms' internal labor markets produces pay structures that are closely tied to the changing labor market; rapidly changing technologies tend to remunerate young new hires rather than experienced workers, producing inequities that have negative repercussions on the morale of older workers (Capelli 1999).

Sixth, *workers' attitudes toward firms and the culture of work are changing*. The "happy worker" model of the past, with stable employment

and strong loyalty to the firm is becoming less relevant for a large proportion of the working population. In turn, more unstable work contracts have had a negative influence on workers' commitment to the employer, absenteeism, and discipline. Survey data show that labor turnover rates have increased significantly and that highly skilled professionals are the least committed to their employers because they are aware they can find jobs elsewhere (Capelli 1999). Younger and older workers often seem to differ not only in terms of their commitments to the firms' objectives, but also regarding desired working conditions such as the length of the working day and other factors affecting the organization of work.[4]

Finally, although these tendencies have been registered in both high- and low-income countries, *we observe contradictory forces at work*. A firm such as General Motors is offering lifetime employment while at the same time envisioning downsizing; and many firms are firing and hiring at the same time (*New York Times* 9/12/99; *Wall Street Journal* 3/13/00; Ozler 2001). Some countries in the European Union suffer from labor shortages for specific segments of low-skill labor despite a high overall unemployment rate, and some are experiencing labor shortages at higher occupational levels.[5] The diminishing importance of internal labor markets has brought many advantages to some firms, such as the ability to respond quickly to market changes, lower long-term liabilities, flexibility in production, and reduced costs, at least in the short run. However, this can also bring problems for capital, particularly the inability to retain the best workers when the market is tight.[6] Finally, while many authors praise the possibilities offered by the "high road" to development—i.e., high productivity and high wages—short-term strategic objectives on the part of private sector firms and "market failures" often lead to the "low road" that fails the test of human development objectives (Appelbaum and Batt 1994; Benería and Santiago 2001). Thus,

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[4] For example, young and old workers have been reported to differ in terms of the structure of the work week, with young workers preferring longer working days in order to have longer weekends and older workers opting for more traditional weekly schedules (*Wall Street Journal* 3/13/00).

[5] Hence, there is reliance on immigration to fill job vacancies at the bottom of the labor hierarchy and, in cases such as Germany, there are efforts to facilitate immigration of computer technicians despite protests on the part of some groups.

[6] In the United States at least, this is illustrated by the prevalence of "poaching" or "stealing" high-level executives and professionals from competitors (Schellhardt 1997).

times of plenty for many coexist with the stubborn permanence of poverty, particularly in developing countries but also in high income countries such as the United States and England, a problem intensified by the dismantling of the welfare state.

The informal sector and the vicious cycle of poverty in developing countries

The experience of the Asian tigers before the 1997 financial crisis led to the belief that a model based on economic growth, increasing labor productivity, and relatively low wages could eventually generate gradual improvement in income levels and living standards that would eliminate the poverty associated with informal activities. This was so despite the fact that export-led industrialization was based on significant inequalities, particularly in terms of the gender gaps in labor and wages (Seguino 2000). However, other regions such as Latin America and particularly Africa did not register the important leap that was associated with the Asian tigers before the 1997 crisis. Even areas that have been very successful in attracting foreign investment and generating increased employment, such as the United States–Mexico border region during the past two decades, have not seen their living standards improve in any significant way for a large proportion of the population; in particular, women's working conditions have not experienced much improvement if at all (Fussell 2000). This is in sharp contrast to the pre-crisis period in Asia and contradicts earlier optimistic views about the positive effects of export-processing industrialization on wages and living standards (Lim 1983). Neoliberal policies and the developments at the firm level referenced above have reinforced these tendencies, leaving large sectors of the population immersed in the periphery of core activities in which informal activities predominate. Hence the importance of re-analyzing the "informal sector."

During the 1970s and 1980s, the informal sector was viewed in development circles as a transitory form of employment whose significance would decrease as the formal sector grew with employment and absorbed the marginal working population. In this sense the sector was viewed as "backward" and problematic and the formal sector as the "modern" solution to low productivity and poor working conditions prevalent at the informal level [ILO 1972; Mexico, Secretaría de Programación y Presupuesto, Unidad Coordinadora del Empleo, Capacitación y Adiestramiento (Secretariat of Programming and Budget, Coordinating

Unit for Employment and Training—SSP/UCECA) 1976]. These initial formulations emphasized the sector's relationship with the marginality of the urban poor, their unstable working conditions, and their precarious position within the economy. The SSP/UCECA defined the informal sectors in terms of the following factors:

- Very low level of earnings;
- Absence of, or precarious nature of job contracts;
- Unstable working conditions;
- Poor access to social services and absence of fringe benefits;
- Very low rates of affiliation to labor organizations;
- Work often taking place at the borderlines of illegality.

Conceptually, and despite many critiques to the contrary, the formal and informal sectors were viewed as separate and independent of each other despite studies documenting their linkages and pointing out the shortcomings of dualistic divisions (Bromley and Gerry 1979). For example, analyses of subcontracting processes showed the extent to which the two sectors were highly interconnected, particularly but not solely in the industrial sector. Far from absorbing informal activities, the formal/modern sector often relied and fed on the former as a way to increase its competitiveness and profits (Benería and Roldán 1987; Portes and Castells 1989). In this sense, they were not separate or independent of each other but were closely linked and instrumental for the formal sector. The implication was that the conceptual separation between the two sectors was in many ways artificial, even if useful in discussing different forms of employment.

If anything, the 1980s and 1990s saw these tendencies intensify due to the increasing reliance of firms and households on precarious forms of employment. To be sure, we need to distinguish between two types of informalized activities: (*a*) those linked directly or indirectly to industrial and service work in more formal settings, and (*b*) those representing survival activities and organized from the household level. The former are linked to profit-oriented operations and can include self-employment and wage work tied directly or indirectly to more formal production processes; this sector includes microenterprises and subcontracting arrangements, both in high- and low-income countries. The analysis in this chapter refers mostly to this type of informal work. Survival activities, on the other hand, tend to represent precarious forms of self-employment with weak or no links to the more formal processes and without possibilities for capital accumulation.

Another differentiation results from the legal/illegal divide. The informalization of labor processes observed in high-income countries during the past two decades has mostly taken place in a legal context, despite exceptions. This is much less the case in developing countries where the growing importance of the informal sector for the survival of a large proportion of the population often takes place beyond the boundaries of legality and under the usual precarious conditions that have traditionally been associated with this sector. As Hernando de Soto (2000) argues, these are the activities that are "filling the vacuum left by the legal economy" (p. 49).

Contrary to initial expectations, the proportion of the population engaged in informal activities has not decreased. Table 3.1 shows that, between the 1980s and the 1990s the relative weight of informal sector employment increased significantly in all regions. Estimates made by Charmes (2000), reported in this table, reflect the growing importance of this sector for non-agricultural employment. They seem very high, apparently resulting from the definition of the sector adopted by the 15th International Conference of Labor Statisticians in 1993, which includes all non-agricultural, "unincorporated enterprises owned by households." This includes microenterprises as well as professionals, domestic workers, and home-based workers; it also includes family labor and "employees on an occasional basis."

Far from being absorbed by the formal sector then, informal activities have been on the increase. In Latin America, for example, where labor markets have undergone profound changes since the 1980s, most observers agree on the diminishing importance of formal employment. As Pérez-Sainz (2000) has pointed out, there are a variety of reasons for this, ranging from the effects of structural adjustment and market deregulation to the weakening of public employment due to budget cuts

TABLE 3.1

Trends in Informal Sector Employment; Averages for 1980–1999

Regions	Informal sector as % of non-agricultural employment 1980–1989	1990–1999	% of women in the informal sector	% of self-employment in the informal sector
North Africa	38.8	43.4	—	51.5
Sub-Saharan Africa	68.1	74.8	52.3	90.0
Latin America	52.3	56.9	45.9	50.4
Asia	53.0	63.0	39.9	63.0

Source: Charmes (2000); estimates based on national sources.

and privatization programs. Thus, although Latin America has traditionally had high levels of informal employment, the past two decades have registered its continuous growth; in 1998 it represented 47.9 percent of total urban employment, up from 44.4 percent in 1990 (ILO 1999).

These tendencies have led to growing reliance on precarious forms of survival across countries, particularly for the poorest households but also affecting other sectors (González de la Rocha 2000; Oliveira 2000). Household survival strategies include very unstable links with the labor market, combining, often within short time periods, wage labor and self-employment as well as temporary migration (domestic and international). This instability has led a Bolivian sociologist to talk about the phenomenon of "nomad labor," referring to the continuous move in search of survival strategies (Garcia-Linera 1999). In international development circles, the literature has used the notion of "labor exclusion" to refer to the vicious cycle of poverty resulting from persistent levels of unemployment and marginality from regular sources of income. For example, weighted averages for Latin America show a 9 percent rate of open urban unemployment for 1999, "a figure above the 8.3 percent rate for 1985, at the height of the debt crisis" (Pérez-Sáinz 2000).[7] These high levels of unemployment have persisted in the region despite economic recovery in many countries in recent years. Thus, marginality and precarious jobs have become an integral part of the labor market experience of a large prop-ortion of workers in the periphery, leading to questions about the "erosion of work" and the disappearance of traditional forms of wage labor (McMichael 1999). A study of current production processes in the outskirts of Cochabamba, Bolivia, shows that some of the participants in precarious forms of employment are not even viewed as "workers" (Kruse 2000).[8]

What are the differences between these current processes of informalization and the earlier stages in which the informal sector became a subject of study in developing countries? How can we compare current conditions with those in the 1970s in this respect? First, the macroeconomic context has changed considerably since the 1980s, due to the introduction of neoliberal policies, the effects of globalization,

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[7] For some countries, unemployment rates reached higher levels in 1999, such as in Argentina (14.5 percent), Colombia (19.8 percent), Panama (13 percent), and Venezuela (15.3 percent) (Pérez-Sáinz 2000).

[8] Kruse reports the case of a worker in a workshop that produced blue jeans who asked whether the workers would get a day off on May Day; the owner's wife replied, "Do you suppose you are a worker?"

and economic restructuring in most countries. The expansion and deepening of markets has extended the links between the two sectors. At the same time, and as Pérez-Sáinz argues for the case of Latin America, the formal vs. informal distinction has become increasingly vague. Market deregulation has blurred one of the basic differences between the two, i.e., the association of different forms of regulation with the formal sector, with its correspondent legal/illegal breakdown (Benería and Roldán 1987; Portes and Castells 1989). Over time, it has become increasingly problematic to define where the formal market ends and the informal begins. The pressures of global competition, combined with market deregulation, have led to the "low road to development" associated with precarious types of employment. Likewise, the association of large firms with the formal sector has become increasingly problematic to maintain given their involvement with informalized production through outsourcing and subcontracting. As activists and consumer campaigns against exploitative labor practices of international retail chains have shown (as in the cases of Nike, Eddy Bauer, and others), the links between large and medium multinational corporations and precarious working conditions are well known.

Second, the informal sector is no longer seen as the anomaly that will eventually be absorbed by the "modern" sector. The trend has been in the opposite direction, the result of increasing global competition leading to lower production costs and often justified in terms of low consumption prices. In fact, the "modern" sector is no longer exclusively identified with the more formal and prestigious activities. In many cases, the public sector has become less attractive due to budget cuts and retrenchment, leading to continuous erosion in wages and benefits (Tripp 1987; Pérez-Sáinz 2000). Thus, the decline in the weight of formal employment in many countries has enhanced the relative attractiveness of informal activities as a source of livelihood for many workers and households.

Third, although the traditional association of informal employment with low skills and low productivity still holds, the last two decades have introduced changes. With the increase in outsourcing and subcontracting, many informal labor processes such as those resulting from subcontracting chains with core firms are concentrated in the formal sector. In this way, the core firms occupy a principal role in the generation of informality and poor working conditions, yet the production they generate might no longer be associated with marginality or with low productivity if technology transfers take place through outsourcing and subcontracting leading to the use of modern equipment.

Fourth, the expansion of informal activities in developing countries during the past two decades is taking place in a climate where political rights, individual agency, and empowerment are emphasized. Yet the contradiction between these predominant issues and labor market trends is quite obvious. In high-income countries, the dismantling of welfare that has accompanied state market deregulation and globalization since the late 1970s has resulted in the erosion of workers' rights and labor unions (Tilly 1995; Standing 1999). Tilly has argued that the rise of western democracies led to the gradual and incremental establishment of workers' rights through the enforcement of contracts, intense labor struggle, and the creation of citizenship and democratic institutions and decision-making. With globalization, he argues, "great inequalities of economic power threaten democracy" (Tilly 1995, p. 22). However, Tilly's analysis focuses on western Europe; in developing countries where the welfare state has hardly been built, globalization has generated contradictory forces. To be sure, transnational investment has thrived on the lack of workers' rights in many developing countries, as exemplified by the restrictions of rights in many export-processing zones scattered around the globe.[9] Yet industrialization and individualization of decision-making associated with markets can also contribute to the recognition of individual rights, even without the formal broadening of democratic institutions. For example, rural women's migration to industrial and other forms of employment may foster their individual rights and increase their autonomy, releasing them from patriarchal practices *even though,* at the same time, they may be subject to discrimination and exploitative working conditions. Likewise, global links can generate pressure toward recognition of workers' rights, as illustrated by some of the recent debates in international forums on this issue. However, these dynamics are likely to exclude much of the labor force in the informal sector.

Finally, and related to the above, precarious jobs and economic insecurity translate into precarious lives and poor living conditions that appear to be a permanent feature of a large proportion of the population in developing countries. This is, of course, not a new phenomenon but it has taken on new dimensions as a result of labor market deregulation and increased flexibility in production. In particular, it has become crucial for our understanding of persistent poverty and increasing economic

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[9] The literature on this subject is abundant. See, for example, "Worker Rights in Export Processing Zones," Report Submitted to Congress Under the Omnibus Trade and Competitiveness Act of 1988, volume II (Washington, DC: U.S. Department of Labor, Bureau of International Labor Affairs, August 1990).

insecurity. Standing (1999) has analyzed the different forms of labor market insecurity, summarized below, that these processes have generated:

- *Labor market insecurity* has grown almost globally, with much higher unemployment, slower rates of employment growth, and higher labor "slack" rates;
- *Employment insecurity* is high and rising, with growing proportions of those in the labor force having insecure employment status, and with more workers lacking employment protection;
- *Work insecurity* has increased because more people have jobs that lack coverage by protective institutions and regulations;
- *Job insecurity* has worsened, with more workers having to switch jobs and learn new work skills;
- *Skill reproduction insecurity* is considerable, in part because skills become obsolete more quickly and because few workers are receiving skills training;
- *Income insecurity* is greater for those employed, due to flexible wages and other factors, and for the unemployed, due to explicit and implicit disentitlement to benefits;
- *Representation insecurity* is growing due to de-unionization, erosion of "tripartite" institutions, and the changing character of collective bargaining.

Kruse's study of urban employment in Cochabamba, Bolivia, provides a clear description of how men and women working in semi-informal workshops and under very poor working conditions live their daily lives:

"[They] live a growing and powerful daily insecurity, with unpredictability in their *unilateral* labor contracts and mechanisms of retention, promotion, remuneration, and working time. In the face of such mechanisms, often the only *option* for defense, claim or resistance is to quit. To a great extent, these options explain their labor trajectories, marked by a notorious instability and horizontal mobility… This limits the possibility to settle in any labor community and therefore the possibility to establish a social and political presence" (Kruse 2000).

Thus, the vicious cycle of poverty and powerlessness is perpetuated— for men, for women, and for entire households. As Kruse argues, such conditions are hardly adequate to build stable communities and democratic participation in civic life.

Informalization and women

Given that women have tended to be highly involved in informal activities, we can make some observations about whether there have been changes in the extent and nature of this involvement. First, the feminization of the labor force during the past three decades has intensified the reliance of many women on informalized employment. To the extent that self-employment reflects this trend, Charmes (2000) has estimated that during the 1970–1990 period the proportion of self-employed in the female non-agricultural labor force increased in all regions, including the "developed" regions (see Table 3.2). More specifically, Table 3.3 illustrates the weight of informal sector employment and of women's

TABLE 3.2

Self-Employment in the Female Non-Agricultural Labor Force

	% of self-employed in female non-agricultural labor force		
	1970	**1980**	**1990**
Developed regions	10.4	9.7	11.1
Africa	38.1	59.3	62.8
Latin America	28.6	29.2	32.1
Asia	27.9	26.7	28.7
World	24.0	28.4	27.6

Source: Charmes (2000); estimates based on national sources.

TABLE 3.3

Employment and Contribution of Women in Informal Activities, Various Countries and Years

	Percent of women's contribution in:	
	Informal sector employment	**Informal sector GDP**
Benin (1992)	59.7	51.1
Burkina Faso (1992)	41.9	61.4
Chad (1993)	53.4	62.3
Mali (1989)	71.9	68.2
Kenya (1998)	60.3	46.2
Tunisia (1994-96)	18.1	15.7
India (1993)	22.7	22.1
Indonesia (1998)	43.1	39.5
Philippines (1995)	46.3	44.2

Source: Charmes (2000); author's estimates based on official labor force statistics and national accounts.

TABLE 3.4

Home-Based Workers, Various Countries and Years

	Number of home-based workers	% of non-agricultural labor force	% women
Tunisia (1994)	86,267	4.8	71.3
Kenya (1999)	777,100	15.0	34.9
Benin (1992)	595,544	65.8	74.1
Thailand (1999)	311,790	2.0	80.0
Philippines (1993–95)	2,025,017	13.7	78.8
Chile (1997)	79,740	1.8	82.3
Peru (1993)	128,700	5.2	35.3
Brazil (1991)	2,141,972	5.0	57.1
Brazil (1995)	2,700,000	5.2	78.5

Source: Charmes (2000); estimates based on national sources.

contribution to the GDP of the informal sector in various countries, showing that in African countries like Benin, Chad, Mali, and Kenya this contribution exceeds 50 percent. Although more statistical information is needed regarding the scope of informal activities where women are concentrated, studies have shown that they range from subcontracting processes linked to export-oriented industrialization, including home-based work, to street vending and other trade and services activities that evolve around survival strategies.

Subcontracted and home-based work illustrates many of the problems associated with women's informal employment. A recent study on subcontracted work in five Asian countries[10] shows that earnings lower than in the formal sector prevail, with no consistency of work contracts, difficult working conditions, and long hours of work (Balakrishnan and Huang 2000). The study points out the difficulty of organizing workers for the purpose of increasing their bargaining power and it illustrates that "subcontracting makes it very difficult to hold one employer responsible for protecting workers' rights [due to] the many layers of chains" (p. 14). Another study differentiates between two types of home-based workers carrying out remunerative work in their homes: "independent own-account producers" and "dependent subcontract workers," pointing out that the term "homeworkers" refers to the second category only (Carr, Chen and Tate 2000). Table 3.4 shows that women represent the large majority of home-based workers in many areas, exceeding 80 per-

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[10] The Philippines, Thailand, India, Pakistan, and Sri Lanka.

cent in some countries. Although the variations between countries are large, the table shows that women represent a large proportion of the non-agricultural, home-based labor force.

Second, in the north as well as the south at least three dimensions of economic restructuring, described below, have implications for the informalization of work affecting women:

- At the micro level, restructuring has profoundly transformed the linkages between core firms and the different levels at which production has been decentralized; sweatshops and decentralized production through subcontracting provide examples across countries and industries. A study of the shoe industry in Spain, for example, illustrates how larger firms have reduced their size through the formation of smaller firms and decentralized production to more informal labor contracts, many of which have gone underground (Ybarra 2000). Ybarra estimates that total employment has been halved since the 1980s, despite the increase in the number of firms. Women have concentrated at the lower levels of production, particularly in home-based production where labor norms, although regulated in principle, are "rarely implemented" (p. 213). It is estimated that the underground work done by women accounts for 35 to 40 percent of the work generated by the sector.

- Layoffs and relocation of production often result in gendered transitions to new employment. For example, studies have documented gender differences in income loss (where women's losses represent a higher proportion of their income than men's), in length of unemployment (also higher for women), and in the effects from layoffs and unemployment experienced at the household level and community life (Benería and Santiago 2001).[11]

- The literature on "commodity chains" and peripheral urban growth has also contributed examples of the ways labor market informalization can affect women. Several authors have analyzed the connections between globalization and the formation of com-

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[11] Benería and Santiago's study (2001) of a large firm's relocation from New York state (United States) to Tijuana (Mexico) shows that, although all workers suffered a dramatic decrease in their annual income when comparing the new with the old jobs, the relative decrease for women was 35 percent of their previous income and 26 percent for men, even though in absolute terms men lost a larger amount ($8,147) than women ($7,727) The length of unemployment from the time they were laid off until they found new jobs was 11.8 weeks for women and 9.5 weeks for men. The study reinforces the findings of previous research on these issues.

modity chains through which large buyers tend to control the links between inputs and outputs (Gereffi 1994; Korzeniewicz 1994; Hsiung 1996; Kruse 2000). Along the same lines, Carr et al. (2000) have pointed out that technological change has facilitated "lean retailing" that demands the "quick and timely supply of goods associated with the just-in-time inventory system." According to these authors, this system has resulted in an increase in homework in the garment sector, particularly in countries close to the main markets of Europe and North America. Thus, the traditional precarious conditions in the informal sector have been exacerbated by the dynamics of globalization and the new productive processes shaping the labor market.

Third, women's primary involvement in domestic and child care responsibilities continues to be a source of vulnerability for them, not only because this is unpaid work but also because it diminishes women's mobility and their autonomy in designing their labor market strategies. The efforts of the past two decades to account for and analyze unpaid work and its consequences for women's participation in paid production have not been sufficiently translated into practical action and policies. In developing countries, middle- and upper-class households can rely on poor women to take on the responsibilities of domestic work and child care. Domestic service still represents a very large proportion of women's employment in many low- and middle-income countries.[12] Yet involvement in domestic and child care responsibilities continues to have an impact on many women, even if it varies according to social background.

Likewise, the implementation of structural adjustment policies in many countries has tended to increase women's involvement both in domestic and labor market work, often resulting in an intensification of their work in multiple settings (Floro 1995). However, these policies have not considered provisions addressing the different problems faced by men and women by taking existing legislation into account. For example, the International Labour Organization's Convention 103 on maternity protection has only been ratified by 37 countries, which demonstrates the low priority given to this objective in most countries, let alone the fact

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[12] To illustrate with the case of Brazil, estimates of the proportion of employed women in domestic service range between 16 percent and 20 percent; one study found an average of 19 percent for the 1990s decade (Benería and Rosenberg 1999).

that "maternity protection," in contrast to "parental protection," includes an intrinsic bias in the assignment of child care to mothers without equal share with fathers. With the increasing informalization of jobs, the implementation of ILO standards seems even more remote and they are subject to a great deal of critical scrutiny (ILO 1997).

Fourth, one of the differences between the earlier periods of informalized labor and current conditions is the degree to which women have been able to take up actions at the national and international level. Structural adjustment and economic crises have led women to organize around labor issues as well as around tensions related to unpaid work and household survival strategies. A good example has been the key role of women in getting the ILO Convention on Home Work approved in June 1996. As Elizabeth Prugl (1999) has argued, this was a feminist victory, with international networks such as HomeNet providing extensive information, and using the special relationship that its members had forged with unions in advance of the conference to get their arguments on the floor. Although the rate of ratification at the country level is still very low, the Convention provides concrete goals and a regulatory tool for organizing further action. Other organizations that concentrate on women and informalized work are the Self-Employed Women's Association (SEWA), which has gained international notoriety for its accomplishments, and Women and Informal Employment: Globalizing and Organizing (WIEGO), which has organized a network of workers, activists, and academics who focus on the informal sector, including home-based workers. More details on these institutions are presented in Chapter 7.

Contradictory tendencies for women's employment

Despite the above analysis, during the past three decades there have also been positive changes that should be taken into account in order to evaluate the more complex and often contradictory tendencies affecting women's work. Worldwide and in much of the literature on the subject, female employment has for the most part been linked to exploitative conditions, low productivity, and low pay. Yet these generalizations need to be qualified. As women's educational levels and labor force participation have gradually increased—in some cases dramatically—the dynamics of women's employment have become more complex.

First, gender gaps in education have been decreasing significantly across regions. For example, the Arab countries have experienced some of the most dramatic increases in women's educational levels, with women's

literacy rates doubling during the 1970–1990 period. South East Asia and the Pacific countries also made considerable progress during the period, and in many Latin American countries educational indicators for women have surpassed those of men (UNDP 1999). Using 1999/ 2000 figures for the net male/female ratio for enrollment in secondary education, Figure 3.1 shows this was the case for 20 of 24 Latin American and Caribbean countries, as well as for certain countries in each of the other regions. This improvement in women's educational status is a crucial step toward gender equality and women's advancement. Yet while a correlation exists between schooling and labor force participation, and while this correlation tends to be higher for women than for men, women's educational levels do not necessarily translate into labor market gains for women.[13] Obstacles to women's advancement such as occupational segregation and discriminatory practices reduce these possible gains. In addition, the progress made in women's education is far from complete. For example, gender differences in illiteracy rates and other indicators of educational achievement are still substantial in many countries. Illiteracy rates are extremely high in some African and Asian countries while female primary and secondary school enrollment has not achieved parity with men in many countries.[14] To the extent that the high concentration of women in informalized production can be partially attributed to their lower educational status, educational policies are crucial for dealing with women's economic insecurity.

Second, there are clear indications that women's higher educational levels and rising labor market participation have benefited those who have moved into managerial and professional occupations. This seems to lead toward greater income inequality among women; the benefits received by women at the higher educational levels must be contrasted with the precarious conditions for the large majority. Although more studies are needed to document this tendency for different countries, evidence for Brazil and the United Sates points in the direction of what McCrate has called a "growing class divide among women" (Lavinas 1996; McCrate 1999).

Third, despite this persistence of gender discrimination and obstacles to women's advancement, women's relative wages have improved in re-

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[13] For an analysis of these issues in the case of Brazil, see Benería and Rosenberg (1999).

[14] To illustrate, the 1997 illiteracy rates for women were 97.1 percent in Ethiopia, 92.8 percent in Niger, and 79.3 percent in Nepal (UNDP 1999).

FIGURE 3.1

Secondary Level Enrollment: Ratio of Female Rate to Male Rate, 1999–2000.

Asia and the Pacific

Viet Nam	101
Maldives	101
Hong Kong, China	101
Brunei Darussalam	101
Sri Lanka	100
Singapore	100
Philippines	100
Myanmar	100
Mongolia	100
Malaysia	100
Korea, Rep.	100
Fiji	100
Thailand	99
Indonesia	99
China	98
Iran, IR	96
Cambodia	93
Papua New Guinea	90
India	83
Lao PDR	74
Bangladesh	67
Pakistan	61
Nepal	59

Eastern Europe

NER: Net Enrollment Rate

Estonia	106
Poland	105
Slovenia*	103
Albania	102
Croatia	102
Romania	102
Latvia	102
Hungary	101
Czech Rep.	101
Lithuania	101
Bulgaria	98

GER: Gross Enrollment Rate

Yugoslavia, FR	105
Slovakia	102
Belarus	97

Western Europe and Other Developed Countries

NER: Net Enrollment Rate

Portugal	108
Luxembourg	106
Ireland	105
Sweden	104
Iceland	104
Greece	104
Denmark	103
Spain	103
United States	102
United Kingdom	102
France	102
Finland	102
Australia	101
Norway	101
Germany	101
Canada	101
Belgium	101
Japan	101
Netherlands	100
Austria	99
Italy	97
Switzerland	94
Malta*	77

GER: Gross Enrollment Rate

New Zealand	106

Latin America and the Caribbean

NER: Net Enrollment Rate

Dominican Rep.	128
Belize	125
Venezuela	120
Costa Rica	113
Colombia	111
Trinidad & Tobago	110
Argentina	109
Panama	109
Brazil	108
Uruguay	108
Paraguay	106
Chile	104
Cuba	104
Jamaica	104
Ecuador	103
Barbados	102
El Salvador*	101
Mexico	101
Guatemala	99
Peru*	98
Bahamas	97

GER: Gross Enrollment Rate

Nicaragua	119
Guyana	102
Bolivia	93

100%
Gender gap | Gender gap closed | Reverse gender gap

Source: United Nations Fund for Female Development (UNIFEM), *Progress of the world's women 2002: gender equality and the Millennium Development Goals* (New York: UNIFEM; 2002, p. 16). Data based on UNESCO Institute of Statistics, http://portal.unesco.org/uis.

*For these countries, data are for 1998/1999; for all other countries, data are for 1999/2000.

(Continued)

FIGURE 3.1 (Continued)

Secondary Level Enrollment: Ratio of Female Rate to Male Rate, 1999–2000.

Sub-Saharan Africa

NER: Net Enrollment Rate

Country	Value
Lesotho	161
Namibia	140
Botswana	116
Mauritius	104
Madagascar*	103
Malawi	96
Tanzania, UR	95
Zimbabwe	91
Zambia*	85
Swaziland*	84
Sierra Leone	82
Eritrea	80
Ghana*	80
Angola	77
Mozambique	73
Gambia	72
Liberia*	71
Burkina Faso	65
Niger	65
Ethiopia	63
Congo, DR	58
Benin	46
Togo	44
Guinea	38
Equatorial Guinea	36
Chad	31

GER: Gross Enrollment Rate

Country	Value
Sudan	167
Djibouti	129
South Africa	110
Rwanda	95
Kenya*	90
Gabon*	87
Comoros	82
Burundi*	75
Mauritania	72
Senegal*	64
Guinea-Bissau	54
Côte d'Ivoire*	53
Mali*	52

Gender gap — 100% Gender gap closed — Reverse gender gap

Northern Africa

NER: Net Enrollment Rate

Country	Value
Libya*	113
Tunisia	106
Algeria	104
Egypt	94
Morocco	83

Central and Western Asia

NER: Net Enrollment Rate

Country	Value
UAE	114
Bahrain	113
Lebanon	109
Georgia	107
Jordan	107
Qatar	107
Israel	102
Kuwait	101
Oman	101
Azerbaijan*	101
Syria*	92
Iraq	66
Yemen*	40

GER: Gross Enrollment Rate

Country	Value
Kyrgyzstan*	103
Kazakhstan	101
Saudi Arabia	90
Tajikistan	86
Turkey	71

Gender gap — 100% Gender gap closed — Reverse gender gap

Source: United Nations Fund for Female Development (UNIFEM), *Progress of the world's women 2002: gender equality and the Millennium Development Goals* (New York: UNIFEM; 2002, p. 16). Data based on UNESCO Institute of Statistics, http://portal.unesco.org/uis.

*For these countries, data are for 1998/1999; for all other countries, data are for 1999/2000.

lation to male wages across countries. As Figure 3.2 indicates, in industry and services this has been the case for 22 of 29 countries, including high- and low-income countries. In manufacturing, the same has been

the case for 20 out of 22 countries. For the transition economies of Eastern Europe, Figure 3.2 shows an improvement in women's relative wages for four out of seven countries. Yet despite this positive trend, no country has achieved wage equality: the female/male ratios shown for 1997 range between a low of 56 percent for the Republic of Korea and 96 percent for Myanmar; the next highest ratios correspond to El Salvador, Sweden, and Costa Rica. A different issue is that the level of formal education does not assure that women will be able to upgrade their skills with the speed required by technological change and shifting labor markets.

Fourth, much has changed since Ester Boserup (1970) emphasized the need to "integrate women in development." As she saw it, women had lost out in the development process for a variety of reasons. One of them had to do with the ways in which industrialization, particularly but not exclusively under import-substitution policies, resulted in the marginalization of women when the craft industry was replaced with modern industry which employed predominantly male labor. This "preference" for male workers must be contrasted with the "preference" for women workers observed in export-led industrialization leading to the feminization of the labor force.[15] This preference primarily has rested, among other reasons, on the availability of women as the cheapest and most flexible labor pool—from the Asian newly industrialized countries in the 1970s to maquila production in Latin America. Although this industrialization has provided many illustrations of the precariousness of women's employment, it has also contributed to increasing women's income and autonomy, therefore generating contradictory results. Thus, we can distinguish between the following three different outcomes:

a) Cases that represent an improvement in women's conditions, even without eliminating gender inequalities. For example, with respect to Asian countries, Lim (1983) has proposed that rapid, export-led growth benefited women by providing them with formal, well-paid employment. In particular she maintains that multinational firms paid higher wages than national capital (Lim 1983). Subsequent research has not contradicted this argument but it has added a different dimension, namely that rapid Asian growth was partially based on gender inequality, and, specifically, wage inequality. As

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[15] Extensive literature exists on this topic. For a summary, see United Nations Development Program, 1999.

FIGURE 3.2

Change in Female Wages As Percentage of Male Wages, 1980–1997

Change in Female Wages as % of Male Wages in Industry and Services, c. 1980-c. 1997

Gender gap falls

Country	circa 1980	circa 1997
Argentina	78	87
Australia	86	90
Belgium	69	80
Bolivia	65	75
Brazil	53	74
Colombia	62	95
Costa Rica	70	85
Cyprus	54	62
Ecuador	70	88
Egypt	64	97
Guatemala	75	85
Honduras	70	78
Jordan	83	87
Korea, Republic	44	62
Luxembourg	65	70
New Zealand	77	81
Panama	78	83
Paraguay	58	83
Singapore	63	74
Sri Lanka	88	90
United Kingdom	70	80
Uruguay	63	83

Gender gap does not fall

Country	circa 1980	circa 1997
Chile	77	73
Iceland	87	71
France	87	81
Mexico	75	72
Netherlands	78	77
Switzerland	68	67
Venezuela	82	79

■ circa 1980 ■ circa 1997

Change in Female Wages as % of Male Wages in Manufacturing, c. 1980-c. 1997

Gender gap falls

Country	circa 1980	circa 1997
Australia	79	85
Belgium	70	80
Costa Rica	70	86
Cyprus	50	60
Egypt	62	74
El Salvador	81	95
Finland	75	79
France	77	79
Greece	68	81
Ireland	69	75
Korea, Republic	45	56
Luxembourg	61	63
Myanmar	86	96
New Zealand	71	78
Norway	82	87
Sri Lanka	75	85
Swaziland	55	71
Sweden	90	90
Switzerland	66	69
United Kingdom	69	72

Gender gap does not fall

Country	circa 1980	circa 1997
Denmark	86	85
Paraguay	79	77

■ circa 1980 ■ circa 1997

Female Monthly Wages as % of Male Wages in Transition Countries, c. 1987-c. 1992

Country	circa 1987	circa 1997
Bulgaria	74	68
Czech Republic	66	81
Hungary	74	77
Poland	74	79
Russia	71	70
Slovakia	66	78
Slovenia	87	86

■ circa 1987 ■ circa 1997

Source: UNIFEM, *Progress of the World's Women 2000* (New York: UNIFEM, 2000, p. 94).

Seguino (2000) has argued, low female wages served as an incentive for investment and exports "by lowering unit labor costs, [and] providing the foreign exchange to purchase capital and intermediate goods which raise productivity and growth rates" (p. 27).

b) Cases in which little or no improvement has been observed. A study focusing on the maquiladora system in the United States/Mexico border region, for example, shows that Lim's positive findings have not applied to this area. Using a labor trajectory survey for Tijuana (Mexico), Fussell (2000) argues that maquiladora wages have not improved as employment has expanded in the area. Fussell points out that this contradicts Lim's assertion that export-oriented employment would raise wages for all workers and improve the labor market position of women. The difference is related to the conditions prevailing in Mexico in comparison with the Asian case; while the maquiladora area has continued to attract an almost unlimited labor supply, the rapid growth in Asia resulted in tight labor markets and high increases in productivity.

c) We also observe cases of mixed results, as reported in Ozler's recent study (2001) of gender differences in employment in Turkey's export-led industrialization. Based on a large data set of Turkish manufacturing, she argues that while trade liberalization has led to the feminization of the labor force, and that job creation for women has been significantly higher than for their male counterparts, the volatility of women's jobs is also significantly higher. Thus, this case reflects that the preference for women workers also leads to their being more vulnerable. Mixed results also can arise in cases of de-feminization of the labor force, for example in cases when technological change is gender-biased against women.[15]

Taken together, these studies imply that literature from the 1970s that emphasized the exploitative character of women's employment by multinational corporations was simplistic and did not capture sufficiently the complexities of the factors involved. In particular, it did not take into consideration the range of variations in labor market conditions between countries.

Finally, much has changed also in terms of women's agency, as illustrated above, but also in terms of the profound transformations in gen-

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[16] The reasons for this vary, ranging from the greater possibility for men to upgrade their skills when new technologies are introduced, to changes in work schedules.

der roles, particularly, but not exclusively, those of women. Richard Anker's study (1998) of gender segregation across countries has shown that, during the past three decades, men have been losing their labor market advantage—in the sense of having their "own" occupations protected against female competition. Although with some exceptions and differences between countries and regions, Anker's analysis for the OECD countries, for example, illustrates the extent to which the increase in women's labor force participation has taken place in female-dominated occupations, particularly in the 1970s, as well as in male-dominated occupations (in the 1980s). We have come to view gender and gender differences in a dynamic way, reflecting changing meanings over time. This implies discarding stereotypes about the gender division of labor, employment conditions, and other factors affecting gender relations and gender differences. It also implies that to focus only on women is incomplete and often inaccurate for any type of gender analysis since it leaves out its relational and dynamic nature. As Mathew Guttman (1996) has shown in his study of changing roles in Mexico City, "Gender identities, roles and relations do not remain frozen in place, either for individuals or for groups" (p. 27).

Conclusions

This chapter argues that the enormous increase in precarious employment and informalized production that has resulted from globalization and the implementation of neoliberal policies needs to be understood within the context of the changes taking place at the micro level of the firm. These changes represent a massive redistribution of resources away from labor and increased social inequality across countries. They are also at the root of the stubborn persistence, and even increase, in poverty and economic insecurity in many areas, including high-income countries. An implication is that poverty eradication programs must emphasize the need to generate decent jobs without which these programs will continue to be ineffective. Action is needed at different levels, from the adoption of global labor standards to the implementation of measures such as minimum wages at the national level. Given the extent to which resources have shifted from public to private hands during the past few decades, the time has come to put pressure on the private sector to take responsibility for its part in creating precarious jobs and living conditions. In the same way that there has been a paradigm shift in the way the environmental movement has succeeded in increasing the responsi-

bility of private firms for environmental degradation in the past two decades, a similar shift is now needed in the case of precarious employment and distributive mechanisms.

The case of subcontracting and outsourcing is a good example: large firms are central to the creation of subcontracting chains, yet they have been an avenue through which previously acquired labor gains in terms of wages, working conditions, and other benefits have been eroded. This raises the question of whether and how this trend can be reversed or changed, and in what ways subcontractors and workers in the periphery could participate in some of the benefits provided by core firms. The responsibility of the private sector in responding to these questions and in dealing with the roots of poverty and inequality should be emphasized. The voluntary adoption of codes of conduct on the part of large multinational corporations is an encouraging sign in this direction. However, it only represents a small fraction of the huge task ahead.

Regarding women's employment, this chapter argues that women's employment has been affected by flexible production systems and the informalization of labor markets. Growing labor market insecurities have affected them given their concentration in precarious jobs. However, contradictory forces need to be taken into account, particularly in terms of the improvement in women's educational levels and the "preference" for women's labor in export-led industrialization. Improved educational levels have not always resulted in corresponding improvements in labor market conditions, while the preference for female labor is accompanied by greater vulnerability of jobs held by women in contrast with those held by men.

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4

Trade Openness and the Female Worker: The Case of Chile

Dante Contreras
Esteban Puentes
Tomás Rau

Economic liberalization has been one of the most prominent features of the Latin American landscape during the past decade. The region's economies have largely abandoned import substitution industrialization strategies and populist economic policies in favor of open free-market models. Moreover, globalization—the growing incorporation of countries, groups and individuals into a worldwide network of economic, technological and cultural relations—has spurred structural reform processes throughout Latin America. The results of these changes have been mixed, however, with highly irregular economic performance over the past three decades.

As the region's economic landscape has shifted with this new openness, how has women's employment been affected? This is a particularly intriguing question in the case of Chile, the economy of which has undergone significant transformations during the past two decades. Most notably, rapid economic growth since the mid-1980s has doubled per capita GDP.

While Chile's economy as a whole has expanded, a close look at its labor market statistics reveals significant gender differences in terms of salaries, participation rates and types of labor insertion.

With respect to salaries, between 1966 and 1996 the hourly wage paid to men in Gran Santiago was on average 19 percent greater than that paid to women. In examining the evolution of this difference, we see that for more than the first 20 years the gender gap was narrowing. From a figure of 29 percent for 1966–1969, it fell to 20 percent in the 1970s and again to 14 percent in the 1980s. However, this trend was reversed in the 1990s as the difference widened to 19 percent.

It is interesting to note that, during the same period, the education level of working women remained consistently higher than that of working men—by an average of one year.

Nationwide data for the 1990s show that increases in real salaries, which equaled 45.7 percent for the period 1990–1998, have not been distributed homogeneously according to the degree of skill and the gender of the workers. The group that has enjoyed the greatest increase is women with university education at 65 percent, followed by men with university education at 42 percent. Both male and female workers with secondary technical education saw their salaries rise 16 percent. Therefore, although all categories of workers earned higher salaries in relative terms at the end of the 1990s, key differences existed.

Another feature of Chilean labor market characteristics over the last 40 years has been the limited incorporation of women into the labor force. In marked contrast with the trends exhibited by the OECD and Asiatic countries, which boast female participation rates at more than 50 percent and rising, rates in Chile grew sluggishly between 1960 and 1980.[1] For the last 15 years, however, data appear to demonstrate accelerating incorporation of women into the Chilean labor market. Data for Gran Santiago reflect an increase from 37 percent in 1982 to nearly 47 percent in 1997. National data from the National Statistics Institute (INE) show an increase from nearly 28 percent in 1980 to slightly below 35 percent in 1995.

The previous statistics suggest important regional variations in the labor insertion of women. For example, according to data from the National Socioeconomic Characterization Survey (CASEN 1996), while the

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[1] This contrasts with the rate of participation by men which, viewed by age group, shows Chile at the level of the OECD and Asiatic countries. With respect to women in the industrialized nations, Killingsworth and Heckman (1986) report that at the beginning of the 1980s the rates of female participation in the United States and Canada were greater than 50 percent, in the context of a sustained increase over at least the previous two decades. According to the International Labour Organisation (ILO, 1996), the proportion of working age women present in the labor forces of the OECD countries increased from 53 percent in 1980 to 60 percent in 1990, and is projected to continue growing over the coming decade.

national rate of female participation was 36 percent in 1996, the rate for the Metropolitan Region was 6 percentage points higher.

In addition to regional distinctions, the rate of female participation varies socio-economically. While the rate for women in households with the lowest 10 percent of income is only 24 percent of all working-age women at that level, it exceeds 60 percent for the higher deciles.

It is also important to look at the labor insertion of Chilean women, given its relevance for both growth and inequality, as well as social and cultural considerations. If a job requires fewer than 35 hours a week is considered part-time, for the 1960–1996 period an average of 13 percent of total female workers held part-time jobs, with a maximum of 19 percent in 1963 and 9 percent in 1994. The data show evidence of counter-cyclical behavior and a clear tendency to decline, especially from 1985. However, if we compare on the basis of total part-time employment, women have increased their participation in an important way, from 37 percent in 1984 to 61 percent in 1994.

Methodologies

In exploring the question of how trade liberalization has affected women in the Chilean labor market, the research described in this chapter examines four variables: salary differences, participation rates, types of labor insertion and changes in demand for female workers. Various methodologies are employed to analyze the data.

To look at how salary differences are affected by trade liberalization, we utilize the methodology described by Oaxaca and Blinder, which allows separating salary differences into two effects: the endowment effect (mainly human capital) and the unobservable effect (also known as discrimination).

In terms of participation rates we will focus on an analysis of cohorts or generations, as evidence shows that 30-year-old women today have participation rates that are significantly higher than those registered by their counterparts in the 1960s. For this we shall look at the variables that have most affected rates of female participation in the last 40 years, distinguishing between generational and contemporary variables. In this way, it is possible to investigate the factors that underlie the effects on identified cohorts, as well as estimate the effect of the economic cycle and economic openness on the rate of women's participation.

With respect to type of insertion, emphasis is placed on part-time work and its evolution over the past decades. Regressions are estimated

to determine correlations between the variables of trade openness and part-time women's work.

Finally, in the case of changes in demand for women workers, we shall use the methodology proposed by Katz and Murphy (1992), which permits us to divide the population into different demographic cells and observe if there have been changes in relative and absolute demands for these groups between two points in time.

Literature review

Numerous studies have appeared investigating the effects of trade liberalization on the labor market. De Gregorio et al. (2001) show that in the Chilean case trade liberalization boosted productivity. These productivity enhancements were of two types, the first occurred within each sector (the "self-productivity" effect), and the second arose from labor shifts from low to high productivity sectors (the "reallocation effect"). The authors' results demonstrate that the reallocation effect tends to be small, and that productivity increases spurred in part by liberalization were more likely due to within-sector productivity growth. However, a type of reallocation effect might occur within sectors as well.

Leiva (2000) analyzes part-time work in Chile from the gender perspective, giving special attention to the evolution of women's employment as a consequence of economic globalization in Chile in recent years. Changes in the structure of the labor market have manifested themselves through the increase in new forms of employment, which the author refers to as "non-standard," and which are generally characterized by their precarious and uncertain nature. These jobs tend to be temporary, part-time, subcontracted work, and offer more modest salaries and benefits, especially in terms of social security.

According to Ulshoefer (1997), liberalization of labor markets generates two parallel processes in the labor market, one affecting the presence of traditional forms of employment, and the other relating to jobs of a more flexible character (part-time jobs, self-employment, different forms of sub-contracting, etc.). She notes that women in the Southern Cone should be on a sound footing in confronting the effects of liberalization, particularly of the labor market, for a variety of reasons. Fertility rates have declined and life expectancies have increased, while levels of formal secondary and university education have increased, reaching or surpassing those achieved by men. There has been a constant rise in female participation in both the dependent and independent labor mar-

ket, and women have assumed new positions with greater responsibility. Despite these changes, the author remains skeptical of the benefits of liberalization for female workers. She also notes a greater differentiation among women's skill levels.

Despite the varying rates of female labor participation in Chile and its MERCOSUR partners, various common characteristics do exist. Women's participation increases in step with their schooling level, the female participation rate is approaching the male rate. Women present less continuous trajectories because their participation rates may decline during their reproductive years. They also share negative similarities: remuneration that is lower on average than men's for work of equal value (30 percent to 40 percent less), and job discrimination that is both horizontal (limited professional diversity for women) and vertical (low representation in senior management positions).

The benefits in terms of greater employment obtained by female workers have been localized in service sub-sectors, while technological innovations have affected women adversely in the industrial sector. This would be explained by lack of professional qualifications, the perception of high maternity-related costs that employers try to offset with lower salaries, stereotypes that women industrial workers are unprofitable, and the dearth of appropriate facilities to provide for child care and other family-related needs.

However, evidence against these arguments is set forth in an International Labour Organisation 2000 report (ILO 2000). Considering only female wage-earners, the report establishes that for Argentina, Brazil, Chile, and Mexico the additional cost of hiring women is low, fluctuating between 0.2 percent of the gross monthly remuneration of women workers in Mexico and 1.9 percent in Chile. This result is explained principally by the low incidence of pregnancies among female wage-earners, which translates into fewer maternity leaves and breastfeeding breaks. The costs for employers also are low due to the fact that, in the four countries being studied, the wage received by women workers during their maternity leave is financed directly by the State (Chile), or by social security (Argentina, Brazil, and Mexico). Among the most significant costs associated with hiring women are those related to day care centers, which in the case of Argentina and Chile reach 0.8 percent and 1.3 percent, respectively, of the gross monthly remuneration paid to women workers.

ECLAC (2000) presents an analysis of the women's labor force in Chile, using data from the CASEN. The article demonstrates that the participation of women in the labor force rose from 31.3 percent in 1990 to 35.5

percent in 1996. Despite this absolute improvement, the differences with men are even more important, highlighting much progress yet to be made in terms of insertion and equality in the labor force. The authors see the incorporation of women as being of a "structural" character because the behavior of participation rates will shape long-term economic dynamics.

The rate or pace of incorporation of women into the labor force is not homogeneous with respect to income levels, as high-income women (quintile 5) present greater rates of incorporation. Unemployment rates have diminished for men and women in the period being analyzed, but the general tendency is maintained that the unemployment rate of women is relatively high compared to that of men.

This study also showed that even though there is a reduction of low-productivity jobs carried out by women they continue to be high in relation to men. Furthermore, the number of hours worked by men and women are similar, and the distribution of per capita income has improved for women, although the difference with respect to men in 1990 remained equally significant in 1996.

Pagés (1999) conducts a relatively similar analysis for the case of Peru. Between 1991 and 1996 the unemployment rate for women had dropped more than the rate for men, closing the breach between the rates of female and male unemployment. Moreover, the employment of women increased faster than that of men, with annual employment growth rates in urban Peru averaging 2.9 percent for men and 4.2 percent for women. With respect to hours worked, these have increased for both men and women, but men work 10 hours more per week than women.

The labor participation of women in Peru is high (58 percent), and has remained stable during the 1985–1996 period, which could be explained by the fact that the participation of women in that country does not increase as their level of education grows, which is contrary to the great majority of other countries in the region. Income levels for women have increased 7.4 percent during the 1991–1996 period, in relation to 3.3 percent for men, which is explained by growing demand for female labor. The salaries of women in Peru are lower than those paid to men, but this breach has been closing over time.

León (2000) establishes that women in Latin America have entered the labor force as informal salaried workers or through self-employment due to the low creation of jobs by the economies of the region. The author states as an initial hypothesis that in countries where the labor regime is institutionalized, women acquire jobs in equal or greater proportion than men. In the case of countries with incipient reforms, where

salaried jobs have declined globally and particularly in key sectors, the proportion of women in subsistence-level jobs is equal to or greater than in countries with appropriate labor regimes.

The author concludes that the countries whose reform processes are more advanced have created a greater quantity of jobs. In all of the countries studied the creation of jobs in predominantly female employment sectors, such as services, was greater in relation to sectors that predominantly employed men, such as the industrial sector. The proportion of female wage-earners has increased in Argentina, Bolivia, Brazil, Chile, Mexico, and Uruguay, while it has declined in Colombia, Costa Rica, and Venezuela. The quality of jobs held by women has improved when measured in terms of access by women to jobs in large companies; in particular, the increase in the average growth rate for salaried women workers in large companies is greater than that for men.

For the Argentine case Altimir and Beccaria (1999) determine that the economically active population grew by 2.5 percent annually between 1991 and 1998, which is explained principally by the expansion of participation by women in the labor market.

General background on Chilean liberalization[2]

First liberalization process

The military regime that swept into power in 1973 brought with it the objective of opening up the Chilean economy, and proceeded in that direction with a number of bold steps. That same year the country's long tradition of price controls was abandoned to make way for market-driven allocation of resources. Policies to stabilize and shrink the fiscal deficit were implemented, leading to a deficit reduction from 25 percent of GDP in 1973 to 1 percent in 1975. Inflation was brought below 100 percent in 1977. All non-tariff restrictions were eliminated. Tariffs dropped from an average of 100 percent in 1973 to a single tariff of 10 percent in 1979 for all goods and services other than automobiles and certain agricultural products. However, to compensate for the reduction in tariff protection, the authorities devalued the exchange rate during the first phase of economic liberalization.

Figure 4.1 shows average tariffs and an index of trade liberalization constructed using a measurement of quantitative restrictions from Ffrench-

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[2] This section closely follows de Gregorio et al. (2001).

FIGURE 4.1

Trade Liberalization
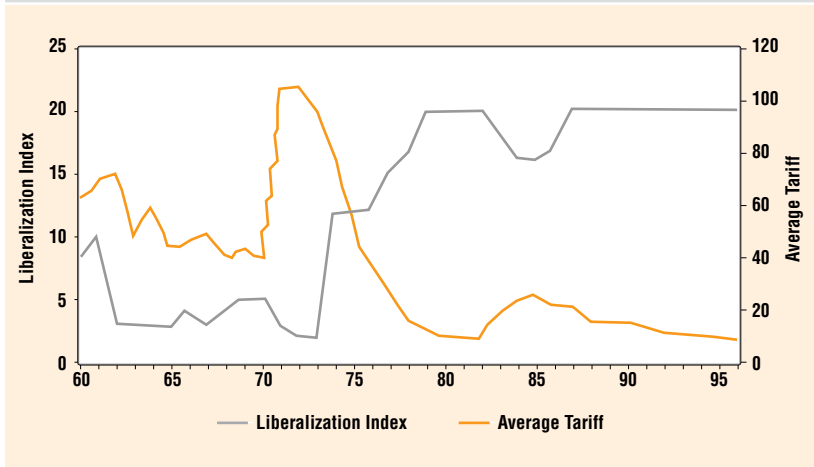
Davis (1973) and de la Cuadra and Hachette (1990). It fluctuates between 0 and 20 points, with 20 indicating the absence of quantitative controls. De la Cuadra and Hachette also construct a trade liberalization index that abridges the previous indicators, adding a black market premium measurement to gauge the degree of liberalization and distortions in external markets. This last index also fluctuates in the previously mentioned range, where 20 equals a maximum level of liberalization.

Trade liberalization was realized jointly with other policies that sought to reduce the transition costs of the reforms and build support for their implementation.[3] The policies of greatest importance were the significant real depreciation of the exchange rate and privatization (see Hachette and Luders 1992). In 1975, only after a substantial government spending cutback, monetary stabilization policies, and negative external shocks, did the Chilean economy start to recover.

During 1978 the economic authorities changed the orientation of the exchange rate policy from a policy aimed at compensating for liberalization to a policy targeted to reduce inflation. This process culminated with a fixed exchange rate in June of 1979 that lasted until June

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[3] Edwards and Lederman (1998) present an extensive discussion of trade liberalization.

of 1982 when a collapse resulted due to the overvaluation, a growing trade deficit, massive private sector indebtedness, and crises in the financial and trade sectors. After the debt crisis, in an effort to compensate the most negatively affected sectors and put the brakes on growth of imports, the government increased tariffs to 35 percent and introduced new taxes.

Only in 1985, and after a significant depreciation of the peso, did the economy enter a new growth phase.

Main economic reforms: 1974–1985

- A far-reaching privatization program that significantly reduced the State's participation in the production and distribution of goods and services.
- Labor market reforms that decentralized salary negotiations, increased labor flexibility, and modified the balance of power between management and labor. These policies were implemented at the start of the 1980s after the labor unions had been weakened.
- Financial sector reforms to establish prudent regulations after the financial crisis of the 1980s caused by ambitious and unregulated liberalization.
- Implementation of a private pension system of individual accounts, which replaced the traditional system of defined benefits.
- Trade reforms that substituted high and differentiated tariffs for low and uniform tariffs. These measures were accompanied by export promotion policies with the objective of positioning exports as an engine of growth.
- Public sector reforms intended to increase the macroeconomic stability and efficiency of the public sector. To assure macroeconomic stability the Central Bank was made independent from the government in 1989.

The fullest impact of this package of reforms was not made manifest until the 1990s.[4] From 1987 to 1996 the economy grew by an average

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[4] The Asian crisis was manifested in Chile through a collapse in the price of copper, which together with a restrictive monetary policy caused a recession in 1999. GDP grew 3.4 percent in 1998 and contracted by 1.5 percent in 1999. This period is not included in the analysis because these results are explained more by cyclical effects than by long-term effects resulting from the economic reforms.

annual rate of 7.1 percent, which increased per capita GDP by 5.4 percent. These figures reflect a 1996 GDP that was 70 percent higher than in 1986.[5]

Second liberalization process

In mid-September 1984 the Chilean economy saw the beginning of a second liberalization process. This time a compensated devaluation took place, meaning that a significant reduction in tariffs was accompanied by a proportional increase in the exchange rate. These measures were designed to create incentives for the export sector, and to boost economic activity through greater efficiency and competitiveness.

During the 1990s the strategy of unilateral liberalization proceeded along with the negotiation of free trade agreements. The original objective of reaching a free trade agreement with the United States and joining NAFTA has yet to be achieved.[6] However, during this period Chile signed a series of trade agreements with Mexico and Canada, among other partners. Furthermore, Chile has entered into trade agreements with MERCOSUR as a special associated member, and in May 2002 signed a free trade agreement with the European Union.

Women and the labor market

Participation rate

Table 4.1 shows the spectrum of Latin American female labor participation rates. Chile belongs to the group of countries at the low end (together with Mexico and Costa Rica) reaching only 47 percent, with Uruguay at the other end of the range with a participation rate of 72 percent, 25 points higher than Chile.

Table 4.2 shows the evolution of Chilean participation rates throughout the twentieth century. While the rate for men mirrors the national pattern, the rate for women presents a unique evolution, starting in 1907 at 29 percent, falling to 19 percent in 1930, returning to 25 percent by 1940, slipping again to 20 percent in 1970, and returning 22 years later

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[5] However, the rate of growth has not been stable, ranging from a maximum of 11.0 percent in 1992 to a low of 3.3 percent in 1990.

[6] On January 1 of 2004 the free trade agreement between the United States and Chile came in effect. This chapter was written before the final signing of the agreement.

TABLE 4.1

Female Participation Rates (25–44 years) by Income Decile

Decile	1	2	3	4	5	6	7	8	9	10	Total
Argentina *	41	47	45	48	46	62	64	69	74	88	60
Bolivia **	56	53	55	62	65	65	69	65	75	78	65
Brazil	48	50	53	54	58	61	63	67	70	78	61
Chile	20	25	28	37	43	49	53	63	70	76	47
Costa Rica	28	23	32	33	29	44	54	58	64	71	45
El Salvador	22	35	37	50	53	60	65	69	74	82	57
Honduras	27	39	31	39	42	48	54	58	69	77	50
Mexico	36	28	27	38	34	42	40	53	57	64	44
Nicaragua	27	36	46	52	57	51	55	66	65	72	55
Uruguay**	49	57	65	64	70	77	79	82	87	90	72
Venezuela	32	31	34	36	48	48	59	65	73	77	52

Source: IDB(1999). (*)Greater Buenos Aires. (**) Urban Areas

TABLE 4.2

Evolution of Chilean Participation Rates

Rate of Participation	1907	1920	1930	1940	1952	1960	1970	1982	1992
Total Population	52.8	52.4	49.1	52.3	53.5	48.3	44.7	44.1	49.1
Female Population	28.9	27.3	19.2	25.6	25.9	20.9	19.7	22.3	28.1
Male Population	79.4	78.2	79.9	79.9	82.4	77.5	71.7	67.3	71.5

Source: Pardo (1987) and INE population census. From 1907 to 1982 the population over 12 years was considered and for 1992 over 15 years.

to 28 percent. It should be noted, however, the rates for 1992 are calculated on the basis of the population older than 15 years, while the rates of the other censuses are based on populations older than 12 years. This could result in an over-estimation of the increase in participation rates for 1992.

The capital of Chile, Santiago, is home to 42 percent of the economically active population (1992 Census) and produces one-third of the country's output. Both the Census and the CASEN reflect higher rates of participation for the capital. As illustrated in Table 4.3, the difference between the figures for Santiago and the nation as a whole is nearly 6 percentage points. Additionally, the CASEN survey shows an increase in the rate for Santiago of nearly 4 percentage points in six years.

Table 4.4 shows that for the 1990–1996 period the rate of participation has increased with income. Of course it is easier for a family to

TABLE 4.3

Female Participation Rates in Chile and Greater Santiago

	Entire Country	Santiago
Census		
1992	28.1	34.1
CASEN		
1990	31.7	38.0
1992	33.4	39.2
1994	34.7	40.7
1996	35.6	41.8

Source: CASEN Survey 1990–1996. Census 1992.

TABLE 4.4

Female Participation Rates by Income Deciles

Decile	1990	1992	1994	1996
1	23.0	17.8	23.2	23.9
2	20.0	23.5	23.5	23.6
3	23.3	24.5	23.1	28.3
4	31.3	30.6	28.3	23.9
5	34.7	32.7	33.5	33.8
6	39.1	36.9	37.3	40.6
7	44.7	43.6	41.3	44.0
8	47.1	49.8	47.5	49.6
9	53.2	54.7	55.6	56.9
10	58.8	60.9	60.2	66.6

Source: CASEN Survey 1990–1996.

reach the higher income deciles if the woman works; therefore it is somewhat endogenous.

Figure 4.2 shows the evolution of the rates of participation for women and men during the period 1957–1997.[7] It is apparent that women have demonstrated lower rates of participation than men, and that they have increased only in recent years. Between 1957 and 1959 the rate of women's participation averaged 37.7 percent, falling to 36.4 percent in the 1960s and 35.8 percent in the 1970s for an overall decline of nearly 2 percentage points, in contrast to the majority of the industrialized countries where the rate of women's participation in the labor force was rising. This trend was reversed in the 1980s when the rate of women's partici-

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[7] For those between the ages of 14 and 60.

FIGURE 4.2

Participation Rates for Men and Women, 1957–1998. Gran Santiago
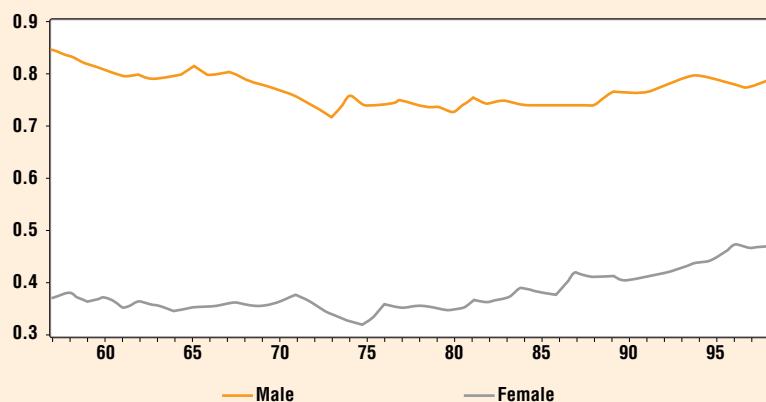
Source: Employment and Unemployment Survey. University of Chile

pation increased to 39 percent on average, and continued rising during the 1990s when it averaged 44.6 percent between 1990 and 1998.

It is clear that the women's labor force grew during the last two decades, and one of the objectives of this study is to determine if there is any relationship between this increase and the processes of economic liberalization that Chile has experienced. For that we shall emphasize the use of generational cohorts, because women have changed their rates of participation in the labor force over time, independently of their age.

Synthetic cohorts

Table 4.5 details the rate of female participation for different age groups from 1957 to 1997 in Gran Santiago. This table shows that from 1957 to 1982 the rate of female participation remains practically the same, but from 1982 onwards there is an increase of 10 percent in the number of women who work or are seeking employment. This increase is more pronounced for women over 24, and it is noteworthy as well that over half of women between the ages of 24 and 53 are in the work force in 1997.

The ideal type of survey for measuring the behavior of people over time is longitudinal, wherein the same individuals are followed over long

TABLE 4.5a

Female Participation Rate by Age Group

	14–18	19–23	24–28	29–33	34–38	39–43	44–48	49–53	54–58	59–63	Total
1957	25.9	47.5	43.4	38.5	39.3	43.4	34.3	30.7	29.8	18.5	37.1
1962	26.5	47.7	46.4	37.6	38.1	42.6	35.6	28.7	25.7	19.4	36.5
1967	23.0	47.3	45.1	42.8	38.4	39.5	33.3	33.6	25.2	17.2	36.4
1972	13.5	45.4	48.7	43.3	46.7	42.0	35.4	31.0	27.0	18.0	36.1
1977	12.9	41.5	50.1	41.5	42.0	46.0	34.8	35.0	24.1	18.8	35.7
1982	10.5	43.8	50.6	43.4	44.2	41.2	41.4	36.7	22.5	13.7	36.1
1987	12.0	46.5	58.5	50.1	52.5	51.8	42.6	41.4	31.3	17.0	42.1
1992	5.2	47.1	53.0	53.5	55.8	47.2	47.2	36.7	31.1	22.0	41.9
1997	8.0	45.2	62.4	55.9	52.8	59.4	56.5	50.5	37.0	34.1	46.6

Source: Employment and Unemployment Survey of the University of Chile.

periods. This type of survey has not been done in Chile, but the possibility exists of using cohorts. A cohort will be defined as a group of persons born in the same period, for which repeated cross-sections can be followed over time. In this way, even though we cannot follow individual women over time to observe their work-related decisions over the course of their lives, we can follow groups of women born in the same year and observe how that generation behaves over time. This pseudo-panel presents is the best alternative available because it allows us to capture decision-making behavior over time, which is something we cannot do adequately with a cross-section survey.

To illustrate what is meant by the construction of cohorts, we will utilize the data presented in Table 4.5a. We know that in 1957 women between the ages of 14 and 18 were born between 1939 and 1943, and we know that women between the ages of 19 and 23 in 1962 also were born between those years. Likewise for women between the ages of 54 and 58 in 1997. Thus, we have this generation's (1939–1943) rate of participation in the labor market from when they were 14 years old until the age of 58. With the construction of artificial cohorts of women we can "follow" the decision by different generations to participate over time. Table 4.5b presents 11 generations of women and their rates of participation by age segment.

We can glean two types of information from Table 4.5b, which is a reordering of the values in Table 4.5a. First, we can follow a generation over time and observe behavior that is related to the life cycle. For example, observing women born between 1949 and 1953 we find that when they were between the ages of 14 and 18 their rate of participation was 26.5 percent. This rate rises until it reaches 48.7 percent between

TABLE 4.5b

Female Participation Rate by Cohorts

	14–18	19–23	24–28	29–33	34–38	39–43	44–48	49–53	54–58	59–63
1919–1923						43.4	35.6	33.6	27.1	18.8
1924–1928					39.3	42.6	33.3	31.0	24.1	13.7
1929–1933				38.6	38.1	39.5	35.4	35.0	22.5	17.0
1934–1938			43.4	37.6	38.4	42.0	34.8	36.7	31.3	22.0
1939–1943		47.5	46.4	42.8	46.7	46.0	41.4	41.4	31.1	34.1
1944–1948	25.9	47.8	45.1	43.3	42.0	41.2	42.6	36.8	37.0	
1949–1953	26.5	47.3	48.7	41.5	44.2	51.8	47.2	50.5		
1954–1958	23.0	45.4	50.1	43.4	52.3	47.2	56.5			
1959–1963	13.5	41.6	50.6	50.1	55.9	59.4				
1964–1968	12.9	43.8	58.5	53.5	52.8					
1969–1973	10.5	46.5	53.0	55.9						

Source: Employment and Unemployment Survey of the University of Chile.

24 and 28 years, but between 29 and 33 years it declines to 41.5 percent, which surely reflects participation changes due to raising children. Subsequently, this generation starts increasing its rate of participation until it reaches 51.8 percent between the ages of 44 and 48 years, and then begins to decline again.

Another type of information that can be obtained from Table 4.5b corresponds to the different behavior of generations, so that we find that for the segment between the ages of 14 and 18 years the rate of participation has been diminishing over time. Thus, women born between 1944 and 1948 had a rate of participation of 25.9 percent, while women born between 1969 and 1973 had a rate of participation of only 10.5 percent at the same age of 14 to 18 years. The reasons for this reduction may be that women in the age group are choosing education over work. Nevertheless, if we compare women older than 24 years we find that in general different generations have increased their participation by age segment with respect to earlier generations. For example, for the age segment between 39 and 43 we find that the generation born between 1919 and 1923 had a rate of participation of 42.6 percent, and that women born between 1959 and 1963 had a rate of participation of 59.4 percent, which means that the rate for this age segment has increased 16 percentage points after 40 years. This would indicate a generational or cohort effect.

When working with generational variables or cohorts, we can divide the increase in the rate of participation into three effects. We shall call the first effect age, which indicates how a change in the age composition of the population can affect the rate of participation. For example, if the

rate of participation by age segment reaches its maximum between 25 and 35 years of age, an increase in the quantity of women in this segment can bring about increases in the total rate of participation.

A second effect refers to generational change or the cohort effect. For example, women who were 30 years old in 1997 have a higher rate of participation than women who were 30 years old in 1957, which may be due to a change in the way that women interact with the labor market.

The last effect that interests us is the year effect. In this case, for example, what we measure is whether years of great economic growth or changes in the degree of trade liberalization have affected the rate of participation of all women regardless of their age or the generation to which they belong.

Estimation

To estimate the correlations between the rate of participation and the effects of age, year, and cohort, we defined the following:

- PR_{it}: Participation rate of cohort i in year t.
- P_t: Vector of contemporary variables.
- C_{it}: Vector of generational variables.
- A_{it}: Age of cohort i in year t.

Later we estimate:

$$PR_{it} = h(P_t, C_{it}, A_{it})$$

For the estimation we shall use the following generational variables: number of children younger than 6 years, number of children younger than 6 years squared, number of children between 6 and 10 years, number of children between 11 and 15 years,[8] and average years of education. All of these variables are defined for each cohort in each year. Additionally, the following contemporary variables were incorporated to identify the year effect: rate of GDP growth, rate of growth of the commerce sector, and the variables that will measure the effect of trade liberalization, including average tariffs and the liberalization index.

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[8] The number of children corresponds to the average of children by age group present in the home, because the survey does not permit the identification of how many children each woman has.

In the estimation we included the age and age squared of the women, which can allow us to adjust the empirical behavior of the rate of female participation in the labor force, which increases until a certain age when it hits its maximum, and subsequently declines.

It should be noted that the decision by women to start working is interrelated with the decision to have children and with their level of education. This introduces problems of endogeneity, which affects the estimation of the parameters.

Table 4.6 presents the correlations found between the rate of participation and eight types of specifications of the independent variables. Columns 4 and 8 correspond to estimations of fixed effects for each cohort.

We see that the average tariffs are positively correlated with the rate of participation. In other words, the higher the tariffs, the greater the rate of participation. With respect to the magnitude of the parameter, if we consider the first phase of Chilean liberalization, which reduced the average tariff from 94 percent in 1974 to 12 percent in 1979, the effect on the rate of participation was 1.6 percentage points.

Turning to the results obtained with the liberalization index, we observe similar results: greater economic liberalization reduces the rate of women's participation. Using the same case as before, the first liberalization process, we find that where the liberalization index increased from 2 to 20, the effect on women's rate of participation in the labor market was 2 percentage points.

For the case of Chile the liberalization index reached its maximum level (20 points). This means the further openness to trade would not have any effect on the female labor participation rate. The effects have already occurred and remain as a lesson for other countries that are starting liberalization processes similar to the Chilean experience.

The estimations generally show that the liberalization process negatively affected the rate of participation of women in the labor market. This result is confirmed when using two variables that measure trade liberalization, although the effects are of varying magnitudes.

The results for the other variables show that number of children is important in determining female labor decisions, and the effect is always negative: the higher the number of children, the lower the participation rate. When analyzing the case of women with children under 6 years we find non-linearities in the relation. A small number of children will reduce the rate of participation, but if their numbers increase it is possible that the effect will be positive, and this may be due to the greater need for a woman with a large family to contribute to household income.

TABLE 4.6

Results of Estimation on Participation Rate

Variables	Model 1		Model 2		Model 3		Model 4	
	Coef.	Test-t	Coef.	Test-t	Coef.	Test-t	Coef.	Test-t
Average of tariffs	0.0002	2.357	0.0002	2.816	0.00002	2.962	0.0004	2.222
GDP growth			0.0346	3.898				
Trade sector growth					0.0745	4.770	0.0720	4.152
Children under 6 years	-0.0758	-3.242	-0.0758	-3.169	-0.0752	-3.248	-0.0651	-2.665
Children under 6 years^2	0.0346	3.732	0.0346	3.550	0.0331	3.608	0.0250	2.322
Children from 6 to 10 years	-0.0433	-4.600	-0.0433	-4.805	-0.0456	-4.910	-0.0467	-4.427
Children from 11 to 15 years	-0.0216	-2.440	-0.0216	-1.413	-0.0150	-1.711	-0.0098	-1.004
Average years of education	0.0324	18.091	0.0324	16.522	0.0301	16.579	0.0176	5.310
Age	0.0269	9.517	0.0269	8.402	0.0247	8.733	0.0210	6.382
Age^2	-0.0004	-12.851	-0.0004	-11.730	-0.0004	-12.152	-0.0003	-8.966
Constant	-0.1667	-2.486	-0.1667	-1.481	-0.1081	-1.600	0.0235	0.307
R^2	0.6985		0.7018		0.7036			
n	1254		1216		1216		1216	

Variables	Model 5		Model 6		Model 7		Model 8	
	Coef.	Test-t	Coef.	Test-t	Coef.	Test-t	Coef.	Test-t
Liberalization index	-0.0012	-3.246	-0.0011	-3.059	-0.0011	-3.023	-0.0029	-5.316
GDP growth			0.0942	3.577				
Trade sector growth					0.0680	4.390	0.0626	3.7100
Children under 6 years	-0.0774	-3.318	-0.0744	-3.204	-0.0757	-3.269	-0.0703	-2.8930
Children under 6 years^2	0.0332	3.590	0.0312	3.391	0.0316	3.441	0.0212	1.9830
Children from 6 to 10 years	-0.0441	-4.697	-0.0455	-4.890	-0.0463	-4.985	-0.0496	-4.7330
Children from 11 to 15 years	-0.0214	-2.428	-0.0125	-1.405	-0.0146	-1.663	-0.0110	-1.1240
Average years of education	0.0345	17.124	0.0317	15.325	0.0315	15.276	0.0174	5.3160
Age	0.0265	9.445	0.0238	8.323	0.0244	8.622	0.0200	6.1560
Age^2	-0.0004	-12.789	-0.0004	-11.658	-0.0004	-12.046	-0.0003	-8.5520
Constant	-0.1528	-2.327	-0.0841	-1.251	-0.0883	-1.327	0.0952	1.2520
R^2	0.6997		0.7021		0.7037			
n	1254		1216		1216		1216	

We also find that higher levels of education by the generations are positively related to the rate of participation.

The variables that measure the year effect show a pro-cyclical behavior of the rate of participation, negatively correlated with the unemployment rate but positively with GDP growth. Additionally, growth of the commerce sector boosted the incorporation of women into the labor market.

Lastly, the parameters associated with the age of women indicate that the rate of participation is closely related to age. The results indicate that participation increases until age 33 when it then starts a downward trend.

Given that three different types of variables have been identified that can affect the rate of participation (generational, age and time variables), we shall conduct an F-test to measure the explanatory power of these groups of variables.[9] In other words, this test helps to disentangle the cohort, age, and time effects. The value of the F-test for the cohort variables is 80.65, for age variables it is 275.33 and for time-related variables 14.34. This test shows that the most important variables in determining the rate of participation are age-related, followed by generational and lastly time-related variables.

Although the equations present problems of endogeneity, which can bias the parameters, the results are highly consistent across the different specifications utilized.

Salary differences

Another characteristic of the Chilean labor market is the persistence of wage gaps between men and women. Figure 4.3 shows the ratio of wages earned by men and women and the ratio between the average years of education of men and women.[10]

From the graph we can see that, on average, the hourly wage received by men has been greater than that received by women. However, there are important variations over time. From 1966 to 1969 this ratio reached 1.29, in the 1970s it was 1.20, in the 1980s it narrowed to 1.14 and in the 1990s it widened to 1.19. Salary differences showed a sustained decline until the 1980s, but this process was reversed in the 1990s.

Earnings gaps can be explained by differences in the human capital endowments of workers. If men, on average, had more years of educa-

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[9] The tests were conducted from model 7.

[10] Results for all men and women qualified as employees and laborers from 1966 to 1996.

FIGURE 4.3

Ratio of Salaries and Years of Education between Men and Women 1966–1996

Source: Employment and Unemployment Survey of the University of Chile.
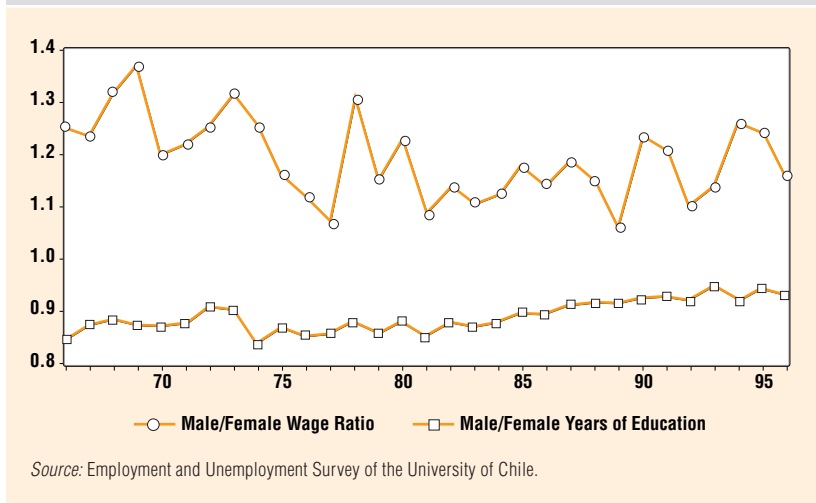
tion and work experience, it would be expected that they receive a higher salary. However, if we compare for the same period of time the average years of education of working men to those of working women, we find that female workers consistently present higher levels of education than male workers. Moreover, this education gap has closed over the past 30 years, which should produce greater salary differences by gender. Yet we found the opposite result.

The decomposition proposed by Oaxaca and Blinder in 1973 permits the separation of salary differences into two effects: observable and unobservable factors. Among the observable factors are years of education and experience. The effect of unobservable factors is generally associated with discrimination against women, but it can also be due to differences between men and women in preferences over how to allocate time between the home and workplace, or costs to the employer associated with maternity.[11] On the other hand, discrimination could influence entry into the labor force, which would be reflected in lower rates of participation.

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[11] ILO (2000) shows that this cost is small and would be equivalent to 1.6 percent of remuneration.

Figure 4.4 shows the unobservable effect, utilizing the Oaxaca-Blinder decomposition for which the salaries equation only considers the education levels of the workers. We find a positive unobservable effect, which could be interpreted as evidence of discrimination against women in the job market. Moreover, there is a reduction of this effect over the period under analysis, at least until the 1980s, since in the 1990s it remained relatively stable.

The decomposition of Oaxaca-Blinder also obtains an effect called endowment, whereby a salary difference in a market without discrimination would favor women, principally because they have a higher level of education. However, the effect of the unobservables is so great that it reverses the endowment effect so that the salary difference favors men and not women.

Now we will search for variables that correlate with this index of unobservables, using the variables as a time series that starts in 1966 and ends in 1996. We consider that this index can change for various motives. For example, it is more difficult for the employer to discriminate when the rate of unemployment is very low, but when a labor supply surplus exists the employer can choose workers according to non-economic criteria. We shall call this the degree of labor market tightness and will measure it through the unemployment rate of men between the ages of 25 and 49 years. The minimum wage also shows some

FIGURE 4.4

Unobservable Effect
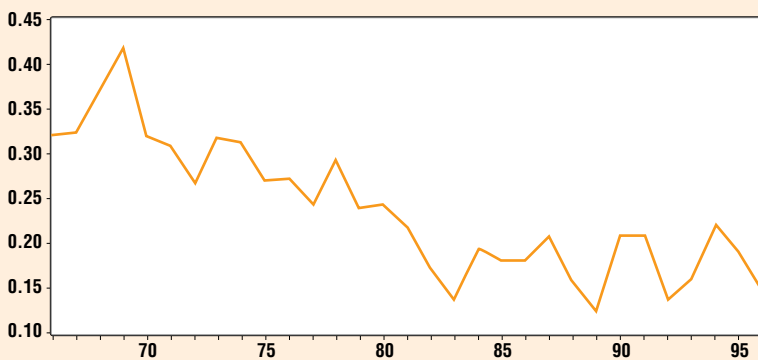
Source: Employment and Unemployment Survey of the University of Chile.

correlation with this index. For example, if due to maternity the costs of hiring women are greater than the those for men, we can assume that the supply curve for female workers is higher than the labor supply curve for men. In this case the minimum wage will lead to a reduction in salary differences, but at a lower rate of contracting women workers.

Another variable that could be intervening is the reservation wage of women. If they are now more willing to work for lower salaries, the average salary received by women could decline, indirectly affecting this unobservable variable. To approximate the reservation wage of women we shall use the average number of children under age 15 per home. Additionally, we will include the variables that measure the degree of trade liberalization of the economy, the average tariffs and liberalization index, to observe whether any relation exists with the unobservable index.

The results of the regressions of these variables on the unobservables index is found in Table 4.7.[12] We observe from the table that the liberalization processes were not correlated with the changes in the index of unobservable differences. The results show that neither variable, the liberalization index nor average tariffs, has effects significantly different from zero on this index. The degree of economic liberalization does not appear to affect potentially discriminatory behaviors by the employer in setting salaries.

On the other hand, the variables that are indeed related to the index are the unemployment rate and number of children. The rate of unemployment has a negative correlation with the index in that salary differences are lower when unemployment is higher. This result is contrary to what we expected to find. Labor market tightness does not affect women's salaries negatively. On the contrary, the salary difference is higher when the labor market is tighter or the unemployment rate is lower.

The number of children is related positively in that the greater the average number of children, the higher the index. We know that the number of children has declined, which could mean a reduction in the reservation wage of women, and therefore a greater rate of participation but with a higher salary difference between men and women. However, a lower number of children implies a shorter interruption of labor activity, which over the long-term would lead to smaller salary differences.

The minimum salary has no relation with the index. Therefore, increases in minimum salaries would be neutral in their effects from a

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[12] The tests realized on the residuals reject the presence of autocorrelation and heteroskedasticity but do not reject their normal distribution.

TABLE 4.7

Regression Results with the Unobservable Index

	Coef	Test-t	Coef	Test-t
Liberalization index	−0.00061	−0.32861		
Average tariffs			−0.00003	−0.08413
Unemployment	−0.24385	−2.23035	−0.26828	−2.60614
Number of children under 15 years	0.22772	4.40451	0.24373	5.83132
Minimum salary	−0.00009	−0.28319	−0.00012	−0.34356
Constant	−0.01920	−0.24852	−0.04297	−1.24792
N	31		31	
R²	0.8260		0.8253	

gender perspective, and hiring costs would not be one of the factors that explain this unobservable index.

As a general conclusion, the index of unobservable effects would not correspond to hiring costs or the liberalization process, but it would correspond to discontinuities in labor participation.

Factor supply and demand

This section follows the methodology of Katz and Murphy (1992), which proposes that the relative salaries of different demographic groups originate in the interaction of demands for factors derived from a production function and the relative supply of jobs. Thus, changes in labor supply or demand of different demographic groups would explain variations in relative salaries.

In its original spirit this implementation seeks to interpret changes in relative salaries as a function of changes in the relative supply and demand of factors. However, we will center on analyzing the changes in relative demand for labor during the period from 1990–1998. This way we can study this trend in a period that includes the last policies implemented for trade liberalization and the total capital account. Clearly, causal relations cannot be determined, but we can determine relations of concomitance and in the event that changes in relative demand for labor present themselves we can inquire whether the changes are equally distributed between men and women.

To carry out the Katz and Murphy methodology we will work with 30 demographic cells. The cells are constructed controlling by gender, five categories of education (primary, secondary, secondary technical, professional training institutes, and university education), and three cat-

egories of experience (less than or equal to 5 years, between 5 and 20 years, and more than 20 years).

This section uses as a source of information the data of the National Socioeconomic Characterization Survey (CASEN) for 1990, 1992, 1994, 1996, and 1998. This survey comprises a unique data set offering a representative sample of households at national and regional levels, unlike existing surveys for Gran Santiago which almost completely lack any information on activities as relevant to the Chilean economy as agriculture, fishing, and mining.[13]

The CASEN survey is conducted in November of each previously mentioned year. Summarizing, the data consist of a group cross-sections that include approximately 130,000 persons per year with variables of income, education, employment, health, etc.

Table 4.8 shows an important rise in hourly wage between 1990 and 1998. The average income per hour for the principal occupation category of wage earners who work over 30 hours per week has increased continually, growing by 4.8 percent annually on average between 1990 and 1998. This increase has benefited women with university education in an important way. In general, an important variation in wage changes is observed.

An interesting hypothesis that has attracted much attention in earlier studies (for example: Freeman 1986 and Welch 1979) states that changes in relative supply are responsible for changes observed in relative salaries. An extreme way of testing this hypothesis is to examine whether the data are consistent with a stable demand of factors.[14] In this case, changes in salaries are generated by changes in relative supply due to demographic and education changes. For the case of two inputs, the implication of a stable relative demand of factors is that an increase in the relative supply of one group leads to the reduction in the relative salary of that group; that is, supply and salaries would co-vary negatively.

A negative sign translates into a predominance of supply with respect to relative demand for labor, meaning that there is a negative correlation between the change in hours worked and the change in salaries. Subse-

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[13] Although the population of Santiago represents about 40 percent of the national population, its economic importance has varied in an important way over time, especially because of the passage from an industrialization policy based on the substitution of imports to a policy of trade liberalization and export promotion. For example, see Escobar and Meller (1996).

[14] Strictly speaking, more than stable demand it refers to a predominance of supply over demand in the determination of changes in salaries.

TABLE 4.8

Percent Change in Real Salaries (in November 1998 pesos)

	Men	Women	Total	Men	Women	Total
Period	96–90	96–90	96–90	98–90	98–90	98–90
All	35.5	39.0	36.2	43.6	51.9	45.7
Education						
Primary	14.2	18.9	14.7	21.8	23.4	21.5
Secondary	30.9	31.5	30.7	33.6	43.8	35.7
Secondary Technical	15.2	18.1	15.8	16.4	15.7	15.9
TFC, PI	25.7	28.7	26.3	26.7	34.2	30.5
University	30.3	51.5	37.7	42.4	65.0	47.3
Experience						
Exp<=5	42.1	48.6	45.1	47.3	36.8	42.7
exp>5 y <20	40.4	40.2	40.2	39.0	44.4	40.3
Exp>20	27.5	33.0	28.5	30.5	46.3	33.9

quently, and on the basis of the evidence presented previously, the increase in real salaries would be due to a contraction in the labor supply. The opposite occurs if the sign is positive.

When the stable demand test is done, the signs of the dot products between vectors of change in price (salaries) and change in quantities (hours) are mainly positive. Moreover, considering that the period of interest is 1990–1998, the hypothesis of a stable relative labor demand is rejected. Therefore, changes in relative wages can be understood not only by factors of supply, but also by movements in the relative demand for labor. Considering the increase in real wages, we must wait for an increase in the relative demand for labor. The question now is: for which demographic categories can we observe these increases? This question will be answered shortly.

Measures of change in relative demand for labor

Given the results shown previously, it is clear that changes in relative demand for labor are necessary to understand the changes observed in the structure of wages from 1990–1998. Changes in the structure of demand, increases in international competitiveness, and technological changes that are not neutral to the factor are, generally, the possible reasons for changes in relative demand for labor. Changes in demand will break down into two types: those which occur inside an economic sector (intra-sectoral), and those which occur between economic sectors or (inter-sectoral). The first type refers refer to modifications that alter the

TABLE 4.9

Test of Stable Demand
(Product point between vectors of change in hours and change in salaries)

Men and Women	Initial Year			
Final year				
	1990	1992	1994	1996
1992	−0.002			
1994	−0.004	−0.004		
1996	0.003	0.007	0.007	
1998	0.001	0.005	0.005	−0.002
Men				
	1990	1992	1994	1996
1992	−0.001			
1994	−0.003	−0.003		
1996	0.003	0.002	0.005	
1998	−0.001	−0.002	0.002	−0.003
Women				
	1990	1992	1994	1996
1992	−0.0012			
1994	−0.0011	−0.0006		
1996	0.0004	0.0042	0.0017	
1998	0.0029	0.0070	0.0032	0.0010

relative intensity of the use of factors within a specific sector, given the relative salaries.[15] The second type states the relation to changes that affect the allocation of the labor factor between economic activities given a level of relative salaries.[16] The effect of the changes in the inter-sectoral demand for labor on the relative demand of the different demographic groups depends on the difference of the distribution of sectoral employment between different demographic groups.

Table 4.10 presents the average distribution of the proportion of employees in each education category with respect to nine economic sectors, and three categories of occupational position (high, middle and low)[17] for ten gender-education groups.[18] The distribution presented in

[15] Examples: technological changes that are not neutral (e.g. computer technologies), and outsourcing (part of the production is done outside the country).

[16] Examples: changes between sectors in demand for products, inter-sectoral differences in neutral technological changes in factors (as in Hicks), changes in net international trade (that affect the composition of domestic production).

[17] The categories are high (managers, directors, professionals), middle (administrative, employees in non-managerial positions), and low (laborers).

[18] This specification was chosen because the differences in distribution by economic sectors are much more significant that the existing differences by level of experience.

TABLE 4.10

Average Distribution by Economic Sector and Occupational Position for 10 Demographic Groups, 1990–1998

	Men					Women				
	Primary	Secondary	Secondary Technical	Professional Training Institutes	Univ.	Primary	Secondary	Secondary Technical	Professional Training Institutes	Univ.
Sectors										
Agriculture, Hunting, Forestry, Fishing	33.4	9.9	6.3	4.9	4.6	23.1	5.7	4.5	3.0	1.2
Exploitation of Mines and Quarries	3.2	3.8	4.5	4.0	5.4	0.3	0.3	0.5	0.9	0.4
Manufacturing Industries	17.7	22.3	26.9	19.6	14.8	22.2	18.8	17.3	11.8	5.7
Construction	17.1	12.1	10.4	5.5	7.1	0.7	1.1	1.7	2.4	1.9
Commerce	8.6	17.0	15.8	18.1	10.6	23.2	32.7	26.9	22.3	7.4
Government and Financial Services	3.1	9.1	10.1	20.1	18.8	2.4	10.4	17.3	22.7	17.9
Personal and Home Services	3.9	4.5	6.0	5.2	1.9	6.9	4.3	4.0	2.2	0.6
Social Services	4.2	6.3	7.4	9.8	27.1	18.8	22.3	23.5	28.5	60.7
Transportation, storage, communications and postal services.	8.8	15.0	12.7	12.7	9.6	2.4	4.3	4.2	6.2	4.1
Position										
High	1.2	7.3	13.0	36.2	74.4	2.5	12.5	19.0	30.0	80.4
Middle	19.3	31.5	30.1	34.1	16.9	39.5	63.6	65.5	66.2	18.3
Low	79.5	61.2	56.9	29.7	8.7	58.1	24.0	15.5	3.7	1.3

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the table corresponds to the average distribution of each group during the 1990–1998 period. The important differences in the distribution of employment indicate that changes in demand for labor, through economic sectors and the categories of occupational position, could have an important effect on the relative salaries of these groups.

Table 4.11a shows the distribution of hours worked by economic sector and occupational position from 1990–1998. We can appreciate that, in general, the sectoral distribution remains stable from 1990–1998, both for men and women, although there are notable increases in the government/financial services and commerce sectors, which register increases of 4 percent (from 8.0 percent to 12.0 percent) and 2.3 percent (from 14.9 percent a 17.2 percent), respectively. The greatest declines occurred in the agriculture, hunting, forestry, and fishing sector and the manufacturing industries sector, which fell by 4.7 percent (from 18.1 percent to 13.4 percent) and 4.8 percent (from 21.1 percent to 16.3 percent), respectively. However, if we concentrate on the distribution by occupational position we note different movements. With respect to the high position we observe an increase of 5.6 percentage points (from 15.3 percent to 20.9 percent), but the opposite occurs with the low position,

TABLE 4.11a

Distribution of Hours Worked by Economic Sector

	1990			1998		
	All	Men	Women	All	Men	Women
Sector						
Agriculture, Hunting, Forestry, Fishing	18.1	22.0	7.4	13.4	16.2	7.4
Exploitation of Mines and Quarries	3.1	4.1	0.4	1.8	2.6	0.2
Manufacturing Industries	21.1	22.0	18.7	16.3	18.1	12.6
Construction	7.8	10.1	1.4	9.3	12.9	1.6
Commerce	14.9	12.3	22.2	17.2	14.0	24.3
Government and Financial Services	8.0	7.0	10.9	12.0	10.7	14.9
Personal and Home Services	3.6	4.1	2.3	4.4	4.1	5.1
Social Services	14.6	8.1	32.6	15.2	8.6	30.0
Transportation, storage, communications and postal services	8.7	10.3	4.0	10.3	13.2	4.0
Position						
High	15.3	10.9	27.6	20.9	17.0	29.3
Middle	28.2	21.7	46.3	30.6	22.5	48.7
Low	56.4	67.4	26.1	48.7	60.6	22.0

TABLE 4.11b

Distribution of Hours Worked and Hourly Wage by Economic Sector (In November 1998 Pesos)

	1990			1998		
Distribution of hours	**All**	**Men**	**Women**	**All**	**Men**	**Women**
Sectors						
Tradables	42.3	48.1	26.5	31.5	36.9	20.2
Non-Tradables	57.6	51.9	73.4	68.4	63.5	79.9
Hourly Salary						
Tradables	$626	$643	$540	$893	$ 919	$785
Non-Tradables	$868	$916	$782	$1,218	$1,249	$1,167

which diminished nearly 7.7 percentage points (from 56.4 percent to 48.7 percent). Finally, the middle position increased slightly, around 2 percentage points (from 28.2 percent to 30.6 percent).

To calculate the indices of change in relative demand for labor we will work with two economic sectors, tradables and non-tradables,[19] to capture and differentiate changes due to greater liberalization and the three categories of occupational position. If we join economic sector and occupational position, we are left with six activity-position categories. In total, we will work with 180 cells (6x30) that will be aggregated subsequently for the presentation of results.

Table 4.11b shows some descriptive statistics with this new characterization of economic sectors. Aspects of note include the significant presence and increase of women in the non-tradable sector, led by services and commerce, and also the salary gap between sectors and genders.

Table 4.12 presents the results of the calculation of indices of change on the demand of factors. For presentation effects we show the indices for the categories of education. The aggregation involved joining the demographic groups by type of education, and maintaining the disaggregation by economic activity and occupational position. Subsequently, our demographic cells are reduced to 60 (6x10). However, the indices of change in relative demand for labor are a weighted average of percent changes in employment (measured in units of efficiency). More than interpreting a particular index, the usefulness of these is in the comparability among them in terms of sign and magnitude.

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[19] The tradables sector corresponds to agriculture, hunting, fishing, mining, and manufacturing industries.

TABLE 4.12

Indices of Change in Relative Demand of Factors

	92–90			94–90			96–90			98–90		
	Total	Inter	Intra	Total	Inter	Intra	Total	Inter	Intra	Total	Inter	Intra
Men												
1 Primary	0.123	–0.002	0.125	0.023	–0.054	0.077	–0.003	–0.036	0.033	–0.038	–0.068	0.030
2 Secondary	–0.002	–0.001	–0.002	–0.035	–0.015	–0.021	–0.068	–0.010	–0.058	–0.064	–0.016	–0.048
3 Secondary Technical	0.005	–0.001	0.006	–0.012	–0.028	0.016	–0.036	–0.018	–0.018	–0.042	–0.037	–0.006
4 Training Institutes	–0.034	0.000	–0.034	–0.015	0.001	–0.016	0.002	0.003	–0.001	0.015	0.002	0.013
5 University	0.077	0.001	0.076	0.125	0.019	0.106	0.169	0.009	0.159	0.160	0.018	0.142
Women												
1 Primary	–0.115	–0.002	–0.113	–0.195	–0.040	–0.155	–0.229	–0.025	–0.204	–0.204	–0.044	–0.160
2 Secondary	–0.267	0.001	–0.267	–0.239	0.022	–0.261	–0.252	0.015	–0.266	–0.213	0.027	–0.241
3 Secondary Technical	–0.228	0.001	–0.229	–0.190	0.024	–0.213	–0.215	0.015	–0.230	–0.203	0.024	–0.227
4 Training Institutes	–0.272	0.002	–0.274	–0.215	0.045	–0.259	–0.217	0.031	–0.248	–0.184	0.049	–0.232
5 University	0.020	0.003	0.017	0.112	0.058	0.054	0.124	0.040	0.084	0.145	0.069	0.076

The signs of total change in relative demand of factors for the period 1990–1998 show important differences according to gender and education category. Among men we see that the education categories (primary, secondary, secondary technical) show a reduction in relative demand for labor. However, the education categories (university, professional training institutes) show an increase in total relative demand for labor. This increase originates, in an important way, from increases that altered the relative intensity of the use of skilled labor within a specific sector (intra-sectoral change), given the relative salaries and reinforced by increases that affected the allocation of that work between economic activities (inter-sectoral changes) given a level of relative salaries. Thus it can be stated that there was an increase in the relative demand for labor by the most skilled workers, dominated by those who have a university education.

When analyzing women, the evidence presented is somewhat different, because with the exception of the university category, all of the other categories show a reduction in relative demand for labor. The increase in relative demand for labor for the university category is due to both intra-sectoral and inter-sectoral increases, unlike for the men where it is basically due to intra-sectoral increases. For the remaining categories we observe reductions in relative demand for labor, with the reductions always being greater in magnitude for women than for men. We can deduce that this fact was due to important reductions in relative demand at the intra-industrial level. However, for four of the five education categories the changes in demand at the inter-sectoral level—meaning the reallocating effects of the tradable sector to the non-tradable sector—had a favorable impact on women, but since this impact was very small in magnitude it could not compensate for the reduction in demand at the intra-industrial level. The possibility of important reallocation effects between sectors as a result of greater liberalization is discarded. This could be explained in part by the increase in the rate of female participation, which would appear to contradict the evidence presented by the evolution of real salaries from 1990–1998, since these have increased significantly for women and in greater proportion than for men.

This fact can be attributed to a variety of factors. First, labor market institutions also influence the determination of salaries. One example of this is the sustained increase in the minimum wage in recent years, which rose 66 percent in real terms from 1990–1998. This extra-market element clearly influences the salary structure and is alien to a simple context of supply and demand. Second, despite realizing a non-parametric approximation, the presence of unobservable or omitted characteristics

of workers could be influential. The demographic groups were defined in a way that attempted to group persons who would present common characteristics capable of strongly influencing the determination of salaries, and who would affect equally the movements of relative demand and supply for that specific demographic group. Hence, if some characteristics might have been omitted in the grouping, the salaries of the group in question would not be determined by the movements of supply and demand calculated for that demographic group. Third, a factor that could be influencing the results is the measurement error, above all in the variable related to hours worked. In the declaration of hours, a "digit effect" is observed whereby the individual being polled tends to declare that he or she is working 48 hours a week.

Part-time insertion

This section analyzes the evolution of women's part-time work in relation to men's, as well as its relation to the processes of trade liberalization. It has been argued that part-time work constitutes a precarious type of employment,[20] and that the processes of trade liberalization or globalization have reinforced this precariousness. For the purposes of this study we refer to part-time work as jobs that require fewer than 35 hours a week. The available data is quite limited. For example, from the data gathered by the University of Chile survey we cannot extract information relative to whether an employment contract exists. This would be highly useful in differentiating formal part-time work from that which is less stable. Figure 4.5 shows the evolution of the participation of part-time work by men and women.

The evolution of the participation in part-time work over time is, in general, counter-cyclical, showing an important decline starting in 1986. This participation reaches its historical maximum and minimum of 19 percent and 9 percent in 1963 and 1994, respectively, and averages 12.7 percent a year over the period. This is interesting because variations resulting from the economic cycle could explain the behavior of part-time insertion.

Figure 4.6 shows this evolution of part-time work for each gender. An important gap can be seen between men and women. Participation is counter-cyclical and shows a decline starting in 1985. The difference in part-time participation by men and women was narrowest in 1984 at 4

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[20] See Leiva (2000).

FIGURE 4.5

Evolution of the Part-Time Insertion of Men and Women, 1961–1996
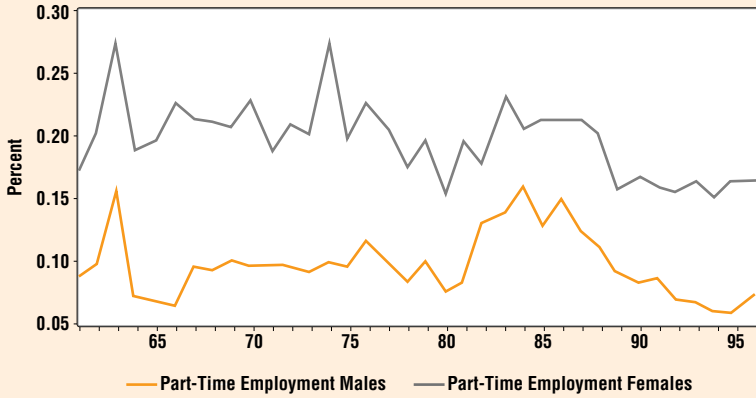
Source: Employment and Unemployment Survey. University of Chile.

FIGURE 4.6

Evolution of Total Part-Time Insertion and GDP Growth, 1961–1996

Source: Employment and Unemployment Survey. University of Chile.
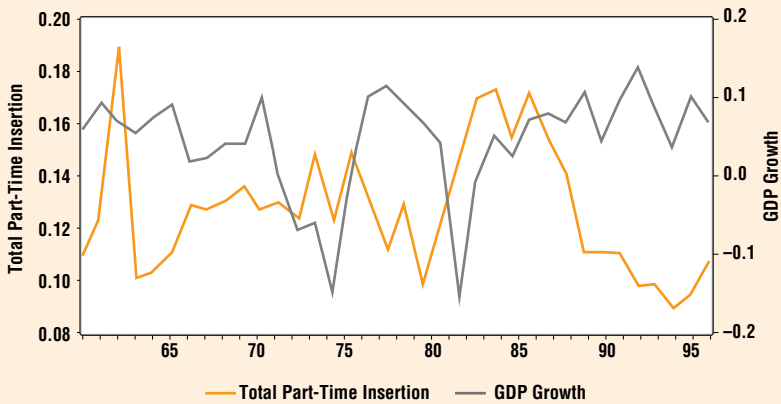
percentage points, but it grew wider again with the passage of time. Considering the significant difference in rates of participation by men and women, it is interesting to research the behavior of the participation of part-time women workers on all part-time workers, which is presented in Figure 4.7.

An intriguing fact can be observed in Figure 4.7: while the part-time participation of women workers declined as of 1985, if the total of part-time women workers is calculated as a percentage of total part-time workers, it can be seen that the percentage of part-time women workers increased from 37 percent in 1984 to 61 percent in 1994. This fact can be attributed to the important increase in women's participation rate. To find the statistical determinants of the behavior of part-time women workers we ran two regressions. The first consisted in regressing the participation of part-time women workers on the following explanatory variables: unemployment rate, liberalization index, rate of women's participation, and one constant.

The unemployment variable was included to control for the labor market's self-adjustments. An increase in the unemployment rate indicates worsening labor conditions and in some cases women must adjust their labor status to this new environment either by reducing the number of hours worked or by taking part-time jobs. The liberalization in-

FIGURE 4.7

Evolution of the Participation of Part-Time Women Workers with Respect to All Part-Time Workers, 1961–1999

Women Part-Time/Total Part-Time Workers
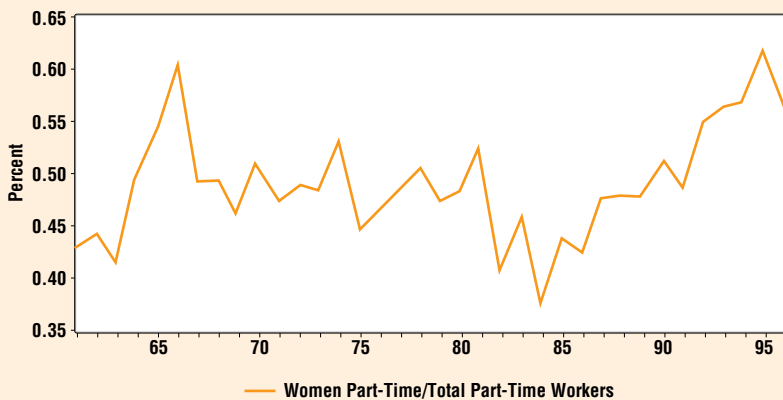
Source: Employment and Unemployment Survey. University of Chile.

TABLE 4.13

Dependent Variable: Part-Time Insertion of Women (on all women that work)

Variables	Coefficient	Test-t
Liberalization index	−0.002	−3.012
Unemployment rate	0.202	2.568
Women's participation rate	−0.047	−0.272
Constant	0.223	3.411
R2	0.44	
R2 adjusted	0.39	
N	36	

dex[21] was included to verify the hypothesis of correlation between the part-time insertion of women and liberalization, and the rate of participation was included to control for the tendency of increased incorporation of women into the labor market.

Table 4.13 details the results of the regression. The variables that stand out are the unemployment rate and the liberalization index. Of particular note is the fact that the liberalization variable presents a negative coefficient, which can be interpreted as meaning that the part-time insertion of women diminished as the degree of liberalization increased, which is consistent with the information provided in Figure 4.7 for the second liberalization period (1984–1992). It can be observed that the magnitude of the coefficient is small, and this can be interpreted as meaning that if the index reaches its maximum value of 20 (maximum liberalization), the impact on the reduction in the part-time insertion of women is equal to 4 percentage points.

This first approximation is not exempt from problems of interpretation. Summarizing, it can be inferred that there is a negative statistical correlation between degree of liberalization and part-time work by women as a percentage of total work by women. Clearly the Chilean case of trade and capital account liberalization was not entirely removed from structural reforms that could explain the decline in part-time insertion.

With respect to the unemployment rate, results appear to confirm that when the possibility of losing employment increases, women switch to jobs with fewer working hours. However, the rate of participation

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[21] We opted for this indicator instead of tariffs because the liberalization index includes information of other relevant variables in the liberalization process such as quotas.

does not affect part-time insertion, indicating that the incorporation of women into the labor market has not exerted any influence on the choice of women to work full-time or part-time.

A second, very interesting approximation is to see the statistical correlation between part-time women workers and total part-time workers, and the explanatory variables employed in the prior approximation. As plotted in Figure 4.7, the participation of part-time women workers shows a sustained increase from 37 percent in 1984 to 61 percent in 1994.

Table 4.14 details the results of that regression. Two noteworthy facts can be derived from this table. First, liberalization shows a positive correlation between the participation of part-time women workers as a percentage of total part-time workers. Again the effect is small in magnitude and is only significant at the 90-percent confidence level. This would explain in part the notable increase in the participation of part-time women workers between 1984 and 1994 relating to the second liberalization period.

Second, the unemployment rate shows a negative correlation with the dependent variable, indicating that as the unemployment rate falls the participation of part-time women workers (as a percentage of total part-time workers) increases. Of special interest is the fact that for each one percent decline in the unemployment rate, the participation of women in part-time work increases by half of a percentage point, with a stabilizing level around 56 percent in 1996 with an unemployment rate of 8 percent. In this case we can state that despite the fact that high unemployment rates tend to increase the incorporation of women into part-time work, the effect is greater for men.

In conclusion, part-time work declines for both men and women when compared to total workers employed. This decline is more pronounced

TABLE 4.14

**Dependent Variable: Part-Time Insertion of Women
(on all part-time workers, both genders)**

Variables	Coefficient	Test-t
Liberalization index	0.002	1.643
Unemployment rate	−0.511	−3.621
Women's participation rate	0.093	0.295
Constant	0.485	4.135
R2	0.42	
R2 adjusted	0.36	
N	36	

for men than for women. This explains the fact that the number of part-time women workers has increased when compared to the total number of part-time workers over the 12-year period covered by this analysis.

Analysis of results, policy implications, and conclusions

The objective of this work was to determine the effects of trade and capital account liberalization on the female labor force in Chile. To this end we analyzed those effects from four points of view: the participation rate of women, salary differences between men and women (discrimination), changes in relative demand for work, and type of labor insertion.

This work departs from previous studies in its contribution of empirical evidence to the discussion about the effects of globalization on women's employment, for which econometric and nonparametric methods were utilized.

According to economic theory, processes of trade liberalization such as those we examined here generate two types of effects, direct and indirect. Among the direct effects are changes in composition by sector (Stolper-Samuelson), which lead to strengthening sectors that are intensive in more abundant factors. These changes generate a series of indirect effects, such as changes in wage structure (Rybzcynski) and in the labor market. The rate of participation falls into this second category of effects. The related evidence is reviewed below.

In the case of women's participation rates we found that trade liberalization had negative effects. However, important differences exist between the two phases of Chilean trade liberalization. In the first, more aggressive liberalization process from 1974 to 1979, the liberalization index changed from 2 to 20, and average import tariffs dropped from 94 percent to 12 percent. This translated into a negative effect of slightly more than 1.5 percent on the rate of participation.

The second liberalization process from 1984 to 1992 was gentler, with the liberalization index increasing from 16 points to 20 points, and average tariffs dropping from 24.5 percent to 11.1 percent. This implied a negative effect of 0.2 percent on the rate of participation. These results show that the first liberalization phase delayed the increase in the rate of participation that began in 1985. In other words, the rate of participation could have increased sooner if trade liberalization between 1974 and 1979 had not proceeded so rapidly. Despite the productivity increases that accompanied trade liberalization, the effects of reallocation both within and between sectors did not facilitate the incorporation of

women into the labor market. The rate of participation increased when both liberalization processes were in their final phases.[22] Employment increased very little after the first liberalization process, unlike the second one. It is also possible that effects on women's employment from liberalization may be curtailed because female labor is concentrated in non-tradable sectors.

With respect to salary differences, we measured the importance of unobservable factors in the gender wage gap. For the variable used, which includes discriminatory practices by employers, we tested correlations with minimum salary, unemployment, number of children, and trade liberalization. The results show that liberalization did not affect this index of unobservables and therefore should not have had any effect on salary differences between men and women. The results can also be interpreted as the presence of effects for both men and women that cancelled each other out. As a result, although according to the ILO international competition can create incentives for companies to reduce costs, this does not translate into salary practices that favor either men or women, and therefore does not affect the relative position of women in terms of salaries.

We did find intriguing facts when analyzing changes in the national labor market between 1990 and 1998. First, however, it must be clarified that in this section it is not possible to isolate the net effects of greater liberalization on the labor market, but it is possible to establish relations of concomitance. It should also be pointed out that during this period the free trade agreements signed by Chile, as well as its greater integration with the rest of the world due to the change of institutional regime from dictatorship to democracy, shaped Chile's globalization experience.

Although women have increased their hourly salary in greater proportion than men, the persistence of a salary gap cannot be explained by observable factors. Changes in salaries are distributed heterogeneously according to gender and skill level. A characteristic pattern exists for both genders, but we show greater polarization between skilled and less-skilled female workers during the 1990s, which can be seen by the more than 40-percent difference between the increase in the hourly salaries of university-educated women and those with only primary education.

This fact is partly reinforced when we analyze changes in the relative demand for labor. The total change shows an increase exclusive to the category of women with university education. This confirms the existence of greater differentiation between skilled and less-skilled women.

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[22] This result is supported by de Gregorio et al. (2001).

When analyzing movements in demand in greater detail we see that, with the exception of women with primary education, inter-sectoral changes are positive, meaning that there would be a positive effect related to changes due to reallocations between economic sectors. This is important because it establishes that there would be favorable effects from the reallocation of female workers from the tradable sector to the non-tradable sector. Moreover, changes in relative demand that originated in a change in the relative intensity of labor utilization within a given sector were noticeably greater in magnitude, and negative with the exception of university-educated women. As a result, although there was a reallocation effect, it was countered by inter-sectoral effects.

When looking at male workers, the story is somewhat different. The increase in relative demand for labor also occurs for the education category that includes those with technical and professional institute studies. Although the increase is small, positive changes can be observed both intra-sectorally and inter-sectorally.

With respect to the type of labor insertion, it can be observed that with the passage of time part-time work by both men and women has declined in percentage terms when compared to total workers. A small component of the reduction in part-time work by women can be attributed to trade and capital account liberalization, but this reduction has affected women differently as an increase can be observed in the number of part-time women workers relative to all part-time workers. This can be interpreted as indicating that even though part-time insertion has diminished partly due to liberalization, the decline has been greater for men.

Based on these results, we can identify some policy proposals that might alleviate the negative effects of globalization for women in the labor market.

We have seen that the rate of participation is affected negatively by liberalization. In particular, the first liberalization process reduced the rate of participation by over 1.5 percent, and the second liberalization process by 0.2 percent. We favor compensating for such effects with policies that help to improve the labor insertion of women workers.

A result we found both in the case of the participation rate, as well as for discrimination, was the effect of children, which have a negative effect on the rate of participation of women and a positive effect on salary differences between men and women. It is necessary to implement policies that facilitate caring for children in order to reduce as much as possible any interruptions in women's professional life. A preliminary study of Chile shows that it is not only necessary to establish day care centers, but also that these facilities be close to the home or the workplace, with

hours of operation that are compatible with business hours (Bravo et al. 2000). It is also important to recognize that many pregnancies are not planned, and that information on how to avoid unintended pregnancies is not being delivered adequately to women.

We also found that the education level of women is positively correlated with the participation rate, and that during the 1990s there was an important widening of the salary gap between skilled workers and less-skilled workers—both male and female. Therefore, it is very important that the coverage of primary and secondary education should be as comprehensive as possible. In the Chilean case, primary education enrollment is nearly complete, but this is not the case for secondary education, especially when compared by income levels (MIDEPLAN, 1999). It is also necessary to consider that the group of women that were most favored by changes in relative demand for labor during the 1990s were university-educated women, which implies that policies should be promoted to improve the access of women to higher education by expanding the coverage to more women and providing them with better educational opportunities.

The workers themselves should also be considered. The results we have obtained show that changes produced within sectors did not favor women, except for university-educated women, yet for men the changes were mainly positive. This confirms that, particularly in the manufacturing sector, women did not adapt effectively to the introduction of new technologies. This situation resulted from their lack of adequate training either to adapt to the new productive processes or change employment sectors. The analysis of supply and demand of factors shows positive effects in the inter-sectoral changes, which implies that appropriate training to enable women to change employment sectors could improve the situation of many women workers, above all the least skilled workers, in order to prevent excessively wide skilled-based wage gaps. These efforts should be concentrated in the commerce and services sectors.

With respect to the type of labor insertion of women, we noticed a valuable opportunity for labor reforms oriented toward more labor flexibility. Strictly speaking, part-time work promotes flexibility and is not necessarily precarious as long as the labor conditions are appropriate. We are referring here to reforming existing labor legislation to include the existence of part-time shifts—which are not recognized under current legislation—in order to protect part-time women workers and provide them with more job security. Although economic theory indicates that as the fixed costs of hiring personnel increase, the employer will prefer to expand the number of hours worked rather than hire more

workers, we noticed that in practice this does not occur. Even though the labor costs of hiring women are slightly higher than those for men, more part-time work is carried out by women than men. This would indicate a type of discrimination to the entry of women to full-time jobs, as well as a different allocation by women of their leisure and work time. Legislation would help to correct these practices by reducing the incentives for employers to hire women part-time under precarious conditions in favor of full-time or part-time insertions contemplated by the law under just labor conditions that recognize the existence of contracts, pension and health benefits, unemployment insurance, etc.

Finally, there are many niches to explore in future research. Each of the variables in this study—female participation rate, gender wage gap, changes in relative labor demand, and type of labor insertion—presents unique opportunities for expanding our knowledge of women in the labor market.

With regard to women's participation it would be useful to know whether the new information and communications technologies will be relevant for facilitating work for women. Another avenue of research would be to determine the jobs created since liberalization and compare them to the jobs that were lost. For the female participation rate as for the other three variables, it is also important to compare the results in Chile with those in other Latin American countries.

With respect to salary differences attributable to gender discrimination, it is possible to take further steps in identifying the economic sectors with the greatest propensity to discriminate. For example, one could analyze this at the household and individual levels and compute a coefficient of personal discrimination (or unobservable differences) for different time periods. This structure could be compared at different moments in time, controlling for periods prior to liberalization with periods subsequent to liberalization and examining any changes.

Changes in demand and supply also can be studied more in-depth. Although it is true that general tendencies are of great help in understanding changes in sectoral structure from a macroeconomic context, researchers can delve more deeply into specific sectors where women workers were mainly concentrated before the liberalization processes, and observe them during liberalization and beyond. This would take into consideration that liberalization processes tend to destroy sectors that present comparative disadvantages with other economies. Although this might run the risk of falling into an analysis of winners and losers, such research would inform specific policies to reduce or compensate for the costs of liberalization.

Finally, the sole evolution of part-time insertion does not give us insights about the existence of formal contracts in those occupations. When new information becomes available one could construct a more accurate measurement of precarious employment and observe its evolution over time.

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Labor Market Discrimination: Causes, Consequences and Cures

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5

Evolution of Salary Differences between Men and Women in Six Latin American Countries

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This study investigates the evolution of salary differences and other aspects related to the labor activities of men and women in Latin America. The analysis compares six countries—Argentina, Brazil, Colombia, Costa Rica, Honduras, and Uruguay—which were selected based on the information available during the study period. Each country, with the exception of Honduras, was observed three times: 1) the early 1980s, 2) the late 1980s, and 3) the late 1990s.[1]

The data used were derived from household surveys, which offer ample opportunities for analyzing important aspects of how labor markets function in these countries; at the same time, they restricted the possibility of comparing countries because of differences in methodologies and coverage.

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[1] Honduras was observed during the late 1980s and late 1990s.

Literature review of wage differences by gender

An exhaustive review of discrimination literature can be found in Cain (1986) and Altonji and Blank (1999). This section summarizes key aspects of wage discrimination theories that are relevant to the empirical analysis presented further on.

When wage differences are observed between men and women, one obvious possible cause is discrimination in the labor market (see the theories of Becker, Phelps, and Arrow further on). Not all wage differences, however, are the result of discrimination, nor do all discriminatory practices result in wage differences between men and women. The following factors could also play a role in gender wage gaps:

- Productivity gaps from differences in investment in human capital (education and experience).
- Productivity differences from discriminatory practices at other levels of society, such as access to education or the existence of education systems of differing quality for men and women.
- Labor supply and preferences (compensation differences), which can be endogenous through processes of education and socialization.

Theories of discrimination

Although various theories of wage discrimination exist, this study concentrates on the two that appear most relevant: the preference-based discrimination theory of Gary Becker (1971) and the statistical discrimination theory of Kenneth Arrow (1972) and Edmund Phelps (1972).

For the effects of the analysis, presented below, Joseph Stiglitz's (1973) definition of discrimination is adopted: "There is wage discrimination when individuals with the same economic characteristics receive different wages and these differences are systematically correlated with certain non-economic characteristics of the individuals in question (race, religion, gender)." In the literature on this theme, the group discriminated against is generally designated as a "minority" (or minority group), while the remaining population is designated as the "majority."

Preference-based discrimination

Preference-based discrimination refers people finding it disagreeable to work with, contract, or share workspace with those from minority groups and being prepared to pay to avoid doing so. This is the focus of the

traditional economic theory on wage discrimation, which is based on the contributions of Gary Becker and has been complemented by other research.

Discrimination can originate from employers, employees or workers, and consumers. The first source has received the most attention. Some employers are prepared to pay men higher wages than women with equal productivity. Employers who discriminate have higher costs than those who do not and, therefore, smaller profits, other things being equal.

Under ideal competition conditions (free-market entry, multiple producers and consumers, complete information, constant returns to scale, etc.), wage differences based on this type of discrimination are temporary because competition pushes employers who discriminate out of the market and produces an equalization of wages.

Discrimination by workers or consumers generally results in labor segregation, but not necessarily in wage differences.

When markets are not competitive—for example, when there are barriers to market entry—the potential for long-term discrimination exists. For example, a monopoly can sacrifice a portion of its profits in exchange for hiring men, who cost more even though their productivity is equal to that of women. Nevertheless, this faces limits because, if the labor force is competitive, the monopoly is required to pay the men above-market wages. In the long run, these higher costs result in a less valuable company,[2] weakening its position on the stock markets.

Something else happens when the producer has sufficient monopoly power in the labor market to discriminate among groups bidding on work. In this case, depending on the relative elasticity of the labor supply of male and female workers, it is possible that one group will receive higher wages than the other. If both labor supplies have positive slopes, the group with a higher elasticity will receive a higher wage. Two things must be said regarding this point: first, this definition of discrimination is not the one used by Gary Becker, and is not based on negative biases toward any group; rather, it results from the employer having information on individual preferences and marginal wages and using this information to maximize profits. Second, if the elasticity of women's labor supply is higher—as a good portion of the international literature shows[3]—they should receive higher wages than men, which is inconsistent with the discrimination concept of Becker.

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[2] Defined as the capitalized value of future profits.

[3] If women provide a family's second income, their labor supply is probably more elastic than that of men, who are usually the primary income providers.

When one departs from the ideal competition model, it is possible to encounter instances in which wage differences are based on longer-term biases (à la Becker). For example, when labor market data are costly, wage differences may be generated against minorities. The case in question was analyzed by Black (1995) and can be summarized as follows. Suppose that workers (men and women) are equally productive and have equal preferences. However, an important group of employers in the labor market is prejudiced against women to the degree that it will not hire them. The workers who enter the market do not know who those employers are and, therefore, their job search is distributed between the two types of employers. This increases the cost of the women's searches because they lose time and resources researching jobs to which they lack access. The cost of the job search is higher for women than for men, and their expected benefits are less. Other things being equal, women end up establishing lower reservation wages than do men, which results in their expected wages (once the job has been obtained) also being lower.

Statistical discrimination

The statistical discrimination explanation of wage differences, based on the works of Kenneth Arrow and Edmund Phelps, explicitly recognizes the difficulty in obtaining information on levels of worker productivity, which are needed to determine wages. According this theory, employers cannot observe a worker's potential productivity. If they can observe indicators of that productivity, they are clearly contaminated by different levels of statistical noise. Starting from those indicators and their original (prior) beliefs, the employer must predict the worker's productivity, with the aim of deciding on the wage to be offered. The result of this process is that each worker's potential is estimated based not only on his or her own information, but also on data on the whole group.

Other explanations for wage differences by gender

Beyond discriminatory practices, wage differences can be caused by other factors. For instance, people from different groups have varying productivities, and the market may simply reflect these productive characteristics.[4] However, depending on the circumstances, variations in

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[4] One should keep in mind that, even in this case, a portion of the wage differential can also be caused by discriminatory practices.

productivity can be associated with discriminatory practices. For example, it is possible that wage differences favor men because they have higher levels of investment in human capital; but differences in stocks of human capital can reflect discrimination against women's access to the education system or result from wage discrimination in previous periods, which made it less profitable for the group of women currently in the labor market to invest in human capital than for the corresponding group of men.

On the other hand, it is also possible to have wage differences, even between people with the same productive characteristics, that cannot be associated with discriminatory practices. For example, wage gaps can be associated with worker preferences and bidding decisions related to certain characteristics of the same jobs. These wage differences are generally known as compensatory differences. For example, if jobs involve risk or disagreeable labor conditions (long hours, late hours, unhealthy working environment, frequent travel, risk of accidents, low social status, etc.), it is possible that their remuneration includes a premium to compensate workers. In a free market, the offer for such jobs would go to workers who are least averse to such conditions (for example, workers with less aversion to risk, those more willing to fly, etc.), while the offer for other jobs would go to workers who would reject such conditions. On balance, wages in the sector with disagreeable conditions will be higher than in other sectors, and the wage difference will be compensatory—that is, the minimum necessary to compensate the marginal worker for the disability implicit in accepting work with undesirable conditions. If men are generally less averse than women to working under undesirable conditions, then such compensatory differences would be associated with gender differences, but would not result from discrimination.

Some have argued that preferences have an endogenous component due to processes of education, socialization, and acculturation. According to this view, gender differences related to such factors as risk tolerance, aversion to nighttime work, etc. in some way reflect differences in the socialization processes of women and men and therefore are not completely neutral.

Empirical and econometric aspects

As one can deduce from the previous theoretical considerations, the empirical study of the nature of wage differences is neither simple nor straightforward. The basic question researchers have asked is if, and in

what way, the gender wage gaps observed reflect discrimination against women. In order to isolate discrimination effects, factors related to productivity and market-related wage determinants (what sector the job is in, for example) must be controlled for. Wage differences that remain when economic factors have been controlled for indicate discrimination.

Although many research techniques have been used to achieve this aim, we limit ourselves to the most common ones: the estimate of income equations (Mincer) and certain types of decompositions resulting from such equations.

The basic model of analysis is one in which the logarithm of hourly income can be expressed as a linear combination of a vector of variables that average the level of human capital and a series of associated parameters.

$$\ln Y_i = X\beta + \upsilon_i \tag{1}$$

where Y equals the hourly income of worker i, X equals a vector of variables that average the levels of human capital (usually years of education and measures of experience); β equals a vector of associated parameters, and υ equals a random error with the usual characteristics (independence, expected value of zero, constant variance, normal distribution). The estimates of β are interpreted as returns to the different types of human capital expressed in vector X.

Within the context of analyzing salary differences by gender, this equation is used for a great variety of purposes. One obvious application of this model in such a context is that of estimating Mincerian equations for samples of men and women separately and using the results as an instrument for analyzing the differences.

Mincer's model has not been free from criticism. One of the more frequent complaints is its inability to measure skills and quality of education. The already lengthy discussion about measuring returns to education has shown that excluding such variables generates biased (optimistic) estimates of the parameters of education and experience. Unfortunately, the only solution to such a problem is to include in the regression data on these variables—which are virtually unavailable. In those few cases in which it has been possible to obtain measurements of worker skills, the returns to education were found to have been overvalued by one or two percentage points.[5]

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[5] See Tenjo (1993). In this study, the socioeconomic characteristics of a group of 2,000 workers in Bogotá were analyzed, and a test was applied for general skills (Raven

A second criticism is the fact that measurements of both education and experience (especially the latter) are generally subject to error. Most available databases lack good measures of relevant experience; often, the only measurement one can obtain is that of *potential experience* (age minus years of education, minus 5). This problem is especially serious for women, whose participation in the labor force is frequently interrupted because of childrearing. Having a measurement of experience that contains measurement errors violates the assumption of independence in the regression model and biases the estimates of the model's coefficients.

Another necessary aspect to bear in mind is the well-known selection bias and its possible solutions. The selection bias consists of the inability to include data on the hourly wage of those who are not working, causing the estimates of the coefficients to possibly result in biases. For example, people with above-market reservation wages are excluded from the estimates. Because having reservation wages higher than market is not necessarily a random phenomenon, excluding such people prevents the sample from fulfilling the required random conditions of the econometric models. According to Heckman (1979), ignoring this process of self-selection can introduce biases into the estimates of the parameters of the income equation similar to those generated by omitting relevant variables in the model (specification bias). The commonly used solution in this case is the Heckman correction, which requires the estimate of an equation (usually probit), which allows one to predict the probability that a person will report income.

The correction of selection bias is not free of criticism, either. According to Lewis (1986), in most cases there is no theoretical model to explain the process of specific selectivity and to indicate the variables that explain it.[6] What is generally done is to include instrumental variables that are believed to be related to this process. This approach can introduce more problems into the income equations than it solves. In the

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Progressive Matrices) and for general knowledge. Based on the results of that test, skill indicators were constructed and included in the income equations, with the outcome mentioned in the text.

[6] If the only reason for not reporting income is that people are not participating, one might consider applying the Heckman correction, starting from the labor participation equation, the theoretical basis of which is rather solid. However, in practice, not reporting income can have other causes, such as broad unemployment or employment in domestic occupations without defined remuneration. This causes additional complications, the effect of which is not clearly discernible.

majority of cases, one does not know whether the process is capturing the nature of individuals' decisions or the non-linear effect of the variables included in the selectivity equation.[7]

One of the more popular methods for measuring discrimination is the Oaxaca decomposition. It is based on the previous Mincerian equation, and takes the following form:

$$\ln\left(W_m\right) - \ln\left(W_w\right) = \left(X_m - X_w\right)\beta_m + X_w\left(\beta_m - \beta_w\right) \tag{2}$$

where the subscripts m and w stand for men and women, respectively. The term to the left of the equals sign can be interpreted as a percentage salary difference between men and women, and the terms to the right reflect the two components of the decomposition: the first corresponds to differences in workers' productive characteristics and the second (the remainder) reflects the difference in coefficients.[8]

Frequently, this last component, the difference in coefficients, has been interpreted as a salary discrimination measurement. The argument is that the "betas" are a summary of the rules that the market uses to assess the amount of human capital of workers. If the rules differ for men and women, one can speak of discriminatory treatment.

This type of interpretation has been the subject of profound controversy in recent literature. From an empirical point of view, the method's most serious problem is the way in which the estimates of the coefficients capture all biases generated from data problems, errors in the variables, and selectivity processes. Interpretation of the remainder as a measure of discrimination is debatable. However, the existence of such problems is not to say that the remainder does not capture any degree of discrimination.

Finally, it is noteworthy that no empirical work is without methodological problems and questions. The comments here are presented more as a call for caution in data analysis rather than as a disqualification of the techniques available.

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[7] To the authors' knowledge, there are no statistical criteria for evaluating the quality of the Heckman correction. Some suggest using the degree of statistical significance of the lambda variable in the income equation as a criterion. The problem with this criterion is that a low level of significance does not necessarily mean that the variable in question is irrelevant to the equation.

[8] This decomposition is usually done with the average values of the samples used in the estimate, but it could also be done using other values.

General characteristics of women's and men's standing in the labor force

In this section, we examine some of the more general characteristics of women's and men's standing in the labor force and look in-depth at some related aspects to explain gender wage gaps.

As one can see from Table 5.1, Latin America's population is generally young. This is clearly reflected in the age structure of the countries studied. More than one third of the total population is under 20 years of age and, in some cases, such as Brazil and Honduras, this group comprises the highest percentage (in the case of Honduras, exceeding 50 percent). The group over 50 years of age represents a smaller proportion of the population (15 percent or less). Only in the case of Argentina and Uruguay does the proportion of those 50 years or older exceed 20 percent. There do not appear to be gender differences in age structure. During the study period, the proportion of young people fell slightly.

There are rather clear patterns in labor participation, as Table 5.2 shows. Over the last two decades, the level of male participation in the labor force has been statistically about 70 percent or higher, except in the case of Argentina, where it fluctuated between 62 and 69 percent with a downward tendency. Conversely, female participation was much lower, but showed a clear increase over the 20-year period that the data cover. The greatest increases in female participation occurred in Brazil, Colombia, and Uruguay, where levels rose from about 34 percent in the early 1980s to nearly 50 percent in the late 1990s. Toward the end of the twentieth century, female participation rates in Argentina (36 percent), Costa Rica (40 percent), and Honduras (35 percent) were lagging behind those of the other countries (50 percent).

The relationship between labor participation and age takes the form of an inverted U: it is lower for younger and older people, and higher for those in between. The highest levels are observed in the 30- to 40-year-olds, which is the general rule for both men and women (see Table 5.3). In countries with the highest levels of female participation (Brazil, Colombia, and Uruguay), participation of this age group exceeds 70 percent. There is no evidence to indicate that women interrupt their labor activity to bear and raise children and afterwards re-enter the market; that is, fluctuations in their level of participation are not observed.[9]

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[9] If women left the labor force to bear and raise children and afterwards re-entered the market, one would expect their level of participation to fall during the years in

TABLE 5.1

Age Structure of the Population

Total Population

Age	Argentina Men	Argentina Women	Brazil Men	Brazil Women	Colombia Men	Colombia Women	Costa Rica Men	Costa Rica Women	Honduras Men	Honduras Women	Uruguay Men	Uruguay Women
Under 20	42.2	38.4	42.6	39.5	41.4	36.9	40.7	37.5	56.1	50.7	34.6	30.0
20 to 29	16.0	15.8	16.9	16.9	17.6	18.5	17.5	16.1	14.8	16.5	14.6	13.7
30 to 39	12.7	13.1	14.6	15.3	15.6	16.6	14.4	14.6	10.4	11.9	13.1	12.6
40 to 49	11.3	11.6	11.3	11.6	10.9	11.8	11.1	12.4	8.0	8.6	11.9	12.2
50 and over	17.7	21.0	14.7	16.7	14.6	16.2	16.3	19.3	10.8	12.4	25.9	31.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Employed

Age	Argentina Men	Argentina Women	Brazil Men	Brazil Women	Colombia Men	Colombia Women	Costa Rica Men	Costa Rica Women	Honduras Men	Honduras Women	Uruguay Men	Uruguay Women
Under 20	5.5	4.5	14.2	11.7	6.8	6.2	7.7	6.9	28.0	26.3	6.4	4.8
20 to 29	25.6	26.1	25.9	26.1	25.8	28.5	27.5	28.4	31.8	44.4	23.3	23.6
30 to 39	26.1	27.1	24.6	27.1	29.1	31.3	26.1	28.5	17.8	23.3	23.8	25.3
40 to 49	22.8	24.4	18.5	20.2	20.4	21.6	19.8	21.7	11.7	4.5	21.5	24.0
50 and over	20.0	17.9	16.8	14.9	18.0	12.4	18.8	14.6	10.6	1.5	25.0	22.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

TABLE 5.1

Age Structure of the Population (from previous page)

Unemployed

Age	Argentina		Brazil		Colombia		Costa Rica		Honduras		Uruguay	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
Under 20	18.44	16.46	32.66	28.85	19.82	17.02	28.30	33.50	20.14	13.76	32.15	20.92
20 to 29	33.8	39.64	33.15	37.26	38.25	43.01	37.30	36.10	26.62	27.83	34.18	37.31
30 to 39	15.79	19.76	15.71	20.42	19.24	25.74	17.00	20.90	20.23	24.8	12.18	17.92
40 to 49	13.78	15.32	10.51	9.90	11.39	10.77	10.20	5.70	15.46	18.47	9.31	14.54
50 and over	18.19	8.83	7.96	3.58	11.29	3.46	7.30	3.80	17.55	15.13	12.18	9.31
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Non-participants

Age	Argentina		Brazil		Colombia		Costa Rica		Honduras		Uruguay	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
Under 20	59.11	33.49	61.66	36.55	59.14	30.68	56.60	28.60	81.69	43.71	28.27	16.09
20 to 29	10.49	15.12	6.87	14.59	10.15	14.94	10.00	14.80	5.98	18.92	5.94	9.34
30 to 39	1.42	10.71	3.03	11.85	2.04	11.99	1.50	12.10	1.08	11.34	1.63	7.87
40 to 49	1.83	9.43	3.77	10.00	2.16	10.99	2.10	12.50	0.92	8.07	2.20	8.41
50 and over	27.14	31.25	24.68	27.02	26.5	31.4	29.80	31.90	10.33	17.95	61.96	58.29
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

TABLE 5.2

Levels of Participation and Unemployment (%)

Country	Year	Participation Rate		Unemployment Rate	
		Men	Women	Men	Women
Argentina	1980	66.43	28.07	1.89	3.57
	1989	68.26	34.83	6.79	6.84
	1998	62.48	35.89	10.00	11.82
Brazil	1981	73.08	33.10	4.57	4.61
	1989	75.02	38.91	3.34	3.09
	1998	73.14	47.78	7.60	12.08
Colombia	1981	69.86	36.46	6.40	9.55
	1989	74.26	41.91	9.07	15.19
	1998	73.98	50.87	17.29	24.04
Costa Rica	1981	71.77	31.06	9.21	10.30
	1989	72.28	35.08	3.86	4.54
	1998	72.31	40.57	4.66	6.66
Honduras	1989	71.14	28.58	4.54	4.75
	1998	71.94	35.30	3.27	3.05
Uruguay	1981	73.07	36.72	5.31	8.28
	1989	74.13	43.59	6.12	10.68
	1998	73.39	49.18	7.92	13.39

TABLE 5.3

Levels of Male and Female Participation by age (%) 1998

Age	Argentina		Brazil		Colombia	
	Men	Women	Men	Women	Men	Women
Under 20	15.93	8.91	40.72	25.63	30.28	22.84
20 to 29	80.76	50.65	91.30	63.26	88.68	68.94
30 to 39	96.70	57.85	95.56	67.03	97.44	72.12
40 to 49	95.22	58.05	92.83	63.38	96.11	64.14
50 and over	54.90	23.13	64.05	31.42	64.33	25.27
Total	62.48	35.88	73.14	47.78	73.98	50.87

Age	Costa Rica		Honduras		Uruguay	
	Men	Women	Men	Women	Men	Women
Under 20	28.60	17.08	39.04	15.00	45.26	29.56
20 to 29	88.00	57.04	92.00	44.96	91.81	72.49
30 to 39	97.80	61.18	97.95	54.35	97.48	74.90
40 to 49	96.08	52.92	97.71	54.96	96.26	72.36
50 and over	61.52	22.89	81.13	30.91	51.65	25.47
Total	72.31	40.57	71.94	35.30	73.39	49.18

TABLE 5.4

Average Years of Education

Country	Year	Employed		Unemployed		Non-participants	
		Men	Women	Men	Women	Men	Women
Argentina	1980	6.0	6.5	5.4	5.5	4.7	5.1
	1989	7.1	8.1	6.5	7.3	6.2	6.4
	1998	9.7	10.9	8.6	9.8	7.5	8.0
Brazil	1981	4.6	5.5	5.0	6.5	3.6	3.6
	1989	5.2	6.3	5.5	7.1	3.7	4.1
	1998	5.9	6.9	6.3	7.2	4.5	4.8
Colombia	1981	7.5	7.1	7.4	7.7	6.9	6.2
	1989	7.9	8.3	7.5	8.2	6.9	6.5
	1998	8.5	9.0	8.2	8.9	6.9	6.8
Costa Rica	1981	7.8	8.7	6.9	8.0	7.5	6.8
	1989	8.3	9.2	7.3	7.6	6.9	6.8
	1998	9.1	10.0	8.0	8.8	7.3	7.3
Honduras	1989	4.6	6.1	6.4	8.4	4.5	4.1
	1998	5.4	6.7	6.7	9.0	5.0	4.7
Uruguay	1981	7.4	7.6	7.2	8.2	5.8	6.1
	1989	8.0	8.2	8.0	9.0	6.3	6.3
	1998	8.8	9.8	8.2	9.1	6.9	7.1

One of the more interesting aspects of the Latin American labor force is that education levels have increased significantly, especially for women (Table 5.4). In Argentina, Costa Rica, and Uruguay, women's average education levels at the end of the twentieth century were almost a year higher than those of men. In Colombia and Honduras, women not participating in the labor force had less education than men, while those in the labor force had 0.5–1 year more education than men.[10]

Unemployment levels (Table 5.2) are higher for women in all countries except Honduras—the country with the lowest female participation. In Argentina—the country with the second-lowest female participation—levels are higher for women, but the difference is very

which this occurs, followed by subsequent increases. One does not observe this in the available data, which leads one to think that maternity leave is short-term and that women have child care alternatives (extended family, domestic help, etc.).

[10] In general, those not participating in the labor force had lower education levels than those who participated. This suggests the presence of self-selection among both men and women, but especially women.

small. Conversely, in Brazil, Colombia, and Uruguay in 1998,[11] female unemployment levels were substantially higher than male levels. This seems to indicate a behavioral pattern worth analyzing in more depth: as female participation increases, difficulties in securing employment also increase, relative to men. The case of Brazil is important because it displays one of the greatest increases in level of participation between 1989 and 1998 (10 percentage points) and, at the same time, it presents increases in female unemployment (from 3 percent in 1989 to 12 in 1998). These two factors seem to indicate that the Brazilian economy had serious difficulties in absorbing the growing female labor supply over the last decade.

Gross income differences by gender: initial look

Before looking at the results of the income comparisons, it is important to clarify certain concepts. First, one must distinguish between the incomes of wage earners (employees and workers) and those of non-wage earners (independent workers and employers). Second, some comparisons are based on hourly income, while others are based on weekly or monthly income, by country. The estimates of income differentials are always expressed in terms of percentages to avoid the problem of measurement units. In all estimates, but less so in the regression analysis, these percentages are arithmetical and are defined as follows:

$$D = \frac{Male\ income}{Female\ income} - 1 * 100 \tag{3}$$

In the regression analysis, the differentials are measured geometrically, as the difference in the natural logarithm between two incomes. It is important to keep these different methods in mind because they introduce comparison problems between the results of the analysis presented below and the regression analysis presented subsequently.[12]

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[11] The case of Brazil is surprising and requires more analysis. Levels of male and female unemployment were low and very similar (less than 5 percent). However, in 1998, the female level climbed to levels above 12 percent, while the male level grew to 8%. According to these figures, it would seem that Brazil's unemployment problem at the end of the century was almost exclusively a women's issue.

[12] For example, the arithmetic differential of 100 equals a geometric differential of 69.31.

TABLE 5.5

Monthly Income Differential* Between Men and Women (%)

	Wage-Earning			Non-Wage Earning		
	1981	1989	1998	1981	1989	1998
Argentina	43.50**	36.48	34.74	86.99**	136.01	49.55
Brazil	62.89	55.86	40.33	171.78	124.22	103.76
Colombia	38.72	28.73	14.70	67.71	81.08	58.61
Costa Rica	16.65	32.18	21.04	81.62	83.48	124.89
Honduras		9.39	7.08		55.91	44.88
Uruguay	62.71	59.78	52.18	62.71	139.91	62.88

* Arithmetic percentage: Average male income minus average female income

** Values for Argentina are actually for 1980.

Table 5.5 summarizes the differences in monthly income. From this table, various important conclusions can be drawn. First, with the exception of Costa Rica, wage gaps in Latin America reveal a clear tendency to narrow. In the case of Costa Rica, the differential climbed between 1981 and 1989, but since then, it seems to have been slowly falling (in 1998, it still had not recovered to the 1981 level). Second, this tendency is not observed in non-wage differentials (independent workers and employers), except in the case of Brazil. Third, non-wage income differentials appear higher and more volatile than wage differentials. This is not surprising given that non-wage incomes are measured using a greater margin of error than wages and because determining such incomes involves factors not only of the labor market, but also those of the capital market, such as access to credit, inputs, physical capital, etc.

Initial decompositions: expected income differences

In this section we expand the analysis of monthly income differentials to consider other aspects, such as hourly-income differences and differences in access to employment. In principle, one can define expected income as the product of three factors: employment opportunities, hours worked, and hourly income. If we refer to specific age and education groups, one could express the expected income of an individual of age i and education j as follows:

$$Y_{i,j}^{k} = E_{i,j}^{k} \cdot W_{i,j}^{k} \cdot H_{i,j}^{k} \quad (4)$$
$$k = m, f \ (m = male, f = female)$$

where Y represents expected salary; E equals the employment level (one minus level of unemployment) that can be expected as the average probability of securing employment, W is the hourly wage of the group, and H represents the group's average hours worked. The wage differential for the group i, j, in terms of percentages, can be obtained from the logarithmic difference as follows:

$$D_{i,j} = \ln\left(Y_{i,j}^m\right) - \ln\left(Y_{i,j}^f\right) = \left\{\ln\left(E_{i,j}^m\right) - \ln\left(E_{i,j}^f\right)\right\} + \\ \left\{\ln\left(W_{i,j}^m\right) - \ln\left(W_{i,j}^f\right)\right\} + \left\{\ln\left(H_{i,j}^m\right) - \ln\left(H_{i,j}^f\right)\right\}$$

(5)

Starting from this definition, one can obtain average accumulated differentials for different age levels (accumulating the differentials of each group j, fixed i), or for different education levels (accumulating the differentials of each group i, fixed j). For example, the differential for each education level j would be expressed as follows:

$$D_j = D_{ij}\frac{n_{ij}}{n_{ij}} = \frac{n_{ij}}{n_{ij}}\left[\ln\left(E_{i,j}^m\right) - \ln\left(E_{i,j}^f\right)\right] + \\ \frac{n_{ij}}{n_{ij}}\left[\ln\left(W_{i,j}^m\right) - \ln\left(W_{i,j}^f\right)\right] + \frac{n_{ij}}{n_{ij}}\left[\ln\left(H_{i,j}^m\right) - \ln\left(H_{i,j}^f\right)\right]$$

(6)

Table 5.6 summarizes the above decomposition. The advantage of this decomposition is that it allows one to observe the weight of each of the three components of expected income: employment opportunities, hourly wage differences, and hours worked. As one can see, there are important differences between the decreasing tendencies that we found earlier in the monthly wage differential and expected income behavior. What we now find is more erratic behavior of highs and lows in the expected-income differential. In the cases of Colombia, Costa Rica, Honduras, and Uruguay, we find that the component that corresponds to hourly wages tends to decrease, but this tendency is counteracted by increases in the differential of employment opportunities or hours worked. In all of the countries, one observes an increase in the difference between the weekly hours worked by men and women.[13] In such cases as

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[13] Given that women usually have primary responsibility for child care and household duties, one could expect they would work fewer weekly hours than men. Never-

TABLE 5.6

Decomposition of Expected Weekly Income Differences Between Men and Women (%)

	Wage -Earning			Non Wage-Earning		
Argentina	**1980**	**1989**	**1998**	**1980**	**1989**	**1998**
Employment Opportunities	1.56	0.19	3.31	1.56	0.19	3.31
Hourly Wage	15.13	25.61	11.34	22.75	26.61	11.34
Hours Worked	17.97	17.68	30.18	35.13	40.68	30.18
Total	34.66	43.49	44.82	59.44	67.49	44.82
Brazil	**1981**	**1989**	**1998**	**1981**	**1989**	**1998**
Employment Opportunities	–0.87	–0.69	5.84	–0.87	–0.69	5.84
Hourly Wage	47.68	49.58	33.74	52.39	50.88	36.90
Hours Worked	8.22	8.97	11.60	38.03	35.27	35.58
Total	55.03	57.86	51.17	89.55	85.45	78.31
Colombia	**1981**	**1989**	**1998**	**1981**	**1989**	**1998**
Employment Opportunities	2.09	6.07	8.02	2.09	6.07	8.02
Hourly Wage	19.21	15.89	5.80	–0.14	26.35	15.98
Hours Worked	1.96	6.12	8.09	16.79	19.09	25.55
Total	23.25	28.08	21.91	18.75	51.51	49.55

TABLE 5.6

Decomposition of Expected Weekly Income Differences Between Men and Women (%) *(continued)*

	Wage-Earning			Non Wage-Earning		
Costa Rica	**1981**	**1989**	**1998**	**1981**	**1989**	**1998**
Employment Opportunities	0.92	0.94	2.65	0.92	0.94	2.65
Hourly Wage	23.25	22.71	16.58	−14.29	21.57	5.65
Hours Worked	7.40	11.29	16.16	37.02	44.11	49.94
Total	31.57	37.10	33.48	23.65	66.62	58.24
Honduras		**1989**	**1998**		**1989**	**1998**
Employment Opportunities		−3.16	−1.69		−3.16	−1.69
Hourly Wage		34.34	4.85		36.87	18.74
Hours Worked		−0.24	6.48		13.90	25.85
Total		30.94	9.64		47.60	42.91
Uruguay	**1981**	**1989**	**1998**	**1981**	**1989**	**1998**
Employment Opportunities	3.31	5.17	7.44	3.31	5.17	7.44
Hourly Wage	29.88	12.65	11.53	45.02	69.24	22.45
Hours Worked	19.53	20.10	23.75	34.13	28.71	22.05
Total	52.72	37.92	42.72	82.46	103.11	51.94

Brazil and Uruguay, this is the main component of the differential in expected weekly income; in other cases, it figures less prominently, as in the case of Honduras and of Colombia in 1981 and 1989. Differences in employment opportunities, generally, play a relatively small part in explaining income differential; in some cases, they favor women, as in the cases of Honduras and Brazil in the 1980s and early 1990s. Only in the case of Brazil in 1998 and, to a lesser extent, Colombia in 1989 and 1998, does this factor figure importantly. In the case of Brazil, we recall that it may be related to the market's difficulty in absorbing the growing female labor supply, as can be observed in its increasing unemployment rate.

Generalizing from the data presented in Table 5.6, one would have to say that there are two fundamental reasons why women receive lower monthly incomes than do men: the fact that they have a lower hourly wage and that they work fewer hours per week. Differences in employment opportunities appear to be important in Colombia and Uruguay, as well as in Brazil in 1998.

In summary, the principal findings of the above analysis are: first, there is clearly a tendency to equalize monthly wages, but not non-wage income, between men and women. Second, with the exception of Argentina, one also observes a tendency to equalize hourly wages. Third, the differential between men and women of hours worked per week has been growing, counteracting, in part, the tendency toward equalization of hourly wages. Fourth, important differences are apparent in employment opportunities between men and women in Colombia, Brazil (1998 only), and Uruguay.

Determinants of hourly income: regression analysis

Because the simple comparison of charts and tables makes it too difficult to control for all factors that intervene in determining incomes of men and women, the regression-analysis technique is commonly used. As mentioned, one of the most common models for this purpose is the

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theless, the fact that the difference in hours worked between men and women increases at the same time that the level of female participation increases raises important questions. There are at least two hypotheses to analyze: one, that women entering the labor force for the first time work fewer hours (supply-side explanation); and two, that the new female labor supply has difficulties in the market, which are manifested in fewer hours worked.

human capital model—Mincer's income model—the simplest form of which is as follows:

$$\ln(W) = \beta_0 + \beta_1 Yedu + \beta_2 Exp + \beta_3 Exp^2 + \eta \qquad (7)$$

where W equals hourly wage, *Yedu* represents years of education, *Exp* equals years of experience, and η represents the random error, with the usual characteristics (normal distribution, expected value of zero, constant variance, independence between observations and orthogonality with the regressions).

With some frequency, these models make estimates using the monthly or weekly wage as a dependent variable. We prefer not to use this because the correlation between wage and hours worked definitions implies incorporating this last variable into the regression, thereby introducing the problem of simultaneity, which can bias the estimates.[14] The experience variable (*Exp*) appears in the squared form in order to capture the decreasing marginal output of that variable. This implies that $\beta_2 > 0$ and $\beta_3 < 0$. In principle, the experience variable should measure the time that an individual has worked, but generally such information does not exist. Lacking an effective measurement of experience, one can use a measure of potential experience, defined as years of age minus years of education minus 5 (assuming that the person enters the education system at five years of age). As previously discussed, it is common for the above model to use the Heckman techniques to correct the problem of selectivity.

The Mincerian equations were estimated for men and women, with and without selectivity correction, for wage earners and non-wage earners, for each of the six countries studied. The dependent variable, as mentioned previously, is hourly income. In the cases of Brazil and Costa Rica, where surveys included information on the various jobs that a person could hold, income and hours dedicated to the main occupation were used. In cases where such a distinction was not made, total labor income and total labor hours were used.

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[14] The problem of simultaneity arises because weekly income depend on hours worked, which are an endogenous variable in the system. Under these conditions, the use of least squares generates biased estimates (bias of simultaneity). The solution to this problem requires special estimation techniques (estimation of simultaneous equations, use of instrumental variables, etc.).

To correct for the selectivity bias, a version of the Heckman methodology was used in which the selectivity and income equations were estimated simultaneously, using a method of maximum likelihood,[15] which increases robustness. The selectivity equation was modeled as a labor participation equation, whereby measures of a person's reservation wage and the opportunity cost of not working were included as explanatory variables. Indicators of reservation wage included the following: remaining household income (family income minus labor income of the observed individual), a qualitative variable that indicates whether the individual is participating in the education system, a variable that indicates whether the individual is married, and a variable that indicates whether the individual is a household head. As indicators of the opportunity cost of not working, the education level and age were included in the squared form to capture the effect of the life cycle. In addition, a variable was included to measure level of household unemployment, defined as the number of unemployed family members divided by the number of participants.

Results of estimates

As indicated previously, equations for male and female wage-earners and non-wage earners were estimated with and without selectivity correction. A summary of these results is presented in Tables 5.7A and B.

In general, the quality of the results is good. In the estimates corrected for selectivity bias, the selectivity equations, for the most part, have a sizeable number of significant variables, and the signs are those expected. The income equations present the correct signs and high levels of significance, and the results are generally consistent. Because the Heckman estimate is made using the method of maximum likelihood and includes the estimation of a nonlinear equation, there is no coefficient that indicates the degree of goodness of fit (such as the R-square of linear equations). However, the hypothesis of which the coefficients of the system of equations equal zero are clearly reflected in all cases where the Chi-square test is based on the likelihood coefficient.

The equations without the selectivity correction are also of sound quality. The R-square coefficients vary between 0.15 and 0.5, which is

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[15] In the original version of Heckman, the estimate is made in two steps: first, a probit model is estimated and second, the regression equation is estimated.

TABLE 5.7A

Summary of Results of Income Equation Estimates for Wage Earners

Argentina		Men			Women		
		1980	1989	1998	1980	1989	1998
Corrected for Selectivity	Yedu	0.07652 **	0.12796 **	0.10339 **	0.08525 **	0.11681 **	0.11224 **
	Exp	0.04371 **	0.04591 **	0.04742 **	0.03975 **	0.03716 **	0.04150 **
	Exp2	−0.00061 **	−0.00063 **	−0.00056 **	−0.00062 **	−0.00053 **	−0.00050 **
	lambda	0.19323 **	0.07960	0.01030	0.08832 *	0.10047 *	0.18156 **
	Constant	0.54492 **	1.87924 **	−0.73343 **	0.49782 **	1.82780 **	−0.99813 **
Uncorrected for Selectivity	Yedu	0.07669 **	0.12537 **	0.10332 **	0.08251 **	0.11014 **	0.10369 **
	Exp	0.03619 **	0.04269 **	0.04694 **	0.03783 **	0.03427 **	0.03475 **
	Exp2	−0.00046 **	−0.00057 **	−0.00055 **	−0.00057 **	−0.00047 **	−0.00037 **
	lambda						
	Constant	0.73350 **	1.99305 **	−0.72132 **	0.61093 **	2.01786 **	−0.67010 **
Brazil		**1981**	**1989**	**1998**	**1981**	**1989**	**1998**
Corrected for Selectivity	Yedu	0.17618 **	0.18177 **	0.15840 **	0.19151 **	0.19274 **	0.18325 **
	Exp	0.01723 **	0.01568 **	0.02945 **	0.02509 **	0.02351 **	0.02795 **
	Exp2	−0.00002 **	−0.00002 **	−0.00003 **	−0.00003 **	−0.00002 **	−0.00003 **
	lambda	0.46033 **	0.57043 **	−0.45798 **	0.18260 **	0.28002 **	0.41764 **
	Constant	2.92189 **	−0.59313 **	−0.85150 **	2.31457 **	−1.17167 **	−1.88314 **
Uncorrected for Selectivity	Yedu	0.17537 **	0.18395 **	0.164.84 **	0.18877 **	0.19117 **	0.17128 **
	Exp	0.02472 **	0.02552 **	0.02552 **	0.02811 **	0.02811 **	0.03308 **
	Exp2	−0.00003 **	−0.00003 **	−0.00003 **	−0.00003 **	−0.00003 **	−0.00003 **
	lambda						
	Constant	2.97509 **	−0.54711 **	−1.44804 **	2.34132 **	−1.14068 **	−1.64555 **

** Significant at 5%.   * Significant at 10%

TABLE 5.7A

Summary of Results of Income Equation Estimates for Wage Earners (continued)

		Men			Women		
Colombia		**1981**	**1989**	**1998**	**1981**	**1989**	**1998**
Corrected for Selectivity	Yedu	0.12509 **	0.10781 **	0.11777 **	0.12709 **	0.12284 **	0.13660 **
	Exp	0.04702 **	0.03956 **	0.03888 **	0.04650 **	0.04115 **	0.02886 **
	Exp2	−0.00054 **	−0.00046 **	−0.00042 **	−0.00064 **	−0.00053 **	−0.00027 **
	lambda	−0.03258 **	0.07931 **	0.04073 **	0.11131 **	0.15470 **	0.24886 **
	Constant	2.30996 **	4.21093 **	5.76764 **	2.06430 **	3.83076 **	5.38868 **
Uncorrected for Selectivity	Yedu	0.12426 **	0.10664 **	0.11668 **	0.11365 **	0.11403 **	0.11303 **
	Exp	0.04917 **	0.03617 **	0.03683 **	0.03680 **	0.03655 **	0.01832 **
	Exp2	−0.00060 **	−0.00039 **	−0.00038 **	−0.00048 **	−0.00043 **	−0.00009 **
	lambda						
	Constant	2.27363 **	4.30743 **	5.83654 **	2.37200 **	4.09161 **	6.01312 **
Costa Rica		**1981**	**1989**	**1998**	**1981**	**1989**	**1998**
Corrected for Selectivity	Yedu	0.13527 **	0.10760 **	0.11363 **	0.19471 **	0.13714 **	0.13257 **
	Exp	0.04050 **	0.03983 **	0.01710 **	0.06284 **	0.03684 **	0.02817 **
	Exp2	−0.00017 **	−0.00043 **	−0.00003	−0.00063 **	−0.00039 **	−0.00032 **
	lambda	−0.73602 **	−0.18052 **	−0.09165 *	−0.08889	0.10549 **	0.12805
	Constant	2.39196 **	4.65446 **	6.46396 **	1.11454 **	3.93333 **	5.94833 **
Uncorrected for Selectivity	Yedu	0.14617 **	0.10921 **	0.11529 **	0.19964 **	0.13243 **	0.12575 **
	Exp	0.08334 **	0.04690 **	0.02251 **	0.06613 **	0.03386 **	0.02254 **
	Exp2	−0.00093 **	−0.00057 **	−0.00011 *	−0.00070 **	−0.00032 **	−0.00022 **
	lambda						
	Constant	1.39405 **	4.43806 **	6.35966 **	0.94363 **	4.11187 **	6.17245 **

** Significant at 5%. * Significant at 10%

TABLE 5.7A

Summary of Results of Income Equation Estimates for Wage Earners *(continued)*

Honduras

		Men		Women	
		1989	1998	1989	1998
Corrected for Selectivity	Yedu	0.15613 **	0.12440 **	0.21074 **	0.15233 **
	Exp	0.05778 **	0.04725 **	0.06372 **	0.03713 **
	Exp2	−0.00066 **	−0.00062 **	−0.00071 **	−0.00048 **
	lambda	0.08813	0.16242 **	0.24307 **	0.17342 **
	Constant	−1.38760 **	0.46818 **	−2.40382 **	0.13963
Uncorrected for Selectivity	Yedu	0.15232 **	0.11990 **	0.20166 **	0.15294 **
	Exp	0.05415 **	0.04222 **	0.05894 **	0.03567 **
	Exp2	−0.00060 **	−0.00052 **	−0.00057 **	−0.00038 **
	lambda				
	Constant	−1.24962 **	0.68121 **	−2.09707 **	0.24445 **

Uruguay

		Men			Women		
		1981	1989	1998	1981	1989	1998
Corrected for Selectivity	Yedu	0.09760 **	0.09998 **	0.11724 **	0.12905 **	0.08497 **	0.12759 **
	Exp	0.05200 **	0.03913 **	0.05117 **	0.03664 **	0.05207 **	0.04554 **
	Exp2	−0.00067 **	−0.00035 **	−0.00056 **	−0.00045 **	−0.00076 **	−0.00054 **
	lambda	0.22428 **	−0.25093 **	−0.01243 **	0.32521 **	0.14446 **	0.12821 **
	Constant	1.32469 **	−1.59761 **	1.49019 **	0.82807 **	−2.04475 **	1.14627 **
Uncorrected for Selectivity	Yedu	0.10252 **	0.09986 **	0.11737 **	0.12477 **	0.08064 **	0.12104 **
	Exp	0.05458 **	0.04792 **	0.05108 **	0.03822 **	0.04571 **	0.04004 **
	Exp2	−0.00067 **	−0.00053 **	−0.00056 **	−0.00043 **	−0.00062 **	−0.00044 **
	lambda						
	Constant	1.32292 **	−1.83136 **	1.48070 **	0.99819 **	−1.81623 **	1.37703 **

** Significant at 5%. * Significant at 10%

TABLE 5.7B

Summary of Results of Income Equation Estimates for Non–wage Earners

Argentina

	Men			Women		
	1980	**1989**	**1998**	**1980**	**1989**	**1998**
Corrected for Selectivity						
Yedu	0.039291 **	0.1283808 **	0.1086325 **	0.0462823 **	0.1386122 **	0.1096334 **
Exp	−0.0275819 **	0.0387601 **	0.0301622 **	−0.0098483	0.0672587 **	0.0259406 **
Exp2	0.0004945 **	−0.0005408 **	−0.0003002 **	0.0000245	−0.0010636 **	−0.0002995 **
lambda	−0.744415 **	0.039976	0.048997	−0.5112149 **	0.5545133 **	0.0938446
Constant	2.972931 **	2.058709 **	−0.7298257 **	2.515988 **	0.4114257	−0.9587615 **
Uncorrected for Selectivity						
Yedu	0.0631563 **	0.1263807 **	0.1082908 **	0.067428 **	0.1214479 **	0.1077369 **
Exp	0.0149769	0.0366564 **	0.0277139 **	0.0160574	0.0442932 **	0.0217188 **
Exp2	−0.0001349	−0.0005121 **	−0.000268 **	−0.0003335	−0.0007318 **	−0.0002409 **
lambda						
Constant	1.249295 **	2.161734 **	−0.6259089 **	1.079303 **	1.830839 **	−0.7100193 **

Brazil

	Men			Women		
	1981	**1989**	**1998**	**1981**	**1989**	**1998**
Corrected for Selectivity						
Yedu	0.1792534 **	0.1841779 **	0.15504 **	0.2213884 **	0.2026238 **	0.1831489 **
Exp	−0.0101199 **	0.0401812 **	−0.0031 **	0.0065561 *	0.0376701 **	0.0001135
Exp2	9.10E−06 **	−0.0005286 **	2.40E−06 **	−0.0002414 **	−0.0004347 **	8.52E−07
lambda	−1.28832 **	−0.5681694 **	−0.88273 **	−1.004952 **	−0.2200181 **	−1.088393 **
Constant	5.397036 **	0.4048457 **	0.721443 **	4.152429 **	−0.6708235 **	0.7410546 **
Uncorrected for Selectivity						
Yedu	0.1695694 **	0.1850761 **	0.167668 **	0.1852633 **	0.1999879 **	0.1684651 **
Exp	0.0125923 **	0.0595422 **	0.0134469 **	0.0538177	0.0468688 **	0.0297355 **
Exp2	−0.000013 **	−0.0006691 **	−1.40E−05 **	−0.0006565	−0.0005094 **	−0.000254 **
lambda						
Constant	3.391081 **	−0.6287987 **	−0.74199 **	2.201022 **	−1.100511 **	−1.319663 **

** Significant at 5%.   * Significant at 10%

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TABLE 5.7B

Summary of Results of Income Equation Estimates for Non-Wage Earners *(continued)*

		Men			Women		
Colombia		**1981**	**1989**	**1998**	**1981**	**1989**	**1998**
Corrected for Selectivity	Yedu	0.1367996 **	0.1255607 **	0.1284907 **	0.1659487 **	0.1212788 **	0.1304239 **
	Exp	0.0093865	0.011605 **	0.0180533 *	-0.0016803	0.0123122 **	0.0209247 **
	Exp2	-0.000121 *	-0.0000937	-0.000143	0.0001679	-0.000142 **	-0.0002036 **
	lambda	-0.8165889 **	-0.4932008 **	-0.2967167 **	-0.4784636 **	-0.2633302 **	-0.1379788 **
	Constant	3.934251 **	5.137207 **	6.145314 *	3.172399 **	4.692069 **	5.74146 **
Uncorrected for Selectivity	Yedu	0.1386044 **	0.1256345 **	0.1243154 **	0.1593829 **	0.1233239 **	0.1295974 **
	Exp	0.0528875 **	0.0382042 **	0.0324453 **	0.0258559 **	0.025824 **	0.027405 **
	Exp2	-0.000646 **	-0.000416 **	-0.0003342 **	-0.0002398 **	-0.0003187 **	-0.0003008 **
	lambda						
	Constant	2.172361 **	4.140707 **	5.64373 **	2.021012 **	4.049416 **	5.466831 **
Costa Rica		**1981**	**1989**	**1998**	**1981**	**1989**	**1998**
Corrected for Selectivity	Yedu	0.0875613 **	0.0602775 **	0.0778668 **	0.0994913 **	0.102866 **	0.0709257 **
	Exp	0.0120436	0.0097146	0.0049996	-0.0109177	-0.0044099	0.0037741
	Exp2	-0.000102	-0.0001561	-0.000053	0.0001308	0.0001443	-0.0001015
	lambda	-0.8692793 **	-0.2159001	-0.2409958	-0.6555195 *	-0.0072639	0.1094884
	Constant	4.10892 **	5.755845 **	7.137339 **	4.318337 **	4.965446 **	6.515705 **
Uncorrected for Selectivity	Yedu	0.0884311 **	0.0592401 **	0.077198 **	0.0888966 **	0.1028188 **	0.0718142 **
	Exp	0.0520457 **	0.0195834 **	0.0191756 **	0.0103129	-0.0040613	-0.0007354
	Exp2	-0.0005403 **	-0.0002649 **	-0.0002164 **	-0.0001237	0.0001397	-0.0000412
	lambda						
	Constant	2.172106 **	5.280545 **	6.589785 **	2.65441 **	4.947112 **	6.766678 **

** Significant at 5%.   * Significant at 10%

(continued on next page)

TABLE 5.7B

Summary of Results of Income Equation Estimates for Non-Wage Earners (continued)

Honduras

		Men		Women	
		1989	1998	1989	1998
Corrected for Selectivity	Yedu	0.1549502 **	0.1351815 **	0.1151307 **	0.1176319 **
	Exp	0.0534534 **	-0.0099898	0.020293 *	-0.0090775
	Exp2	-0.0005224 **	0.000177	-0.000178	0.0001017
	lambda	0.1887022	-0.7642577 **	-0.0832396 **	-0.5259871 **
	Constant	-1.67483	2.264359 **	-0.8439794 **	2.008413 **
Uncorrected for Selectivity	Yedu	0.1592289 **	0.140727 **	0.1152319 **	0.1241244 **
	Exp	0.0430697 **	0.0386009 **	0.0256974 **	0.0228348 **
	Exp2	-0.0004131 **	-0.0003684 **	-0.0002392 **	-0.0002576 **
	lambda				
	Constant	-1.316651 **	0.5901857 **	-1.059607 **	0.716527 **

Uruguay

		Men			Women		
		1981	1989	1998	1981	1989	1998
Corrected for Selectivity	Yedu	0.0649013 **	0.1020931 **	0.1362972 **	0.0943769 **	0.1501109 **	0.1493258 **
	Exp	0.0050703	0.019547 **	0.0325893 *	-0.0184689	0.0673458 **	0.031734 **
	Exp2	-0.0002295 *	-0.0002051	-0.0002793	0.0000839	-0.0008067 **	-0.0002686 **
	lambda	-0.9169072 **	-0.3976155 **	-0.071955 **	-1.027434 **	0.8566226 **	0.1603064 **
	Constant	3.901792 **	-0.8655887 **	1.563184 *	3.59998 **	-4.584184 **	0.7730191 **
Uncorrected for Selectivity	Yedu	0.1011535 **	0.1118395 **	0.1380252 **	0.1209946 **	0.1133503 **	0.139658 **
	Exp	0.0435466 **	0.036898 **	0.0359995 **	0.016576 *	0.0333972 **	0.0254466 **
	Exp2	-0.000561 **	-0.0004245 **	-0.0003248 **	-0.000207 **	-0.0004065 **	-0.0002013 **
	lambda						
	Constant	1.636437 **	-1.774065 **	1.404174 **	1.315938 **	-2.284962 **	1.246594 **

** Significant at 5%.   * Significant at 10%

typical of this type of estimate.[16] In general, the estimates for wage earners (whether using the method of maximum likelihood or least squares) are of higher quality than the methods for non-wage earners because the former group's income is more accurately measured and more stable than that of the latter.

It is noteworthy that the selectivity correction seems to have only a small effect in estimating returns to education. In most cases, returns to education in the corrected equations were between only 0.5 and 1 percentage point less than in the uncorrected equations only. Returns to experience appear to be more sensitive to the selectivity correction, but the direction in which they are affected is unclear.

The selectivity correction has an added effect in this analysis. Since this equation is based, in part, on relevant household variables—such as income of the rest of the family—the Heckman procedure excludes individuals that live in the home, but that are not part of the family (for example, domestic-service employees). As we will see further on, this seems to be more important in some countries than in others.

In general, only Costa Rica and Honduras show a clear difference in returns to education for women and men (in favor of men). For the other countries, the differences are very small and change from one year to the next.

The potential-experience variable enters into the equations in squared form; therefore, its returns depend on the levels. In Table 5.8, returns are estimated at average levels of potential experience. Moreover, the squared form includes the possibility of marginal returns to experience (level of return) increasing or decreasing and existing at a level that maximizes or minimizes the variable's effect. This makes it possible to identify a critical level of experience,[17] from which the outputs change direction. By comparing this critical point with the average levels of experience, one can determine whether the yields from experience are increasing or decreasing. Results indicate that, in the majority of cases, levels of return increase with experience.

An apparent trend among wage earners is that the average rate of return to experience is higher for men than for women in Argentina and

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[16] Cross-sectional estimates such as these always include a significant magnitude of statistical "noise" that makes the R-square coefficients of 0.5 considered high.

[17] The critical level of experience is expressed by $-\beta_2/(2*\beta_3)$. The conditions for a maximum and minimum are: maximum: $\beta_2 > 0$ and $\beta_3 < 0$; minimum: $\beta_2 < 0$ and $\beta_3 > 0$.

TABLE 5.8

Average Returns to Experience (%)

| | With Selectivity Correction | | | | | | Without Selectivity Correction | | | | | |
| | Men | | | Women | | | Men | | | Women | | |
	1981	1989	1998	1981	1989	1998	1981	1989	1998	1981	1989	1998
Wage Earners												
Argentina	4.2	3.0	4.6	2.6	2.6	4.0	2.5	2.9	3.5	2.5	2.4	2.7
Brazil	1.6	1.5	2.8	2.4	2.3	1.9	2.4	2.4	2.4	2.7	1.8	2.5
Colombia	4.6	3.0	3.1	3.6	3.2	2.4	3.8	2.9	2.9	2.9	2.9	1.7
Costa Rica	3.7	3.1	1.6	5.2	3.0	2.2	6.5	3.6	2.0	5.4	2.8	1.8
Honduras		4.3	3.5		5.1	2.9		4.1	3.2		4.9	2.9
Uruguay	3.6	3.0	3.8	2.7	3.5	3.4	3.2	3.1	3.4	2.5	2.6	2.7
Non–wage Earners												
Argentina	−1.3	2.3	2.2	−0.9	3.7	1.8	1.1	2.2	2.0	0.6	2.4	1.5
Brazil	−1.0	0.7	−0.3	−0.8	1.2	−0.4	1.2	2.7	1.3	1.4	0.4	1.4
Colombia	0.6	0.9	1.4	0.3	0.8	1.6	3.4	2.6	2.3	1.9	1.7	1.9
Costa Rica	0.9	0.5	0.3	−0.7	0.0	0.1	3.6	1.2	1.3	0.6	0.0	−0.2
Honduras		3.6	−0.4		1.5	−0.6		2.9	2.7		1.8	1.5
Uruguay	−0.2	1.3	2.4	−1.6	4.3	2.4	2.5	2.3	2.6	1.0	2.1	2.0

Uruguay. In Brazil and Costa Rica, women had excellent returns in 1981 and 1989, but much lower ones in 1998. In Colombia, the return to experience for men has remained relatively stable, while the return for women tended to decrease over the study period. Returns to experience for non-wage earners are more volatile and do not reveal any clear pattern. In general, the average levels of potential experience are much higher for non-wage earners (independent workers and employers). This can be an indicator of a behavioral pattern in which people start their work life as wage earners and, after a period of time, become independent and start their own businesses. The time spent as wage earners helps them gain sufficient knowledge of the nature of the business and accumulate the basic capital needed to establish independence.

Are there differences between men and women in income equations?

The basic reason to use the income equations is for the Oaxaca decomposition of difference in labor income. An important part of this decomposition is based on the difference between the equations' coefficients. An aspect worth studying is whether there is statistical evidence that the coefficients of the equations for men and women differ.

To determine this, one can use the Chow test,[18] in which the null hypothesis states that the parameters of the income equation for men are equivalent to those for women. Given that this test uses the F distribution, is it necessary to use income equations without the selectivity correction.[19]

The results of the Chow test show that, without exception, the hypothesis of equality of the equations is rejected. This leads one to con-

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[18] The Chow test compares the difference in the sum of errors squared between an equation estimated under the assumption that the coefficients are equal (restricted estimate) and another in which the coefficients differ (non-restricted estimate). If the null hypothesis is correct, the difference should be small and vice versa. An F distribution is used for the test with a number of degrees of freedom in the numerator equal to the number of restrictions (parameters in the restricted equation), and in the denominator equal to the number of men, plus the number of women, minus twice the number of estimated coefficients in the equation.

[19] It is possible to design a similar test for equations corrected for selectivity bias; however, given that the estimation method is that of maximum nonlinear likelihood, it is necessary to use the reason of likelihood. Unfortunately, the program does not report the appropriate coefficient; thus, we omitted it.

clude that, in effect, there is strong statistical evidence that the coefficients of the equations for men and women differ.

The implication that the coefficients of the equations differ is the subject of controversy. Some people interpret this difference as evidence of discrimination in the labor force. Others have alternate interpretations. Those who argue that the difference in coefficients reflects different (and possibly discriminatory) treatment between men and women claim that the coefficients reflect the market's rules of the game.

From this empirical point of view, however, one discovers that the coefficients of the equations differ but are not always greater for men. The only coefficient of the income equation that is systematically greater for men is the interceptor of the equations corrected for selectivity (and with a few exceptions, that of the uncorrected equations). The interceptor is the basic wage (income that a person would receive without any education or experience). The wage that a person receives can be interpreted as that basic wage plus the corresponding outputs from different forms of human capital. According to this interpretation, women enter the market with the disadvantage of lower wages because the basic wage is lower and, even though their returns to education are higher, they do not compensate for the initial disadvantage.

In the case of gender wage differences, quality of education differences are especially relevant. Whatever differences in educational quality exist between men and women, they can be reflected in different returns to education, and, in this sense, one can speak of "discrimination." However, it would be a type of discrimination prior to entering the labor market, which would only be reflected in different wages for men and women. This is a point on which much analysis, both theoretical and empirical (especially the latter), is still lacking. However, the available evidence seems to indicate that differences in educational quality are not as relevant as some have argued. In effect, if such a hypothesis were true, the returns to education for women would be lower than those for men; however, what one finds is that at times they are, while, at other times, they are not. In such countries as Colombia, Costa Rica, and Honduras, the returns to education are always greater for women than for men, at least in the equations corrected for selectivity. In the other countries, sometimes the returns for women are greater than those for men; at other times, they are not. In none of the six countries studied are the returns always greater for men than for women.

Something similar occurs with returns to experience. There is no clear pattern that indicates that some returns are greater than others or vice versa. It is important to highlight that, lacking a better measure of expe-

rience, the estimates were made with what is called potential experience. This can have implications for the estimates of returns to experience. In the case of men, potential, and possibly actual experience levels are similar, and the differences that exist between the two could be due to periods of unemployment, illness, etc. In the case of women, there exists the possibility of a much larger discrepancy between the two types of experiences because women can be out of the market for long periods of time in order to raise a family. If this were true, the estimated returns to experience would capture this measurement error, which would be manifested in a subestimate of the true returns. However, the statistical data presented previously does not seem to indicate that this temporary retirement is as characteristic of female behavior in Latin America as it can be in other regions,[20] possibly because the family structure (extended family) and the existence of domestic help serve as a support mechanism for the working woman during such time.

In general, what the results discussed thus far indicate is that the structures of the income equations for men and women are statistically different; however, we still do not clearly understand why or what this difference signifies. The Oaxaca decomposition that we present below allows us to revisit these questions.

Decomposition of wage differences

One of the most common methodologies for analyzing wage differences between groups is the Oaxaca decomposition, which divides the average salary differences in two: one component owing to differences in the average productive characteristics of the two groups and the other (residual), which reflects the differences in the coefficients in the income equations. More specifically, the differential can be expressed as follows:

$$\ln\left(W_{m}\right) - \ln\left(W_{w}\right) = \left(x_{m} - x_{w}\right)\beta_{m} + X_{w}\left(\beta_{m} - \beta_{w}\right)$$

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[20] In the statistics, one does not see a decline in the level of female participation during child-raising years, followed by increased levels during older years. Similarly, in the studies on labor participation—and in the equations of selectivity correction presented in this chapter—having children does not seem to have as clear an effect as one might expect (even though it does have some effect). This is not necessarily to say that family obligations do not affect women's labor situation, but that their effect is not manifested so directly in the level of participation or that it is influenced by other factors.

where the subscripts *m* and *w* represent men and women, respectively, *W* reflects the average hourly wage, X_i is the vector of the averages of productive characteristics (education, experience, and experience squared in our case) of group *i*, and β_i represents the vector of the parameters of the income equation estimated for group *i*. The fact that the wage differences are in logarithmic terms allows one to interpret them as percentage differences,[21] and, for this reason, the composition does not depend on measurement units of income or wages. The first term to the right of the equals sign reflects the contribution of the differences in human capital (characteristics) between men and women, evaluated in accordance with the returns corresponding to men. The second term represents the contribution of the differences in returns. As we have already stated, this second component is often taken as a measurement of discrimination.[22] The test of coefficient differences previously discussed basically indicates that this last component is statistically significant, except in the case where the difference in coefficients and the measurements of human capital (in the case of men) are orthogonal.

A summary of the results of the Oaxaca decomposition appear in Table 5.9. The conclusions that can be drawn from this summary are as follows:

1. During the period analyzed, one observes a very strong tendency toward a decreased difference in hourly earnings in all countries except Costa Rica. In Argentina, Colombia, and Honduras, the estimated difference through equations corrected for selectivity indicates that, at the end of the study period, women were earning higher wages than men.
2. The same tendency is observed regarding non-wage hourly income (independent workers and employers), although, in this case, the differences are still large (over 15 percent).
3. The main reason for these wage and non-wage gaps decreasing during the study period is the decrease in differences in productive characteristics. For 1998, in all of the countries studied, wage-earning women had higher rates of human capital than did men,

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[21] However, by being geometric percentage differences, these differences are not strictly comparable to those presented in the earlier tables, which are arithmetic differentials. In general, geometric differences tend to be smaller than arithmetic ones because they are based on continuous changes, while arithmetic ones assume discrete variations.

[22] There are other forms of wage-differential decomposition, a good number of which are based on changing the weightings of the terms.

TABLE 5.9

Summary of the Oaxaca Decomposition (%)

Wage Earners

		With Selectivity Correction			Without Selectivity Correction		
		1981*	1989	1998	1981	1989	1998
Argentina	Characteristics	−8.75	−15.48	−12.00	−1.13	−12.70	−11.57
	Remainder	19.61	24.86	8.53	12.17	22.41	8.61
	Total	10.86	9.38	−3.47	11.04	9.71	−2.96
Brazil	Characteristics	−12.26	−16.46	−22.36	−15.07	−19.86	−18.77
	Remainder	46.55	46.79	31.73	48.81	49.62	30.57
	Total	34.29	30.34	9.37	33.74	29.76	11.79
Colombia	Characteristics	−0.71	−9.20	−9.41	11.54	0.00	−3.36
	Remainder	11.67	16.27	8.29	13.27	16.09	5.91
	Total	10.97	7.07	−1.12	24.81	16.09	2.55
Costa Rica	Characteristics	22.59	−3.17	−2.98	−6.62	−8.33	−7.41
	Remainder	−15.17	16.70	10.08	15.46	22.06	14.81
	Total	7.41	13.53	7.10	8.84	13.73	7.40
Honduras	Characteristics		−37.43	−29.20		−20.07	−19.02
	Remainder		28.42	19.33		37.07	21.88
	Total		−9.00	−9.87		17.00	2.86
Uruguay	Characteristics	−3.01	9.36	−9.73	−0.27	0.67	−9.63
	Remainder	38.47	18.03	22.37	34.68	26.34	23.07
	Total	35.45	27.40	12.64	34.41	27.01	13.44

* Values for Argentina are actually for 1980.

TABLE 5.9

Summary of the Oaxaca Decomposition (%) *(continued)*

Non- Wage Earners

		With Selectivity Correction			Without Selectivity Correction		
		1981*	1989	1998	1981	1989	1998
Argentina	Characteristics	40.96	1.08	-7.84	-0.02	2.40	-5.48
	Remainder	-8.39	38.83	25.07	32.25	37.53	22.70
	Total	32.57	39.91	17.22	32.23	39.93	17.22
Brazil	Characteristics	7.46	-3.28	10.97	3.98	-6.98	-16.77
	Remainder	55.16	55.79	5.44	60.88	59.70	32.74
	Total	62.61	52.50	16.41	64.86	52.72	15.97
Colombia	Characteristics	47.65	24.80	9.88	15.59	2.60	-0.59
	Remainder	6.15	12.95	14.10	39.38	35.35	24.04
	Total	53.80	37.75	23.98	54.97	37.95	23.45
Costa Rica	Characteristics	66.47	8.01	12.89	7.25	-8.33	2.67
	Remainder	-29.78	19.37	14.09	30.36	22.06	24.31
	Total	36.69	27.38	26.98	37.61	13.73	26.99
Honduras	Characteristics		-15.17	21.82		-6.12	-0.77
	Remainder		33.79	9.50		24.73	32.06
	Total		18.62	31.32		18.61	31.29
Uruguay	Characteristics	2.45	13.37	-9.10	2.71	0.11	-11.87
	Remainder	59.18	46.19	29.05	59.05	58.56	31.86
	Total	61.62	59.56	19.95	61.76	58.66	19.99

* Values for Argentina are actually for 1980.

making the component known as characteristics negative—a difference favoring women. The reason that the total wage differential continued as positive in most countries was, in fact, because the difference in coefficients favored men.
4. Even in the case of non-wage income differentials, the changes in differences in characteristics play an important role in the decrease of the total differential, even though, in this case, exceptions occur, as in the case of Brazil.

Clearly, hourly income differences are much greater between independent workers and employers than between wage earners. This may have various causes, among which two appear important: one, the fact that non-wage incomes may have a much larger measurement margin of error than wage incomes[23] and two, that non-wage incomes depend not only on the quantity of individual human capital, but also on physical and financial capital. In so far as the financial and capital markets fail to perform adequately, their differential effect contributes to increasing the differences between genders.[24]

One can observe that the measurement of hourly wage differences differs, depending on whether it is based on equations corrected or uncorrected for selectivity. The explanation of the difference is that the selectivity correction excludes people for whom data are lacking on the variables of the selectivity equation. This is the case, for example, for people who work in domestic services and who live in the household in which they work (internal), about whose family there is practically no information. Another group that remains excluded is tenants and non-relatives who live in a household. The case of domestic service is important because, in many countries, it involves an occupation that is almost exclusively female, with very specific working conditions, poorly defined working hours (owing to the workplace and residence being the same), and pre-capitalistic work relationships.

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[23] This not only involves the problem of measurement and proper reporting of income, but also the periodicity and variability of non-wage incomes. In the case of wage incomes, it is much easier to know the total by period (month, week, etc.) because the payments are fixed and regular. In the case of non-labor income, the payment periods and totals are variable, possibly affected by seasonal and cyclic factors. This makes the figures for non-wage income less reliable than those for wage income.

[24] Often one mentions income differences between men and women as a factor independent from differences in access to capital markets, the fact that the rules for allocating credit (for example) discriminate against women, and the fact that, in general, women have more difficulty in backing loans.

In the case of Colombia, the inclusion or exclusion of domestic service workers changes the previous conclusions in an important way: By including the group "internal girls," as they are called in Colombia, wage differentials favoring men increase,[25] and that portion of the differential corresponding to characteristics increases, reflecting the fact that domestic service workers may be the group with the least marketable skills and lowest wages.

Evidence of discrimination against women

The results above show some intriguing aspects, even though they leave a wide margin for interpretation. Further on, we discuss some of those interpretations seeking to suggest to what extent they are consistent with some of the main hypotheses on wage discrimination. The following points summarize the principal results obtained from the previous econometric analysis:

1. Nearly all the countries have wage differences that favor men, except for Argentina and Colombia for the year 1998 and Honduras for the whole period studied. The case of Honduras is interesting because it has the lowest level of female participation of all the countries studied and the differences favoring women are caused primarily by the characteristics component. Moreover, the sign of differences changes with the Heckman correction.
2. The gross differences have tended to decrease, except for Costa Rica between 1981 and 1989.
3. In the Oaxaca decomposition of wage differences, one finds that the characteristics component has been negative in most of the cases studied, with the following exceptions: Costa Rica in 1981, Uruguay in 1989, and Colombia in 1981 (without selectivity correction).
4. The characteristics component has tended to decrease (becoming increasingly negative), reflecting the tendency of women to accumulate human capital more rapidly than men. This is what produced the decrease in the gross or average differences.
5. The residual component (difference of coefficients) has been positive (except for Costa Rica in 1981) and has fluctuated over time without a definite trend.

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[25] The negative differential (that is, that in favor of women) of 1998 is converted into a positive differential (in favor of men).

6. When one observes the residual of the decomposition or component corresponding to differences in coefficients, one finds that, in general, the interceptor of the equation is always greater for men (in the case of wage earners). Conversely, the returns to education are nearly always greater for women, with the exceptions of Argentina in 1989, Brazil in 1998, and Uruguay in 1989.

The fact that average wage differences favor men but have decreased over time (items 1 and 2 in the numbered list above) is consistent with the general predictions of the discrimination model of Becker. However, as items 3 and 4 indicate, this average decrease is caused mainly by the fact that the productive characteristics of women have increased more rapidly than those of men. The residual of the Oaxaca decomposition does not appear to have any clear trend. This is inconsistent with Becker's theory, according to which wage differences, controlled by levels of skills and productivity, should decrease over time.

On the other hand, item 6 in the above list seems to indicate a different relationship from what Becker's model would suggest. It suggests that, controlling for experience, the wage differences between men and women are high for low skill levels and decrease as individuals' education levels increase. This behavior suggests an apparent relationship described in our discussion of the theory of statistical discrimination. According to this theory, years of education are not a measurement of human capital (or they are but are subject to error) without an indicator of productivity. Gender is another indicator of productivity, which, combined with education, is used to predict workers' productivity levels. Clearly, the prediction is subject to error and assumes that the error is random in nature and is greater for men than for women.

If the statistical discrimination theory explains the econometric results encountered, then the question one must ask is which one is the rationale for this type of behavior on the part of employers. Any answer should keep two factors in mind: first, an explanation of why average levels of productivity are lower for women than for men (in terms of the model presented earlier, because the coefficient b has a negative sign); second, why the estimates for women's productivity have a greater variance than that of men.

One possible answer can be found in the traditional structure of Latin American society and the roles that men and women play within it. Although important changes may be discerned among the younger generations, one can state that currently, the primary responsibilities of women are childrearing and child care, administering and organizing household

duties, handling emergencies and unexpected events (such as children's illnesses, etc.). This means that the labor force activity of married women mainly, but also single women, competes with other activities that they perform outside the market. A large quantity of anecdotal evidence indicates that women who have remunerative employment carry out a double workday, with both long working hours at home and working for pay. For women who have this dual activity, family obligations can become a key constraint to remunerative work.[26] For example, it is more difficult for them to take on extra work hours, attend training courses outside of regular working hours, take trips that involve being away from home for several days, etc. This may significantly limit these women's productivity in relation to that of the men, who have fewer activities competing with their remunerative work time; it also justifies the fact that employers consider that, *on average,* women are less productive than men.

It is true that the above-described restriction does not apply to all women. On the one hand, not all women are married, and on the other, some married women have alternative means of managing responsibilities of administering the household and caring for children, which allow them to devote more time to their paid work activities. The problem for employers is that it is very difficult to predict which women have the greatest and least constraints in terms of a double workday and, even more importantly, how such restrictions will change in the future. For this reason, predicting female productivity is subject to greater variance than predicting male productivity.

As indicated earlier, this model predicts that the relationship between years of education and productivity (from which the wage is set) differs for men and women. The wage differences are greater for lower skill levels and decrease as years of education rise. Women's rates of return to education are greater than for men, but wage levels are lower. This closely coincides with the results of the econometric analysis previously presented. Moreover, the higher returns to education for women can help explain why they have accumulated human capital more rapidly than men.

The nature of this type of discrimination is a combination of information problems in the market and a culture that assigns specific roles to

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[26] In some cases, female absenteeism from work due to "problems at home" has been documented. Some have argued that the frequency of male absenteeism does not differ much from female absenteeism, but the reasons do. However, the point we are trying to emphasize does not depend only on work absenteeism; it also depends on the amount of effort and dedication that workers can devote to labor activities.

women and men. Most women end up earning lower wages than men because they are judged on the basis of women's expected average productivity. Obviously, the policies that would emerge from this type of analysis differ from those that would result from a diagnostic in which wage differences are caused by discrimination based on Becker-type biases. In the case of statistical discrimination, one would consider two general types of measures. The first would be direct or subsidiary services to support the work of household care and childrearing, such as the creation of good quality nursery school services, with adequate hours of service and other measures directed at decreasing women's double workday. The second would comprise educational and training campaigns so that men can take charge of some of the child-raising and household duties.

Conclusions

The analysis carried out allows us to draw some interesting conclusions and consider some policy lines. The main conclusions are as follows:

1. In the countries studied, with the exception of Costa Rica, there is a clear tendency toward equalizing monthly wage incomes.
2. This tendency toward wage equalization, however, is not observed in non-wage incomes. Because non-wage incomes have to do with the functioning of other markets, as well as the labor market, a possible explanation for such a discrepancy would have to be found in the functioning of these markets. For example, in the income differences of independent workers, access to capital markets can play an important role.
3. Hourly income differences between men and women are decreasing, with certain exceptions, such as Costa Rica. In effect, in the cases of Argentina, Colombia, and Honduras, the average female hourly wage exceeds the male hourly wage, if domestic service employment is excluded.
4. The main reason for women's monthly wages being lower than those of men is that women work fewer hours than men. The difference in hours worked per week has been increasing. The reasons why women work fewer hours than men can be on the demand or supply side, but it is more likely that supply-side reasons predominate. This is consistent with the "double workdays" that women

work (at the workplace and at home), which limit their ability to take on extra work hours, etc.

5. In general, differences in employment opportunities (measured from levels of unemployment) were not found to be an important factor in determining expected incomes, except in the cases of Colombia and Brazil in 1998. In Colombia, women have had significantly higher levels of unemployment than men over the 20-year period analyzed; it was estimated that this has had a bearing on a growing component of expected wage differences of men and women. For 1998, this component represented more than one third of the differential. The problem in Brazil appears to be more current since differences in levels of unemployment only appear for 1998. Until 1989, gender differences in employment opportunities were almost nil.

6. The regression analysis and Chow tests show that, in effect, determining the incomes of men and women is done using different mechanisms. This indicates that, in the Oaxaca decomposition, the residual is statistically significant. However, its interpretation is not an easy task. In many cases, such a remainder is interpreted as evidence of discrimination against women, but according to the analysis carried out in this study, that interpretation does not appear correct. What we find is that the residual is a positive sign for the simple reason that the difference of interceptors in the male and female equations is positive (that is, men have an advantage). However, the returns to education for the same levels of education are greater for women than for men. If the discrimination hypothesis of Becker (1971) were true, one would expect that this remainder would also be positive. However, results show the opposite.

7. The study suggests a hypothesis for interpreting the results that falls within the general lines of statistical discrimination theory. According to such a hypothesis, the reason why women are treated differently than men in the labor market is based more on sociocultural factors related to women's position in society generally and the roles they are assigned. As a result, women, on average, have such activities as childrearing and household management that compete for their available time in the labor market (double workday). For employers, these activities introduce a risk factor and uncertainty about decisions related to contracting women, and end up penalizing them with lower salaries. However, the penalization is not uniform. If women or their families have incomes to shift around, these risks could be partial and the penalty decreases. This

may be correlated with the woman's education level; for this reason, the penalty may decrease as years of education increase. The resulting situation, as one observes from the estimates, is that the returns to education are higher for women than for men, but the interceptor of the equation is lower.

Some comments on policy aspects

Seldom does one find materials on antidiscriminatory policy in the economic literature, even in the more developed countries. For this reason, the comments that follow are intended only to open up discussion on the topic. In general, there are three types of antidiscriminatory policies: 1) affirmative action, 2) equal pay for equal work, and 3) direct subsidies for female work. The first and third groups of measures are those most referred to in Latin America.

Affirmative action consists of such measures as imposing job quotas for women in certain occupations, key positions, or high-salary positions.[27] Generally, it is argued that such measures have a short-term, negative effect in terms of productive and cost efficiency, but they can have long-term benefits in terms of both equity and social efficiency. Coate and Loury (1993b) analyze these aspects in a model in which discrimination is based on stereotypes that make it more difficult (not impossible) for women to have access to higher-paying positions in companies. The short-term result is that the returns to investing in human capital are lower for women than for men. In the long-term, women invest less in human capital and thus confirm the stereotype that they are less productive than men. The effects of affirmative action can improve or worsen the situation. On the one hand, improving the likelihood that women have access to better-paying positions also improves the expected returns to investing in human capital. However, these authors point out the possibility that the opposite could result, which would occur if, in order to improve women's access to such positions, it is necessary to lower standards to the point that women would not need to invest in human capital in order to obtain the positions. In this case, affirmative action ends up confirming the stereotypes that it tries to fight.

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[27] An example of this type of policy is the Colombian government's law of quotas, which was approved in 2000; according to this law, 30 executive positions in the government should be held by women.

The information presented in this chapter shows that, over the past 20 years, the levels of women's accumulated human capital have exceeded those of men. In this sense, it is unclear whether affirmative action policies offer important avenues for improving women's situation in the labor market. However, this is a point that requires further research.

The second type of measure, "equal pay for equal work," has been explored even less in the economic literature. The superficial impression is that, in those countries in which this type of policy has been implemented, such as Canada, it has been very difficult to find operative criteria for defining "equal work" in a broad context. On the other hand, in some studies (see, for example, Castillo and Barrero 2000), it has been documented that at least the large companies set salary scales guided by market criteria without explicitly including gender criteria (each position in the company has predetermined salaries, whether the position holder is a man or woman). In the work of Castillo and Barrero (2000), wage differences in the financial sector of Colombia are found to be caused more by women's difficulty in getting certain jobs, problems that have to do, above all, with family situations and obligations. Women who have achieved such positions have done so at a higher personal cost than men (divorces, not having children, etc.). If, as this study suggests, such differences are caused by factors more related to female roles in the home and a double workday than to employer biases, then another type of measure could be more relevant.

The policy measures most often discussed in Latin America involve direct or indirect subsidies to female work. The creation of such subsidies recognizes that it can be more costly for employers to hire women and that it can be more costly (in terms of opportunity cost) for women to accept jobs in the market. This type of subsidy would include maternity compensation, nursery schools for infants, kindergartens for school-age children, etc. To the authors' knowledge, there has been no evaluation of this type of subsidy and its effect on female participation in the labor market or the intensity (hours worked per week) of their participation. The little evidence available from studies on the determinants of female participation indicate that, when women control their marital status, having children in the household often does not have the negative effect one would expect in labor-market participation because there are alternatives for child care, such as domestic-service workers in the home and the extended family. Even though these results can have elements of spurious correlation or reverse causality (women work because they have domestic service, or they have domestic service because they work), the result suggests that decisions of female participation are influenced by

many factors related to family structure and support of the extended family.

As suggested by the results of this study, it is through this third type of policy women's equality in the labor market can be most effectively promoted.

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6

Working within Confines: Occupational Segregation by Gender in Costa Rica, Ecuador, and Uruguay

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The concept of occupational segregation is easy to understand: it occurs when a group—women, men, ethnic minorities, youth—is over-represented in some occupations and under-represented in others. Methodological debates in the literature center around the criteria for defining over-representation—relative to what norm? The vast majority of studies on occupational segregation have focused on gender segregation, documenting the concentration of women in certain occupations such as clerical jobs, sales positions, and domestic service.

Is female occupational segregation just another form of labor market discrimination against women? In other words, is the observed concentration of women in certain occupations the result of overt discrimination that prevents their entry into male-dominated professions? Or is the process subtler, resulting from boys' and girls' distinct experiences in schools?

In this context, it is useful to distinguish choices and opportunities made while still in school from those made after leaving school, as suggested by Borghans and Groot (1999). Boys and girls may make different education choices that will result in future occupational segregation. Some of these choices, of course, may be influenced by social norms and conventions about "appropriate" careers for women and men, as well as by market returns received by men and women in different careers. Boys and girls may also face distinct educational opportunities due to gender biases in parental support for education and in teachers' behavior. Similarly, men and women may make distinct choices or have different opportunities once they have begun their careers.

Thus, the answer to the question of whether occupational segregation is caused by discrimination is nuanced. While observed occupational segregation is worsened by labor market discrimination against women, discrimination is not the only source of segregation. Voluntary choice (which could be influenced by historical patterns of discrimination) may be responsible for some degree of segregation. Similarly, differing education backgrounds (which also may be influenced by historical discrimination, as well as pressure from teachers and peers) may preclude women from entering traditionally male-dominated occupations.

Occupational segregation presents significant costs for the region's economies. These costs might include more rigid labor markets, reducing the market's ability to respond to change; higher male-female wage gaps; underutilization of women's labor (allocative inefficiency); and lower levels of output and lower future growth rates as a result of lower than optimal investments in female education (Tzannatos 1999; Anker 1998).

In addition, as female labor force participation rates rise over time in the region, an increasing share of the labor force is affected by occupational segregation, and the efficiency losses from segregation mount (Tzannatos 1999).

Despite the importance of occupational segregation as a barrier to improved equity and efficiency in labor markets, there has been relatively little research done on the topic for Latin America and the Caribbean. In large part, this is the result of data limitations: sample surveys have typically not used standard definitions of occupational categories over time, making it difficult to examine time trends in segregation. This chapter fills that void by constructing comparable data sets for Costa Rica, Ecuador, and Uruguay for the 1989–1997 period. These countries and years were selected because comparable measures of occupational categories were available for these countries over an extended period,

and because they represent countries at across a broad spectrum of economic development.

The data

Data for this study are from household surveys conducted by the governmental statistics agencies of Costa Rica, Ecuador, and Uruguay.[1] We use three annual surveys for each country. For Costa Rica and Ecuador we examine data for 1989, 1993, and 1997. For Uruguay we use the same years, except we substitute 1992 for 1993, due to data availability.

The Ecuadorian and Uruguayan surveys are urban. Since Costa Rica's survey has national coverage, we restrict the sample to urban areas to make it comparable to the other two countries. In all cases, analysis is restricted to a sub-sample of employed workers. The unweighted sample size is presented in Table 6.1. For computation of the wage gaps, only those workers reporting a positive income are included, reducing the sample size by 5 percent to 10 percent.

Tables 6.2 and 6.3 present the evolution of the employed female labor force from 1989 to 1997 by occupational category. During the period under study, the total employed female labor force increased very little in Ecuador and Uruguay, while slightly diminishing in Costa Rica. In the three countries studied, the majority of women are employees, one-sixth to one-third are self-employed and less than 10 percent are unpaid workers. Costa Rica and Uruguay present very similar results, with almost the same distribution in 1997 and three-fourths of its working women categorized as employees. In Ecuador, self-employment is more prevalent than in the other two countries, accounting for one-third of women in the labor force.

Although unpaid workers is not a major occupational category, Table 6.3 shows that in every country and across time women represent more than 50 percent of unpaid workers. As employees, women have increased their participation over time in Ecuador and Uruguay and slightly re-

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[1] Costa Rica's household survey is called Encuesta de Hogares de Propósitos Múltiples and is carried out by the Instituto Nacional de Estadística y Censos (INEC). Ecuador's survey is known as Encuesta Periódica sobre Empleo y Desempleo, carried out by the Instituto Nacional de Estadística y Censos (INEC). Uruguay's household survey is called Encuesta Continua de Hogares and the executing agency is the Instituto Nacional de Estadística (INE).

TABLE 6.1

Sample Size of Surveys

Country	Year	Male	Female	Total
Costa Rica	1989	3,815	2,262	6,077
	1993	3,701	1,989	5,690
	1997	4,006	2,276	6,282
Ecuador	1989	11,072	6,114	17,186
	1993	5,276	3,117	8,393
	1997	8,998	5,437	14,435
Uruguay	1989	7,733	5,191	12,924
	1992	7,277	5,168	12,445
	1997	15,151	10,790	25,941

TABLE 6.2

Structure of the Employed Female Labor Force by Occupational Category[1]

Occupational Category	Costa Rica			Ecuador		Uruguay		
	1989	1993	1997	1989	1997	1989	1992	1997
Self-employed	16.7	20.4	21.2	34.9	33.5	21.6	21.3	20.5
Employees	80.6	76.8	76.1	60.1	56.8	74.4	74.5	76.0
Unpaid workers	2.7	2.8	2.6	5.0	9.7	4.0	4.1	3.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

[1] Female owners are included among the "self-employed" since not all the surveys have "owners" as a separate occupational category.

TABLE 6.3

Females as a Percent of the Employed Labor Force by Occupational Category[1]

Occupational Category	Costa Rica			Ecuador		Uruguay		
	1989	1993	1997	1989	1997	1989	1992	1997
Self-employed	28.9	29.8	30.3	37.5	34.7	37.7	35.5	33.3
Employees	39.0	36.0	37.8	33.7	36.5	41.6	42.5	43.7
Unpaid workers	50.0	62.2	60.0	60.1	72.8	74.6	74.5	70.2
Total	37.2	35.0	36.2	35.6	37.7	40.2	41.5	41.6

[1] Female owners are included among the "self-employed" since not all the surveys have "owners" as a separate occupational category.

TABLE 6.4

The Five Most Male-Dominated and Female-Dominated Occupations in Costa Rica, Ecuador, and Uruguay, 1997

Female-Dominated Occupation Code at 2 Digits	Description
3	Medical, dental, and related workers
6	Teachers
22	Secretaries
60	Textile workers
91	Cooks, waiters, bartenders, maids, and related housekeeping workers

Male-Dominated Occupation Code at 2 Digits	Description
24	Employees in the control of transportation and communications
42	Agricultural workers
50	Drivers
67	Electric and electronic workers
68	Mechanics

duced their share in Costa Rica. During the last decade women's share among self-employed has barely increased in Costa Rica and dropped almost three percentage points in Ecuador and Uruguay.

Table 6.4 presents the five most male-dominated and female-dominated occupations in the three countries studied for 1997.[2] The occupations were selected by choosing for each of the three countries the ten occupations where the female participation was highest and lowest respectively. From that subset we chose the five occupations that were common in all three countries. As Table 6.4 shows, women are concentrated in the medical profession, teaching, secretarial work, textiles, and restaurant and housekeeping services.

Table 6.5 presents the hourly wage gaps for the three countries studied in 1989, 1992, 1993, and 1997. It is quite clear that the gender wage gap, measured as the relative hourly wage of women to men, is closing over time—at a minimum for Costa Rica and Uruguay, for which we have time series data. Another intriguing finding is that, for the most recent year, female occupations are earning as much as male occupations, on an hourly basis.

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[2] Occupations are classified according to a code known as COTA.

TABLE 6.5

Hourly Wage Ratios

	Costa Rica			Ecuador	Uruguay		
	1989	1993	1997	1997	1989	1992	1997
Female/Male Hourly Wage Ratio	85	84	94	83	75	85	90
Female Occup./Male Occup. Hourly Wage Ratio	88	80	99	94	79	96	101

Economic context

In this section we briefly describe the economic conditions of Costa Rica, Ecuador, and Uruguay during the period under study to better understand the context of the labor market in which occupational segregation is taking place. We would expect to see a lower level of occupational segregation and a decreasing trend in a growing economy where female labor force participation is increasing and there are more hiring opportunities. Rising income levels are usually associated with improved female education levels and reduced birth rates, as well as a decline in traditional family-based roles for women. On those grounds, our main focus in this section is to look at the general macroeconomic conditions, levels of unemployment, structure of employment, poverty changes, and trends in education and fertility.

Costa Rica

GDP per capita in Costa Rica increased slightly during the period, from US$1,906 in 1989 to US$2,081 in 1997. The adjustment process that Costa Rica went through beginning in the second half of the 1980s can be characterized as more gradual than most other countries in Latin America and the Caribbean. In accordance with the development model followed during the last 50 years, Costa Rica opted to implement reforms at a slower pace. This strategy seems to have produced a more modest growth rate than in other countries in the region, but with lower social costs in terms of levels of unemployment and drastic drops in real salaries. During the 1990s, GDP per capita growth was slow and declined in 1995 and 1996. Nevertheless, unemployment in urban areas continued to be low compared with the regional average, fluctuating between 4 percent and 6.6 percent. Unemployment of women was well

above the rates for men, as is the case in most of the countries of the region. Women's employment by sector shifted toward services, increasing by 7 percent at the expense of the tradable sector.

Although there have been temporary fluctuations over the 1987–1996 period, there is a clear tendency toward a reduction in poverty levels. The percentage of households living in poverty in urban areas decreased from 22 percent in 1990 to 17 percent in 1997, while those in extreme poverty fell from 7 percent to 5 percent over the same period.

The educational attainment of women shows a continuous increase over the period, going from an average of 9.35 years of schooling for women between 15 and 64 years old in 1989, to 9.94 years in 1993, and 10.03 years in 1997. During the same period, the average number of children per household dropped from 2.39 to 2.01.

Ecuador

Between 1990 and 1997, the economy of Ecuador fared worse than the overall regional average. GDP per capita in 1989 was US$1,254, rising to US$1,392 in 1997. The rate of growth of per capita GDP has been modest, fluctuating between –1.2 percent and 1.8 percent. Unemployment in urban areas is very similar to the regional levels, with an upward trend going from 6.1 percent in 1990 to 9.3 percent in 1997. When disaggregated by gender, urban unemployment is almost twice as high for women than for men. There was also an increase in the wage gap between the modern and informal sector. From 1990 to 1998, the percentage of women in the service sector increased by 3.2 percent.

Given the high levels of poverty it is encouraging to see that even with meager growth rates the percentage of households in poverty in urban areas dropped by 6 points, from 56 percent to 50 percent over the 1990–1997 period, and that 4 percent of households were able to get out of extreme poverty.

Levels of education for women have consistently increased from 10.57 years of schooling in 1989 for women 15 to 64 years old to 11.22 in 1997.

Uruguay

Of the three countries studied, Uruguay is clearly the best economic performer during the period in question. GDP per capita at the beginning of the period was US$2,692 and climbed to US$3,437 in 1997. With the exception of 1995 (when it fell by 2.7 percent), per capita GDP

growth has been well above the regional average, fluctuating between 0.3 percent and 4.7 percent. However, urban unemployment is slightly higher than the regional average, with an upward trend during the second half of the 1990s. Mirroring experiences in the other two countries, female unemployment is 4 to 5 percentage points higher than male unemployment during the period. In terms of sectoral allocation, women increased their employment in the service sector by 7.1 percent from 1990 to 1998, reducing their participation in the manufacturing and construction sectors.

Although Uruguay's poverty levels have been fairly low compared with the rest of the region, the 1990–1997 period exhibited a clear tendency toward further reduction in poverty levels. The percentage of urban households living in poverty decreased from 12 percent in 1990 to 6 percent in 1997, while the ratio of those living in extreme poverty went from 2 percent to 1 percent.

Women's education has risen from 8.6 mean years of schooling those 15 to 64 years old in 1989 to 10.38 years in 1997. During the same period, the average number of children per household dropped from 1.96 to 1.82 among women aged 30 to 45 years.

Thus, there are several important differences in the economic context for the three countries in our sample. These include differences in GDP trends, as well as divergent relationships between growth and unemployment (and strikingly different starting places in terms of levels of GDP and poverty). However, there are also important similarities across all three countries. Namely, there was a shift in female employment to the service sector, poverty rates decreased, unemployment rates were higher for women than for men, female education levels increased, and average family size fell.

Measures of occupational segregation

Literature review

Although occupational segregation by gender is an area that has been thoroughly studied—particularly its impact on male-female pay differentials—this chapter makes several methodological and empirical contributions to the current literature.

Table 6.6 is a modified version of a table presented by Anker (1998). It summarizes previous empirical work (selected to include at least one case from the region) that looked at occupational segregation by gender.

TABLE 6.6

Cross-National Studies of Occupational Segregation by Gender

Author	Data source	Data years	Total and LAC countries covered	Detail in occup.data	Inequality measures	Findings
Anker (1998)	Censuses and labor force surveys	1970s, 1980s, 1990s	41 countries (1 LAC)	2–3 digits	Representation ratios, inequality indices, % workers in male-dominated and female-dominated occupations.	Male-dom. occupations are more common than female-dom. occupations. Levels of occup. segregation by gender differ greatly across regions and is not related to socio-economic development. Women tend to work in a small set of occupations, which coincide with typical female stereotypes.
Anker and Hein (1986)	ILO Yearbook, national surveys and censuses	1960s, 1970s, 1980s	52 developing countries (21 LAC)	1 digit	Duncan index, representation ratio, % labor force in gender-dom. occupations	Women overrepresented in professional/technical and services. Women under represented in administrative/managerial and production. Many male-dom. occup. but few female-dom occup. Largest female-dom. occup. are highly gender stereotyped.

Source: Anker (1998) and authors' additions.

(continued on next page)

TABLE 6.6

Cross-National Studies of Occupational Segregation by Gender (*continued*)

Author	Data source	Data years	Total and LAC countries covered	Detail in occup.data	Inequality measures	Findings
Blau and Ferber (1992)	ILO Yearbook	1988–1990	94 countries (15 LA and 18 in the Caribbean)	1 digit	Duncan index	Duncan index highest in Latin America (0.44) and Middle East.
Boserup (1970) ILO Yearbook,	UN Demographic Yearbook, national data	1960s	34 developing countries (13 LAC)	1 digit	% female by employment status	
Boulding (1976) ILO Yearbook,	UN Demographic Yearbook	1950–1971	86 countries (24 LAC)	1 digit	Duncan index, representation ratio.	Duncan index highest in Latin America (approx. 0.49) and lowest in Africa and Asia (approx. 0.30). Duncan index similar in Europe and North America/Middle East (approx. 0.38).
Jacobs and Lim (1992)	ILO Yearbook	1960 to 1980	39 countries (10 LAC)	1 digit	Duncan index, size-stand. Duncan index.	Duncan index declined in 7 of 10 Latin American and Caribbean countries. Size-stand. Duncan index is consistently decreasing around the world.

Source: Anker (1998) and authors' additions.

(*continued on next page*)

TABLE 6.6

Cross-National Studies of Occupational Segregation by Gender *(continued)*

Author	Data source	Data years	Total and LAC countries covered	Detail in occup. data	Inequality measures	Findings
Psacharopoulos and Tzannatos (1992)	ILO Yearbook	1950s/1960s to 1970s/1980s	20 countries (15 LAC)	1 digit	Duncan index, representation ratio.	Duncan index higher among employees than among self-employed or unpaid family workers. Duncan index at 0.49 on average. Duncan index decreased in 7 countries and increased in 6. Duncan index decreased due more to changes in occup. structure than to changes in sex composition of occup.
World Bank (1994)	ILO Yearbook	1950s/1960s to 1970s/1980s	45 countries (11 Americas)	1 digit	Duncan index	No consistent change over time. Duncan index highest in North Africa (approx. 0.55) and lowest in West Africa (approx. 0.20).

Source: Anker (1998) and authors' additions.

The table presents the authors, data sources used, years surveyed, geographic coverage, occupational segregation measures and statistics used, as well as each study's major findings. It is apparent from the table that the vast majority of the previous research on this topic for Latin America and the Caribbean (except for the Costa Rica 1991 case studied by Anker) relies on data from the ILO Yearbook of Labour Statistics. This imposes significant constraints in terms of the level of disaggregation of occupational data as it is only available to one digit.

Most cross-country studies conclude that occupational segregation is pervasive worldwide, both in industrialized and developing countries. This finding is quite important, since it shows that this phenomenon cuts across national boundaries, religious beliefs, social norms, traditions, and development levels. Another common finding among studies including Latin American and Caribbean countries is that that region's gender occupational segregation is among the severest in the world. Both Boulding (1976) and Psacharopoulos and Tzannatos (1992) report an approximate value for the Duncan index of 0.49. Based on 1980 data, Blau and Ferber (1992) data found the Duncan index to be 0.435 in Latin America and 0.417 in the Caribbean. Figure 6.1 shows comparative levels of occupational segregation by region.[3]

In terms of the degree of change over time, Jacobs and Lim (1992) find that the Duncan index declined in seven of ten Latin American and Caribbean countries from 1960 to 1980. Psacharopoulos and Tzannatos (1992), on the other hand, find mixed results: occupational segregation by gender had decreased in seven countries of the region and increased in six others.

In several ways, this chapter goes beyond previous empirical studies of occupational segregation by gender. First, it is based on unusually detailed data. For most of the analysis we use a two-digit classification of occupations, which amounts to 83 occupations. As Table 6.6 shows, prior research on Latin America and the Caribbean relies on crude occupational data at the one-digit level, which yields only seven occupations. Aggregated one-digit data can be misleading when used to research cross-national differences and trends over time.[4]

Second, we calculate the Duncan index for different years of schooling to test the hypothesis that occupational segregation is more severe among

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[3] The value of the Duncan index will in general be lower the more aggregated the data. Therefore, in order to compare the values of the Duncan index in this paper with previous calculations we report the one-digit values in footnote 6.

[4] For a thorough discussion of this problem see Anker (1998), Chapter 6.

the less educated than among the more educated. By looking at education levels we find a very different story than the aggregate levels of occupational segregation for the total sample of employed urban workers.

Third, we conduct the random hiring exercise developed by Blau and Hendricks (1979), which had not been applied previously to Latin America. This simulation, which tests for the difference between actual changes observed in occupational segregation and those that would have resulted from "sex-blind" hiring, allows us to make important policy recommendations for the region.

Fourth, we go beyond the simple calculation of the estimates of occupational segregation indices to compute confidence intervals based on a bootstrapping technique.

Fifth and last, we explore to what extent occupational segregation is responsible for the male-female wage gaps in the countries studied. For that purpose we decompose the wage gap into three components: human capital differences, wage discrimination, and occupational segregation. We also present the more traditional Oaxaca decomposition of the gender wage gap for comparison.

A note on measuring occupational segregation

Measures of occupational segregation are typically based on constructed indices that determine the extent of differences in the distributions of male and female workers across occupational categories in the economy. In constructing such measures, there are choices to be made in the type of index, as well as in the degree of detail used to define occupational categories. For any segregation index, if the distribution of males and females across the selected occupational categories is the same, then the index will have a minimum value (which typically is zero). On the other hand, if males and females are completely segregated (i.e., there are no occupational categories shared by both men and women) then the index will reach its maximum value (which usually is one).

The literature proposes many alternative indices for computing occupational segregation. The indices we used can be classified into two distinct types: the "absolute differences" type and the "labeling of occupations" type.[5]

As noted by Anker (1998), all indices have the advantage of simplicity, condensing into one number all variation in the distribution of jobs

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[5] Note that there are other types of indices, such as entropy measures, with which we did not work.

between men and women. At the same time, this simplicity is also a disadvantage, potentially masking important underlying variations and limiting possibilities for discussion of many practical and policy-related aspects. The Duncan index, or index of dissimilarity, is by far the most commonly used measure of occupational segregation in the literature. The Duncan index falls into the category of absolute difference indices. Generally speaking, this type of index attempts to measure the distance between the distributions of men and women across occupations, as measured by differences in the relative participation of men and women in each occupational category. The most frequently noted weakness of the Duncan index is that changes over time in estimated values can result from both changes in the occupational structure of the labor force and changes in the sex composition of occupations. Therefore, additional decomposition analyses are required to understand the causes of changes in the Duncan index.

Other indices have been developed, in large part to overcome this weakness of the Duncan index. Measures such as the marginal matching index fall into the second category of "labeling occupation" indices, and are not affected by shifts in the occupational structure over time. However, such indices have been found to present unrealistically low levels of occupational segregation in countries with very low rates of female labor force participation.

Our results presented below are for the Duncan index, calculated for two-digit occupational categories. While we recognize the limitations of this measure, for our purposes it is the most tractable as well as most easily comparable to other results available for the region. We present estimates of other segregation measures in Table 6.A.1.

Presentation of measures of occupational segregation by gender

Aggregate measures

Table 6.7 presents our estimates, reported at the two-digit level,[6] of the Duncan indices for Costa Rica, Ecuador, and Uruguay for the three sur-

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[6] For the purpose of comparison, we also calculated Duncan indices using the broader single-digit classification of occupational categories with the following results for 1989, 1992/3, and 1997, respectively: Costa Rica (0.32, 0.35, and 0.37); Ecuador (0.38, 0.38, and 0.38); and Uruguay (0.37, 0.39, and 0.42). These are lower than results reported by Psacharopoulos and Tzannatos (1992) who, using the ILO Yearbook ID-7 occupational categories, find Duncan indices of 0.498 (Costa Rica 1984), 0.465 (Ecuador 1982), and

TABLE 6.7

Confidence Intervals for Duncan Indices

Country/Year	Lower Bound	Upper Bound	Two-Digit Duncan Indices
Costa Rica			
1989	0.54	0.60	0.57
1993	0.52	0.59	0.56
1997	0.51	0.57	0.54
Ecuador			
1989	0.55	0.61	0.58
1993	0.51	0.57	0.54
1997	0.51	0.57	0.54
Uruguay			
1989	0.51	0.60	0.56
1992	0.53	0.60	0.57
1997	0.52	0.58	0.55

veyed years. While a comparison of the point estimates suggests a slight decline in measures of occupational segregation over time, the results are actually striking in their uniformity across countries and across time. Using a bootstrap methodology, we estimated a series of point estimates for the Duncan index and obtained bootstrap estimators for the variance.[7] With these results, we were able to construct confidence intervals for each estimate, and statistically compare results across time periods. Table 6.7 presents the 95 percent confidence intervals for the Duncan estimates.

We find no significant changes in the levels of occupational segregation (as measured by the Duncan index) over time, as can be seen from the data presented in Table 6.A.2. Despite the many economic changes faced by each of the three countries sampled during the period 1989–1997, there was no change in the degree to which women remained segregated within occupational categories.

0.433 (Uruguay 1985). However, our two-digit estimates are similar to results found by Anker (1998) who using the ILO ID-75 nonagricultural two-digit classification, finds a Duncan index for Costa Rica of 0.598 in 1991. Estimates using three-digit classification of occupational categories are available from the authors upon request.

[7] The process of bootstrapping is one of the re-sampling techniques that have gained increasing popularity with the more widespread use of powerful computers. It consists of taking random subsets of the sample and computing the Duncan index estimator associated with each sub-sample. By means of this process we obtain a series of Duncan index estimators and compute new estimators for the mean and the variance of the Duncan index, called the bootstrap estimators for the mean and the variance, respectively.

A similar analysis was done to test for differences across countries (results presented in Table 6.A.3. Despite the differences in levels of economic development, there were no significant differences observed in occupational segregation across the three countries in our sample. In sum, our measures of occupational segregation prove to be doggedly entrenched—across time, and across countries in the sample. At least for the countries, and the time period studied, it appears that differences in both the starting levels of economic development and macroeconomic performance do not result in differences in observed levels of occupational segregation by gender.[8]

Also of note is that our results, which are based on the use of an innovative bootstrapping methodology to compute confidence intervals and test for differences, point strongly toward the need for such careful comparative analyses of measures of occupational segregation when working with household survey data. Conclusions based upon a comparison of point estimates are insufficient and likely to be misleading.

Measures of occupational segregation by education level

While aggregate measures of occupational segregation by gender for the entire sample appear to show little variance, such aggregate measures mask important differences. Table 6.8 shows Duncan indices according to different education levels for each country and sample year.

In all the cases observed, occupational segregation is significantly higher for the less educated. An analysis by education level dissolves the seeming homogeneity of our measures of occupational segregation. The divide in degree of occupational segregation between more and less educated women, in other words, is greater than it is for women overall across time, or across countries. In sum, less educated women are significantly less likely to be mobile across occupational categories than are women in the higher education levels. It seems that gender differences in employment opportunities are exacerbated by education levels.[9]

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[8] Anker (1998) carries out OLS multiple regression analysis to look at the socioeconomic, labor market, and regional determinants of occupational segregation by gender. He finds that differences in the ID-75 are not significantly related to socioeconomic variables. Furthermore, Anker concludes that regional variables—which account for over one-half of the variation in the ID-75—imply that cultural, social, legal, and historical factors are probably the most important determinants of occupational segregation by gender worldwide.

[9] We also estimated Duncan indices for occupational segregation by gender across categories of employment (self-employed, employed, and unremunerated family work-

TABLE 6.8

Duncan Indices According to Educational Levels

Year/Quintile	Costa Rica	Ecuador	Uruguay
1989			
Primary	0.69	0.73	0.63
Secondary	0.54	0.63	0.53
Tertiary	0.49	0.39	0.50
1993[a]			
Primary	0.65	0.66	0.71
Secondary	0.54	0.63	0.53
Tertiary	0.50	0.39	0.49
1997			
Primary	0.66	0.71	0.70
Secondary	0.52	0.62	0.55
Tertiary	0.44	0.37	0.44

[a]1992 for Uruguay

Analysis of results

A random hiring experiment

Using the bootstrap estimations of the confidence intervals for the Duncan indices for the three countries, we concluded that the observed changes over the 1989–1997 period were not statistically significant. We now analyze, using a decomposition pioneered by Blau and Hendricks (1979), how this lack of change compares to the reduction that might have been achieved had all new job openings been allocated between men and women in proportion to the sex ratio of job seekers.

Changes in the sex composition of occupations can arise from two sources. First, replacement of workers leaving the labor force within an occupation may change the sex ratio if the sex ratio of the replacement workers differs from that which originally characterized the occupation. Second, changes in the share of total employment accounted for by different occupations can change the sex ratio, since different occupations have distinct sex ratios.

ers) and by family income quintile. Consistent with other findings in the literature (Tzannatos and Psacharopoulos 1992), our findings indicated that occupational segregation by gender is less prevalent among unpaid family workers (for eight of the nine cases, the ninth being Costa Rica 1989). However, there were no conclusive findings on differences in degrees of occupational segregation between employed and self-employed workers. In all but two of the nine cases observed, occupational segregation is significantly higher for the lowest income quintile than for the wealthiest.

Following Blau and Hendricks, we assume that replacement hiring is neutral, i.e., that men replace men and women replace women. This assumption is driven by data limitations, since we have no firm-level panel data that allows us to determine what type of replacement actually occurred.

Thus, we focus on the change in the Duncan index that would have occurred if all new job vacancies were filled in the same sex ratio prevalent in the hiring pool, where the hiring pool is composed of net labor force entrants[10] and individuals released from declining occupations. To the degree to which this predicted change in the Duncan index ignores opportunities for more egalitarian sex ratios via the replacement effect, it may underestimate potential changes. On the other hand, to the degree that it does not include human capital and other barriers to entry in occupations, it may overestimate potential changes in the Duncan index (Blau and Hendricks 1979: 207). The net effect of these biases is impossible to ascertain.

Table 6.9 reports the actual and predicted changes in the Duncan index for the 1989–1997 period for the three countries in our study. The actual change in the Duncan index represents at most 30 percent (Costa Rica) of the change that would have been predicted had all job vacancies been filled in the same sex proportions as that characterizing the hiring pool. For Uruguay and Ecuador, the percentages of the predicted change that actually occurred were even lower, at 14 percent and 20 percent, respectively. Thus, in none of the three countries did the Duncan index change to the degree that would be predicted by a random hiring counterfactual.

It is interesting to note that all the predicted changes in the Duncan index with random hiring lie outside a 95 percent confidence interval for no change in the Duncan indices in the three countries. In the case of Costa Rica, the maximum change without leaving this 95 percent confidence interval would have been –3.6 percent; if random hiring had occurred, the change in the Duncan index would have been –8.4 percent. For Ecuador, the corresponding numbers were –4.8 percent and –16.5 percent, and for Uruguay they were –3.4 percent and –6.0 percent. In sum, had hiring been random during the 1989–1997 period in the three countries studied, we would have observed statistically significant changes in the Duncan index. The fact that no such statistically significant change

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[10] Net labor force entrants is the difference between the number of labor force entrants and the number of workers leaving the labor force.

TABLE 6.9

Actual and Predicted Changes in the Duncan Index, 1989–1997

Country	Actual Change in Duncan Index (%)	Predicted Change in Duncan Index (%) with Random Hiring	Percentage of Predicted Change Realized (%)
Costa Rica	−2.49	−8.37	29.81
Ecuador	−3.30	−16.46	20.07
Uruguay	−0.86	−6.01	14.27

was observed in any of the three countries is evidence that hiring during this period was far from random, and that occupational segregation remains an enduring feature of the landscape in these labor markets.

Gender wage gaps: How important is occupational segregation versus discrimination and human capital?

Economists typically perform wage gap analysis to arrive at an understanding of discrimination in the labor market; that is, differences in earnings between genders (or ethnic groups, or different aged workers, etc.) that are not explained by differences in human capital or other observable characteristics. In this section, building upon the methodology of Fluckiger and Silber (1999), we combine the analysis of wage discrimination with occupational segregation. In other words, we are able to decompose the earnings gap and separate out the effects of human capital endowments, occupational segregation, and unexplained differences.

In summary, we estimate the usual earnings equations $ln\ y = \beta x + \varepsilon$ but instead of working with two sub-populations (female and male), we estimate separate earnings equations (females in "female" occupations, females in "male" occupations, males in "female" occupations, and males in "male" occupations). For each type of occupation (female and male) we can compute the wage gap and the typical Oaxaca decomposition. We are able to decompose the wage gap into three components:

- *Occupational segregation*. The difference between the wage gap and the weighted average of the wage gaps for both female and male occupations.
- *Human capital differences*. The weighted average of human capital differences for both types of occupations.

- *Wage discrimination*. The weighted average of "unexplained" wage differences for both types of occupations.

Table 6.10 gives the results of the decomposition of the overall wage differential into three components for the three countries studied. Results are available for each of the three surveyed years for Costa Rica and Uruguay, but only for 1997 for Ecuador, given the availability of data needed for estimation of earnings functions. Estimation results for the four earnings functions underlying these decomposition results (corresponding respectively to the sets of female workers in male and female occupations and of male workers in male and female occupations) are presented in Table 6.A.4.1 to 6.A.4.14.

The results display several noteworthy features. First, the influence of occupational segregation on the wage gap is not uniform across countries, or across time periods. In four of the seven cases observed the higher the degree of segregation, the higher the wage gap. However, in the remaining three cases (Costa Rica 1997, Uruguay 1992, and Uruguay 1997—the three cases where the wage gap is the smallest), a greater degree of occupational segregation actually contributes to reducing the wage gap. Second, in all cases observed, human capital endowments serve to reduce the gap between male and female earnings. In other words, women's human capital endowments are greater than those of their male counterparts—the problem is not in the stock of human capital, but rather in the returns to that human capital. Third, and finally, we see that in all but one case (Costa Rica 1993), discrimination, or more literally, "unexplained" differences in wages, accounts for the largest share of the wage gap.

TABLE 6.10

Decomposition of Overall Wage Differential into Three Components

Country/Year	Wage Gap	%	Differences Attributed to Occupational Segregation	%	Differences Attributed to Characteristics	%	Differences in Rewards	%
Costa Rica 89	0.160	100	0.0571	35.7	−0.1319	−82.4	0.2376	148.5
Costa Rica 93	0.174	100	0.1430	82.2	−0.0876	−50.3	0.1214	69.8
Costa Rica 97	0.060	100	−0.0054	−9.0	−0.1362	−227.0	0.2044	340. 7
Ecuador 97	0.186	100	0.0100	5.4	−0.0254	− 13.7	0.2017	108.4
Uruguay 89	0.289	100	0.0986	11.8	−0.0704	− 24.3	0.2603	90.1
Uruguay 92	0.157	100	−0.0080	−5.1	−0.0325	−20.7	0.1973	125.7
Uruguay 97	0.109	100	−0.0223	−20.5	−0.0670	−61.5	0.2003	183.8

TABLE 6.11

Traditional Wage Gap Decomposition into Two Components

Country/Year	Wage Gap	%	Human Capital	%	Discrimination	%
Costa Rica 89	0.160	100	−0.1258	−78.6	0.2867	179.2
Costa Rica 93	0.174	100	−0.1456	−83.7	0.3265	187.6
Costa Rica 97	0.060	100	−0.1901	−316.8	0.2492	415.3
Ecuador 97	0.186	100	−0.1052	−56.6	0.2931	157.6
Uruguay 89	0.289	100	−0.0810	−28.0	0.3696	127.9
Uruguay 92	0.157	100	−0.0850	−51.0	0.2421	154.2
Uruguay 97	0.109	100	−0.1338	−122.8	0.2446	224.4

In sum, occupational segregation has varying effects on the wage gap, depending upon the country and the year, and in all but one of the cases, the effects of human capital endowments and discrimination outweigh the effects of occupational segregation.

For purposes of comparison, Table 6.11 presents the results of the traditional Oaxaca decomposition. As would be expected, the contributions of human capital and discrimination to the wage gap are similar (but stronger) to those observed in the previous table. In other words, including measures of occupational segregation in the decomposition dampens, but does not overrule, the results of the more basic decomposition.

Two-way decomposition overstates the effects of the included elements. While the effect of occupational segregation in and of itself may not be straightforward, including it in the decomposition allows for a more accurate understanding of the effects of the traditional Oaxaca components when analyzing the wage gap.

Conclusions and policy options

In the three countries examined in this paper, it is quite clear that occupational segregation did not decrease during the 1989–1997 period. This is not tremendously surprising given the relative stagnancy of female labor force participation during the same period. Nonetheless, there were important shifts in occupational structure and macroeconomic conditions during the period studied, neither of which contributed to breaking down the barriers of occupational segregation. Two possible—and quite distinct—conclusions can be drawn from this evidence. The first is that occupational segregation is not easily eliminated, and that conse-

quently more activist policies are needed to break down segregation. The second hypothesis is that some degree of segregation results from voluntary choices made by women who are drawn more to certain occupations than are men.

While it is not possible to definitively discard this second hypothesis without the econometric estimation of sophisticated models of occupational choice, many studies have documented that women are crowded into low-paying occupations with few benefits such as written contracts or social security coverage. In other words, while some portion of observed occupational segregation may be voluntary, it is difficult to believe that all segmentation is the result of voluntary choice.

A second important result of this paper is the finding—robust across all three countries—that occupational segregation is much more severe among the less educated than among the more educated. As in many other policy areas, less educated women are more constrained in their options than are their more educated counterparts. If activist policies are designed to combat segregation, these policies should target less educated women as a top priority.

A third intriguing result of our research is that the degree of occupational segregation does not seem to vary according to either the level of economic development or macroeconomic conditions. The degree of occupational segmentation is not significantly different in Ecuador than it is in Uruguay or Costa Rica; it is not lower in countries which have experienced more rapid economic growth, and it does not seem to vary according to levels of female labor force participation. This result, especially when viewed together with the first result of time invariance, suggests that non-economic factors such as culture and traditions may be as important—or more so—than economic factors in determining occupational segregation. This conclusion is confirmed by cross-country analysis presented by Anker (1998).[11]

A fourth interesting conclusion emerged from the wage gap decomposition exercise: while for some countries and years occupational segregation helps explain the presence of male-female wage gaps, it is certainly not the most important determinant of these gaps. In other words, eliminating occupational segregation will not eliminate male-female wage gaps. Discrimination (or, more cautiously, the "unexplained component" of the decomposition) still plays a crucial role. This conclusion was buttressed by the results from the random hiring counterfactual, which

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[11] See footnote 12.

showed that even had hiring been random during the period under analysis, the changes in the Duncan index would have been relatively modest, ranging from 6 percent to 16 percent depending upon the country.

These last results suggest a provocative question: What should be the ultimate goal of policy? We argue that policy should target the elimination of all discrimination and of involuntary occupational segregation. There are numerous policy options available to promote these goals.[12] Interventions to reduce occupational segregation should begin in elementary and secondary schools, since choices made by boys and girls at early ages affect their ability to enter certain occupations later on. Teacher training is essential so that teachers do not—intentionally or unintentionally—channel boys toward male-dominated occupations and girls toward female-dominated ones. Another important step is the introduction of non-sexist school texts that do not present stereotyped images of women's work and careers. Girls can be encouraged to enter non-traditional occupations both by committed teachers and by creative programs.

Once women have completed their education, occupational segregation can be addressed by various program interventions. Options include improving the services provided to women by job training and placement centers, as well as by the establishment of mentoring programs in which successful men and women employees or entrepreneurs are paired with young women interested in exploring non-traditional careers. Social marketing campaigns can be designed to convince employers that "pigeon-holing" female employees is not only a loss for the employees involved, but also makes the firm less productive and competitive. Finally, the provision of quality daycare services for young children is an essential step to combat occupational segregation, for the simple reason that much segregation, which is seemingly "voluntary," actually occurs because a lack of childcare services impels women to choose sectors that permit combining work and childcare. This is especially the case for low-income women; the provision of childcare services to poor women would allow their choice of occupations to be truly voluntary.[13]

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[12] There is a vast literature on the topic of discrimination in labor markets and appropriate policy and program interventions to combat it. This brief concluding section does not attempt to summarize this literature, but rather focuses on options for reducing occupational segregation. As mentioned above, however, any attempt to reduce *human capital-adjusted* wage gaps between men and women must necessarily address the discrimination issue, since our decomposition results document that the effect on wage gaps of discrimination is larger than that of occupational segregation.

[13] See Deutsch (1998).

TABLE 6.A.1

Estimates of Different Measures for Occupational Segregation

Country/Year	Duncan	Karmel/Maclachlan	Hakim/Siltanen	Marginal
Costa Rica 89	0.57	0.26	0.59	0.55
Costa Rica 93	0.56	0.25	0.51	0.53
Costa Rica 97	0.54	0.25	0.50	0.53
Ecuador 89	0.58	0.26	0.59	0.51
Ecuador 93	0.54	0.25	0.51	0.47
Ecuador 97	0.54	0.25	0.51	0.48
Uruguay 89	0.56	0.27	0.46	0.53
Uruguay 92	0.57	0.27	0.54	0.54
Uruguay 97	0.55	0.27	0.56	0.51

TABLE 6.A.2

Tests of Differences across Time for Two-Digit Duncan Indices

Country/Year	t – statistics
Costa Rica	
89–93	−0.08
93–97	−0.71
89–97	−0.83
Ecuador	
89–93	−1.19
93–97	0.06
89–97	−1.11
Uruguay	
89–92	−0.26
92–97	−0.55
89–97	−0.74

TABLE 6.A.3

Tests of Differences across Countries for Two-Digit Duncan Indices

Country/Year	t – statistics
1989	
Costa Rica-Ecuador	−0.28
Costa Rica-Uruguay	−0.33
Ecuador-Uruguay	−0.09
1992/1993	
Costa Rica-Ecuador	0.83
Costa Rica-Uruguay	−0.14
Ecuador-Uruguay	−0.97
1997	
Costa Rica-Ecuador	0.06
Costa Rica-Uruguay	−0.31
Ecuador-Uruguay	−0.36

TABLE 6.A.4.1

Earnings Function Estimates — Costa Rica 1989

	Males			Females		
	In Female Occupations	In Male Occupations	Total	In Female Occupations	In Male Occupations	Total
Constant	3.6020 **	3.7460 **	3.7100 **	3.1480 **	3.3470 **	3.1660 **
	(0.1490)	(0.0860)	(0.0740)	(0.1140)	(0.2540)	(0.1050)
Age	0.0047	0.0062 **	0.0063 **	0.0084 **	0.0015	0.0073 **
	(0.0030)	(0.0020)	(0.0020)	(0.0030)	(0.0050)	(0.0020)
Years of education	0.0941 **	0.0853 **	0.0861 **	0.1070 **	0.1150 **	0.1110 **
	(0.0070)	(0.0040)	(0.0030)	(0.0050)	(0.0110)	(0.0050)
Number of children	-0.1110 **	-0.1250 **	-0.1200 **	-0.0899 **	-0.0370	0.0768 **
	(0.0390)	(0.0250)	(0.0210)	(0.0300)	(0.0600)	(0.0270)
Age*# of children	0.0032 **	0.0033 **	0.0033 **	0.0030 **	0.0016	0.0026 **
	(0.0010)	(0.0010)	(0.0010)	(0.0010)	(0.0020)	(0.0010)
Dummy (1 if part-time)	0.6300 **	0.7060 **	0.6930 **	0.3530 **	0.4530 **	0.3740 **
	(0.1400)	(0.0760)	(0.0670)	(0.0620)	(0.1280)	(0.0560)
Dummy (1 if overtime)	-0.3110 **	-0.3060 **	-0.3000 **	-0.5240 **	-0.3120 **	-0.4720 **
	(0.0720)	(0.0340)	(0.0310)	(0.0580)	(0.1170)	(0.0530)
Number of observations	457	1740	2197	973	295	1268
R2	0.392	0.301	0.319	0.428	0.327	0.398
R2 adjusted	0.384	0.299	0.317	0.424	0.313	0.395

Std. errors in parentheses
(*) Significant at a 90% confidence level
(**) Significant at a 99% confidence level

TABLE 6.A.4.2

Descriptive Statistics of the Variables (Means and Deviations) — Costa Rica 1989

	Males			Females		
	In Female Occupations	In Male Occupations	Total	In Female Occupations	In Male Occupations	Total
Log of the hourly wage	4.5884	4.5880	4.5896	4.3905	4.5518	4.4280
	(0.7547)	(0.7347)	(0.7397)	(0.7764)	(0.8335)	(0.7926)
Age	32.58	35.60	34.98	32.84	34.68	33.27
	(13.28)	(13.13)	(13.21)	(11.56)	(11.54)	(11.58)
Years of education	9.48	8.15	8.44	9.18	9.61	9.28
	(3.97)	(3.79)	(3.87)	(3.84)	(3.97)	(3.88)
Number of children	2.37	2.39	2.38	2.45	2.19	2.39
	(1.72)	(1.61)	(1.63)	(1.77)	(1.66)	(1.75)
% of part-time	4.16	4.20	4.18	11.10	12.20	11.36
% of overtime	18.60	26.21	24.64	12.54	14.58	13.01

Std. deviations in parentheses

TABLE 6.A.4.3

Earnings Function Estimates — Costa Rica 1993

	Males			Females		
	In Female Occupations	In Male Occupations	Total	In Female Occupations	In Male Occupations	Total
Constant	4.2160 **	4.8440 **	4.7100 **	4.0210 **	4.7260 **	4.1530 **
	(0.4280)	(0.2260)	(0.2000)	(0.3040)	(0.6080)	(0.2800)
Age	0.0153	0.0101 *	0.0120 *	0.0099	0.0104	0.0120 *
	(0.0110)	(0.0050)	(0.0050)	(0.0070)	(0.0150)	(0.0070)
Years of education	0.1180 **	0.0968 **	0.0984 **	0.1190 **	0.1060 **	0.1140 **
	(0.0130)	(0.0080)	(0.0070)	(0.0100)	(0.0200)	(0.0090)
Number of children	-0.0254	-0.0540	-0.0448	-0.0152	-0.1070	-0.0247
	(0.0780)	(0.0390)	(0.0350)	(0.0520)	(0.1030)	(0.0480)
Age*number of children	0.0008	0.0016	0.0014	0.0014	0.0034	0.0014
	(0.0020)	(0.0010)	(0.0010)	(0.0010)	(0.0030)	(0.0010)
Dummy (1 If part-time)	1.3250 **	0.5000 **	0.6790 **	0.4850 **	0.6200 **	0.5740 **
	(0.2640)	(0.1530)	(0.1340)	(0.1300)	(0.2360)	(0.1160)
Dummy (1 If overtime)	-0.3680 *	-0.2830 **	-0.2660 **	-0.3700 **	-0.3170 *	-0.3010 **
	(0.1420)	(0.0600)	(0.0550)	(0.1140)	(0.1840)	(0.0980)
Number of observations	527	2420	2947	1151	458	1609
R2	0.226	0.097	0.112	0.160	0.124	0.134
R2 Adjusted	0.217	0.095	0.110	0.155	0.112	0.131

Std. errors in parentheses
(*) Significant at a 90% confidence level
(**) Significant at a 99% confidence level

TABLE 6.A.4.4

Descriptive Statistics of the Variables (Means and Deviations) — Costa Rica 1993

	Males			Females		
	In Female Occupations	In Male Occupations	Total	In Female Occupations	In Male Occupations	Total
Log of the hourly wage	5.9794	5.9861	5.9863	5.6941	6.1026	5.8104
	(1.3815)	(1.4617)	(1.4470)	(1.3744)	(1.6260)	(1.4616)
Age	33.74	36.68	36.16	34.58	33.33	34.22
	(12.92)	(13.22)	(13.21)	(11.78)	(12.85)	(12.10)
Years of education	10.58	8.55	8.93	10.01	9.60	9.89
	(4.08)	(3.78)	(3.92)	(4.01)	(3.69)	(3.92)
Number of children	4.61	4.72	4.69	4.59	4.74	4.63
	(1.84)	(1.98)	(1.95)	(2.06)	(2.14)	(2.08)
% of part-time	4.36	3.64	3.76	9.56	11.57	10.13
% of overtime	17.46	35.25	32.13	13.03	20.31	15.10

Std. deviations in parentheses

TABLE 6.A.4.5

Earnings Function Estimates — Costa Rica 1997

	Males			Females		
	In Female Occupations	In Male Occupations	Total	In Female Occupations	In Male Occupations	Total
Constant	5.2740 **	5.0820 **	5.1290 **	4.2130 **	5.1060 **	4.5280 **
	(0.2240)	(0.1200)	(0.1070)	(0.1890)	(0.2580)	(0.1520)
Age	0.0006	0.0102 **	0.0089 **	0.0197 **	0.0031	0.0135 **
	(0.0050)	(0.0020)	(0.0020)	(0.0040)	(0.0060)	(0.0030)
Years of education	0.1150 **	0.1040 **	0.1030 **	0.1260 **	0.1040 **	0.1190 **
	(0.0100)	(0.0050)	(0.0050)	(0.0080)	(0.0110)	(0.0060)
Number of children	-0.1650 *	-0.0896 *	-0.1030 **	0.1210 *	-0.2180 *	0.0002
	(0.0760)	(0.0370)	(0.0340)	(0.0670)	(0.0940)	(0.0550)
Age*number of children	0.0039 *	0.0030 **	0.0032 **	-0.0027	0.0064 *	0.0006
	(0.0020)	(0.0010)	(0.0010)	(0.0020)	(0.0030)	(0.0010)
Dummy (1 if part-time)	0.3960 *	0.4830 **	0.4560 **	0.3770 **	0.6110 **	0.4380 **
	(0.2050)	(0.1060)	(0.0950)	(0.0920)	(0.1520)	(0.0790)
Dummy (1 if overtime)	-0.3040 **	-0.3110 **	-0.3030 **	-0.2610 **	-0.2830 *	-0.2610 **
	(0.0970)	(0.0440)	(0.0400)	(0.0890)	(0.1090)	(0.0690)
Number of observations	529	2776	3305	1261	611	1872
R2	0.252	0.174	0.181	0.203	0.187	0.193
R2 adjusted	0.243	0.172	0.180	0.199	0.179	0.190

Std. errors in parentheses
(*) Significant at a 90% confidence level
(**) Significant at a 99% confidence level

TABLE 6.A.4.6

Descriptive Statistics of the Variables (Means and Deviations) — Costa Rica 1997

	Males			Females		
	In Female Occupations	In Male Occupations	Total	In Female Occupations	In Male Occupations	Total
Log of the hourly wage	6.3708	6.2920	6.3050	6.2355	6.2636	6.2472
	(1.0645)	(1.1914)	(1.1722)	(1.1697)	(1.1976)	(1.1806)
Age	34.64	37.14	36.74	36.30	35.49	36.03
	(13.21)	(13.73)	(13.68)	(11.85)	(12.44)	(12.05)
Years of education	10.43	8.58	8.88	9.84	10.04	9.92
	(4.08)	(3.99)	(4.06)	(4.08)	(4.10)	(4.09)
Number of children	2.04	2.15	2.13	1.99	2.01	2.00
	(1.43)	(1.48)	(1.48)	(1.40)	(1.38)	(1.39)
% of part-time	4.35	4.14	4.17	12.93	9.98	11.95
% of overtime	23.44	36.92	34.79	13.24	22.26	16.17

Std. deviations in parentheses

TABLE 6.A.4.7

Earnings Function Estimates — Ecuador 1997

	Males			Females		
	In Female Occupations	In Male Occupations	Total	In Female Occupations	In Male Occupations	Total
Constant	8.6320 **	8.6150 **	8.6570 **	8.0920 **	8.3440 **	8.1610 **
	(0.1440)	(0.0480)	(0.0450)	(0.0720)	(0.1380)	(0.0650)
Age	0.0076 *	0.0101 **	0.0093 **	0.0096 **	0.0097 **	0.0090 **
	(0.0030)	(0.0010)	(0.0010)	(0.0020)	(0.0030)	(0.0020)
Years of education	0.0729 **	0.0804 **	0.0767 **	0.0952 **	0.0924 **	0.0965 **
	(0.0050)	(0.0020)	(0.0020)	(0.0030)	(0.0060)	(0.0030)
Number of children	-0.1290 **	-0.1230 **	-0.1260 **	-0.1100 **	-0.1100 **	-0.1120 **
	(0.0440)	(0.0120)	(0.0120)	(0.0200)	(0.0390)	(0.0180)
Age*number of children	0.0036 **	0.0029 **	0.0030 **	0.0029 **	0.0024 *	0.0028 **
	(0.0010)	(0.0010)	(0.0000)	(0.0010)	(0.0010)	(0.0010)
Dummy (1 if part-time)	0.9190 **	0.3880 **	0.4970 **	0.3640 **	0.8670 **	0.5500 **
	(0.1870)	(0.1050)	(0.0920)	(0.0850)	(0.1420)	(0.0750)
Dummy (1 if overtime)	-0.4310 **	-0.3930 **	-0.3860 **	-0.6020 **	-0.5220 **	-0.5680 **
	(0.0730)	(0.0210)	(0.0200)	(0.0390)	(0.0660)	(0.0340)
Number of observations	728	4385	5113	2037	871	2908
R2	0.380	0.375	0.389	0.542	0.365	0.480
R2 Adjusted	0.375	0.374	0.388	0.541	0.361	0.479

Std. errors in parentheses
(*) Significant at a 90% confidence level
(**) Significant at a 99% confidence level

TABLE 6.A.4.8

Descriptive Statistics of the Variables (Means and Deviations) — Ecuador 1997

	Males			Females		
	In Female Occupations	In Male Occupations	Total	In Female Occupations	In Male Occupations	Total
Log of the hourly wage	9.8766	9.5296	9.5811	9.3258	9.5513	9.3937
	(0.7358)	(0.7559)	(0.7639)	(0.8480)	(0.8707)	(0.8609)
Age	37.69	33.04	33.71	32.88	31.44	32.45
	(12.29)	(12.79)	(12.82)	(11.88)	(10.54)	(11.51)
Years of education	13.45	9.39	9.98	10.93	11.39	11.07
	(4.23)	(4.31)	(4.53)	(4.79)	(4.27)	(4.64)
Number of children	2.30	2.59	2.55	2.42	2.43	2.43
	(1.47)	(1.87)	(1.82)	(1.70)	(1.75)	(1.71)
% of part-time	1.37	0.75	0.84	2.31	2.87	2.48
% of overtime	10.58	25.06	22.95	14.14	15.84	14.64

Std. deviations in parentheses

TABLE 6.A.4.9

Earnings Function Estimates — Uruguay 1989

	Males			Females		
	In Female Occupations	In Male Occupations	Total	In Female Occupations	In Male Occupations	Total
Constant	0.1970 *	−0.0714	0.0000	−0.4940 **	−0.1710	−0.4010 **
	(0.0970)	(0.0500)	(0.0440)	(0.0720)	(0.1180)	(0.0630)
Age	0.0095 **	0.0153 **	0.0136 **	0.0096 **	0.0123 **	0.0095 **
	(0.0020)	(0.0010)	(0.0010)	(0.0010)	(0.0020)	(0.0010)
Years of education	0.0683 **	0.0745 **	0.0730 **	0.1020 **	0.0785 **	0.0983 **
	(0.0040)	(0.0020)	(0.0020)	(0.0030)	(0.0050)	(0.0030)
Number of children	−0.1640 **	−0.1090 **	−0.1240 **	−0.1380 **	−0.0907 *	−0.1420 **
	(0.0310)	(0.0150)	(0.0140)	(0.0210)	(0.0450)	(0.0190)
Age*number of children	0.0041 **	0.0029 **	0.0033 **	0.0033 **	0.0026 *	0.0034 **
	(0.0010)	(0.0010)	(0.0000)	(0.0010)	(0.0010)	(0.0010)
Dummy (1 if part-time)	0.4610 **	0.6440 **	0.5760 **	0.4960 **	0.7590 **	0.4680 **
	(0.1000)	(0.0750)	(0.0600)	(0.0400)	(0.1190)	(0.0380)
Dummy (1 if overtime)	−0.4840 **	−0.2330 **	−0.2700 **	−0.6460 **	−0.3340 **	−0.5850 **
	(0.0480)	(0.0220)	(0.0200)	(0.0460)	(0.0760)	(0.0400)
Number of observations	1186	3935	5121	2651	818	3469
R2	0.323	0.332	0.323	0.381	0.363	0.372
R2 Adjusted	0.320	0.331	0.322	0.379	0.359	0.371

Std. errors in parentheses
(*) Significant at a 90% confidence level
(**) Significant at a 99% confidence level

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TABLE 6.A.4.10

Descriptive Statistics of the Variables (Means and Deviations) — Uruguay 1989

	Males			Females		
	In Female Occupations	In Male Occupations	Total	In Female Occupations	In Male Occupations	Total
Log of the hourly wage	1.1245	1.1019	1.1071	0.7417	1.0676	0.8185
	(0.6928)	(0.6852)	(0.6870)	(0.8176)	(0.6915)	(0.8016)
Age	40.20	37.58	38.18	37.00	35.63	36.68
	(14.65)	(13.54)	(13.85)	(12.97)	(11.76)	(12.71)
Years of education	9.17	8.80	8.88	9.12	10.33	9.41
	(3.99)	(4.02)	(4.01)	(4.08)	(4.37)	(4.18)
Number of children	1.61	1.90	1.83	1.79	1.60	1.75
	(1.42)	(1.56)	(1.54)	(1.59)	(1.31)	(1.53)
% of part-time	2.95	1.47	1.82	10.94	2.81	9.02
% of overtime	14.08	21.75	19.98	8.22	7.09	7.96

Std. Deviations in parentheses

TABLE 6.A.4.11

Earnings Function Estimates — Uruguay 1992

	Males			Females		
	In Female Occupations	In Male Occupations	Total	In Female Occupations	In Male Occupations	Total
Constant	0.9700 **	0.6300 **	0.6930 **	0.5190 **	0.4260 **	0.5070 **
	(0.1090)	(0.0560)	(0.0500)	(0.0680)	(0.1380)	(0.0610)
Age	0.0030	0.0078 **	0.0068 **	0.0023 *	0.0073 *	0.0033 **
	(0.0020)	(0.0010)	(0.0010)	(0.0010)	(0.0030)	(0.0010)
Years of education	0.0671 **	0.0743 **	0.0735 **	0.0840 **	0.0868 **	0.0846 **
	(0.0050)	(0.0030)	(0.0020)	(0.0030)	(0.0060)	(0.0030)
Years of experience	0.0124 **	0.0155 **	0.0150 **	0.0144 **	0.0177 **	0.0147 **
	(0.0020)	(0.0010)	(0.0010)	(0.0010)	(0.0030)	(0.0010)
Number of children	-0.2490 **	-0.1410 **	-0.1600 **	-0.1420 **	-0.1450 **	-0.1460 **
	(0.0350)	(0.0160)	(0.0150)	(0.0200)	(0.0480)	(0.0190)
Age*number of children	0.0064 **	0.0038 **	0.0042 **	0.0034 **	0.0034 **	0.0035 **
	(0.0010)	(0.0010)	(0.0010)	(0.0010)	(0.0010)	(0.0010)
Dummy (1 if part-time)	0.2670 *	0.3250 **	0.3110 **	0.2660 **	0.4300 **	0.2940 **
	(0.1380)	(0.0970)	(0.0790)	(0.0410)	(0.0880)	(0.0380)
Dummy (1 if overtime)	-0.0579	-0.1160 **	-0.1080 **	-0.2120 **	-0.1260 *	-0.1880 **
	(0.0410)	(0.0210)	(0.0190)	(0.0350)	(0.0660)	(0.0310)
Number of observations	1053	3766	4819	2728	802	3530
R2	0.278	0.308	0.309	0.332	0.324	0.321
R2 Adjusted	0.273	0.307	0.308	0.330	0.318	0.320

Std. errors in parentheses
(*) Significant at a 90% confidence level
(**) Significant at a 99% confidence level

TABLE 6.A.4.12

Descriptive Statistics of the Variables (Means and Deviations) — Uruguay 1992

	Males			Females		
	In Female Occupations	In Male Occupations	Total	In Female Occupations	In Male Occupations	Total
Log of the hourly wage	1.8598	1.6510	1.6966	1.5109	1.6387	1.5399
	(0.6771)	(0.7112)	(0.7091)	(0.6994)	(0.7463)	(0.7122)
Age	37.33	38.09	37.93	37.57	37.20	37.48
	(13.50)	(14.09)	(13.97)	(12.88)	(12.42)	(12.78)
Years of education	10.34	8.45	8.86	9.90	9.78	9.87
	(3.37)	(3.72)	(3.73)	(4.04)	(4.09)	(4.05)
Years of experience	11.19	9.17	9.61	8.26	6.96	7.97
	(10.83)	(10.12)	(10.32)	(9.09)	(9.01)	(9.08)
Number of children	1.70	1.91	1.87	1.71	1.70	1.71
	(1.37)	(1.55)	(1.52)	(1.44)	(1.41)	(1.43)
% of part-time	1.71	1.01	1.16	7.96	6.48	7.62
% of overtime	24.12	31.63	29.99	11.11	12.47	11.42

Std. deviations in parentheses

TABLE 6.A.4.13

Earnings Function Estimates — Uruguay 1997

	Males			Females		
	In Female Occupations	In Male Occupations	Total	In Female Occupations	In Male Occupations	Total
Constant	1.9020 **	1.8490 **	1.8350 **	1.6280 **	1.6650 **	1.6610 **
	(0.0810)	(0.0450)	(0.0390)	(0.0530)	(0.1030)	(0.0470)
Age	0.0141 **	0.0159 **	0.0158 **	0.0113 **	0.0167 **	0.0120 **
	(0.0010)	(0.0010)	(0.0010)	(0.0010)	(0.0020)	(0.0010)
Years of education	-0.0001	-0.0005 *	-0.0004 *	-0.0003	0.0004	-0.0001
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Years of experience	0.0940 **	0.0889 **	0.0921 **	0.1040 **	0.0978 **	0.1020 **
	(0.0040)	(0.0020)	(0.0020)	(0.0020)	(0.0050)	(0.0020)
Number of children	-0.1950 **	-0.1150 **	-0.1280 **	-0.1520 **	-0.1250 **	-0.1490 **
	(0.0270)	(0.0130)	(0.0120)	(0.0170)	(0.0330)	(0.0150)
Age*number of children	0.0055 **	0.0030 **	0.0034 **	0.0035 **	0.0020 *	0.0033 **
	(0.0010)	(0.0000)	(0.0000)	(0.0010)	(0.0010)	(0.0000)
Dummy (1 if part-time)	0.0028	0.2060 **	0.1510 **	0.2470 **	0.2700 **	0.2390 **
	(0.0830)	(0.0520)	(0.0440)	(0.0280)	(0.0600)	(0.0260)
Dummy (1 if overtime)	-0.2430 **	-0.1910 **	-0.2030 **	-0.3160 **	-0.2910 **	-0.3100 **
	(0.0310)	(0.0170)	(0.0150)	(0.0260)	(0.0490)	(0.0230)
Number of observations	2345	7440	9785	5827	1648	7475
R2	0.341	0.275	0.302	0.329	0.293	0.314
R2 Adjusted	0.340	0.274	0.302	0.329	0.290	0.313

Std. errors in parentheses
(*) Significant at a 90% confidence level
(**) Significant at a 99% confidence level

TABLE 6.A.4.14

Descriptive Statistics Of The Variables (Means And Deviations) — Uruguay 1997

	Males			Females		
	In Female Occupations	In Male Occupations	Total	In Female Occupations	In Male Occupations	Total
Log of the hourly wage	3.3704	3.1294	3.1871	3.0540	3.1651	3.0785
	(0.7914)	(0.7527)	(0.7691)	(0.7806)	(0.7685)	(0.7793)
Age	36.80	37.41	37.27	38.04	36.55	37.71
	(13.56)	(13.80)	(13.75)	(13.08)	(12.68)	(13.01)
Years of education	73.78	69.06	70.19	68.00	70.32	68.51
	(37.18)	(38.89)	(38.54)	(39.10)	(38.06)	(38.89)
Years of experience	10.90	8.80	9.30	10.26	9.99	10.20
	(3.68)	(3.58)	(3.72)	(4.00)	(3.73)	(3.94)
Number of children	1.63	1.91	1.84	1.67	1.71	1.68
	(1.34)	(1.55)	(1.51)	(1.35)	(1.38)	(1.36)
% of part-time	2.69	2.11	2.25	10.16	7.89	9.66
% of overtime	25.50	27.41	26.95	12.17	12.50	12.24

Std. deviations in parentheses

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Gender Inequities in the Pension and Social Protection Systems

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7

A Framework for Analyzing Social Protection for Workers in the Informal Economy

Frances Lund

The "informal sector" was recognized as an economic phenomenon beginning in the 1970s. It was seen as something temporary: interesting, certainly; important, perhaps—but not central to economic analysis. It was thought that it would gradually disappear as informal workers were integrated, and integrated employment was formalized. By the turn of the century, in many countries informal workers and their enterprises had increased in number and in economic contribution; gradually there has been a realization that this is a permanent feature of both urban and rural life. What was seen as "atypical" has become "typical"; what was seen as a temporary phenomenon has been acknowledged as a permanent one, at least for the foreseeable future.

There are different traditions of analysis of the informal sector which have been well summarized in the chapter by Armando Barrientos in this volume. The informal was initially posed as the converse of the "modern" economy. Some analysts emphasized the conditions under which microenterprises could grow; others were more concerned with how amenable informal workers and their enterprises were to state and

labor regulation. All, however, have acknowledged that patterns of work are changing all over the world. There are formal and informal parts of the economy in industrialized and industrializing countries. In the OECD countries and the United States, a small but growing proportion of all new jobs are informal, and there is an increasing trend toward contracted work. Nevertheless, as a whole, the workplace in these countries remains more regulated, with formal tax and accounting systems. In-country systems of regulation may be molded by the conventions of the International Labour Organization.

At the opposite end of the spectrum are certain African countries where formal employment has dramatically diminished (some would say as a result of structural adjustment policies—particularly as far as the contraction of the civil service is concerned) and where the vast majority of workers are in the informal economy, either self-employed or employed by someone else (either formally or informally). In such situations, the regulatory hand of the state does not extend far—while legislation may be comprehensive, implementation may be weak. Somewhere in the middle would lie many Latin American countries. Barrientos describes how informal employment in Latin America has risen over the last 20 years, with one in every two workers now informally employed.

A feature of work in industrialized and more developed countries is that formal workers have received, through the workplace, a number of benefits called social security, or "the social wage." Worldwide, a declining proportion of workers are now receiving such benefits through the workplace; those who get such benefits find that they are being pared down, and many workers will never have the kind of employment in which they can expect such insurance against risks. Informal workers and enterprises, because of their informality, are faced with particular vulnerabilities and risks.

WIEGO (Women in Informal Employment: Globalizing and Organizing) has been developing an approach to social protection for the informal economy.[1] Its concerns with social protection for informal workers and with poverty and inequality resonate with the ILO's goal of "decent

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[1] WIEGO (Women in Informal Employment: Globalizing and Organizing) is an international network that seeks to promote the interests of all workers in the informal economy, and especially those of poorer women. The network comprises three types of organizations or groupings: grassroots organizations of informal women workers, academics, and international agencies. It has five main research and action programs: they

work for all" (ILO 1999). The WIEGO program will seek to catalyze an international comparative program of research which leads to strategic and policy-oriented interventions. One task is to create a framework for cross-country analysis, which is developed here. The framework rests on a core question: "Under what conditions can what kind of workers in the informal economy (and especially poorer women) get access to what core measures of provision, which can be incrementally improved upon in the future?" (Lund and Srinivas 2000, 2).

This chapter presents the next stage in the development of this approach. It gives a brief international overview of the changing world of work, of the informal economy, and of the position of women in the informal economy, with special reference to access to social security and protection. It then presents the main components of the new approach, with a framework that can be used for cross-country analysis. Examples are specifically chosen to reflect the worldwide situation, including Latin America. We will leave it to Armando Barrientos's companion chapter to focus more specifically on Latin American and Caribbean countries.

Aspects of the informal economy

It is not the intention here to give a wide-ranging account of the development of and dynamics within the informal economy. In what follows, certain key aspects of the gendered dynamics of informal work have been selected which have a bearing on men's and women's access to and exclusion from secure work, and social protection through work.

Reasons for entry into the informal economy

There are regional and country variations in the reasons people give for entering the informal economy. Some exercise a positive choice: men and women may want to be their own boss, they may see the possibility of higher earnings, they may see advantages in flexible working arrangements, and they may want to be free of what they perceive to be unrea-

are Statistics, Global Markets, Urban Policies, Organization and Representation, and Social Protection. The framework for the WIEGO approach to social protection for the informal economy was initially developed with Smita Srinivas (Lund and Srinivas 2000); this chapter builds on and develops that framework.

sonably high tax commitments. However, it is quite clear that the large majority "choose" because there is no alternative. There may be high rates of formal unemployment. This may coincide with inadequate skills for the jobs that are available. There is often a high cost to formalize informal employment associated with, for example, registration and licensing. For millions of poorer people, it is imperative to find a way of working that enables children to be taken care of at home, and working from the home allows for this, whether it involves self-employment or doing work under contract to someone else.

Previous work experience brought to informal work

There is evidence that women enter the informal economy with less work experience than their male counterparts, and/or with working experience that does not equip them for work in the modern marketplace. In South Africa, for example, women street vendors were far more likely than men to have had no previous work experience; they were more likely than males not to bring to their informal work either any savings, nor, literally, a "tool box" to use in starting their enterprise (Lund 1998, summarizing work done by others between 1990 and 1998). In Latin American countries rural women going to cities to find work may have had a background in subsistence agriculture. They enter the informal economy with little experience of formal work, and with no prior experience that would give them an understanding, for example, of rights associated with the workplace, or about who should be responsible for safe working conditions, or opportunities for learning skills for collective organizing.

Women and incomes in the informal economy

Globalization has been accompanied by new opportunities for many workers, including women. There is a high-flying group of mobile, self-employed people, employers of others, and managers who earn very well indeed and are able to make private arrangements to cover personal and work-related risks. In general, though, incomes earned in the informal economy worldwide are lower than those earned in formal employment. Women are generally over-represented in the informal economy, and are likely to earn lower incomes than men who work informally. There are exceptions: Stephanie Barrientos's interesting work on Chilean women in the fruit industry showed that some women may earn more than most men, but on a seasonal basis only (Barrientos 1997).

Diversity of work and work status

There are strong stereotypes about the informal economy and those who work within it. Public perceptions are likely to be influenced by who the most visible informal workers are. In Africa and in much of Latin America, many people think automatically of street vendors selling goods in public places in urban areas. In regions of India, people may be more likely to think of women working at home making garments, or rolling cigarettes in the *beedi* industry. In some European countries, there is a strong association with criminal work and an "underground" economy. In particular, there is a tendency to blur the distinction between "illegal work" referring to work which is simply beyond the realm of labor regulation, and "illegal work" which involves frankly criminal economic activities, such as dealing in illegal goods.

The nature of work and the types of enterprises in the informal economy are, in fact, heterogeneous. An understanding of this diversity of work and the many types of work status is critical to the framework for social protection (and will be dealt with in a later section). Work status may range from true self-employment, to being an unpaid family member, to variously regulated types of contracted work. Many people work in both formal and informal employment at different stages of their lives. Also, many people work in both formal and informal employment at the same time—at different times of the day, or during different seasons (see Box 7.1).

Child labor and child care

An understanding of child labor patterns, and their relationship to patterns of child care provision, is essential if we are to grasp the relationship between child labor and overall household security, the ways in which women's choices about employment are specifically constrained, and how this impacts on their ability to develop work-related skills. Although there are country variations, usually where child labor is prominent, girls are more vulnerable and work longer hours than boys. The schooling of girls is more likely to be interrupted than the schooling of boys both because of demands for assistance with unpaid domestic work, and demands to supplement the household income by getting paid work. In countries where HIV/AIDS rates are high among the middle generation of parents, the implications for and demands on child labor are severe.

BOX 7.1

Diversity of Work and Work Status

Renana Jhabvala, of the Self-Employed Women's Association (SEWA) in India, illustrates the diversity of work and work status by relating the experience of Shiviben Aiyer:

"Shiviben Aiyer owns two acres of land and three cows. Since she lives in a dry area, she farms the land only when it rains. The work she does varies according to the day, the season, and the year. In one day, she may feed and milk her cattle and sell part of the milk, spend half the day in her field, collect firewood and fodder, and return home to work late in the night doing a piece of embroidery to order. In some seasons, instead of working in the field she would walk to work 8 kilometers away, to the salt pans, or collect wood for making charcoal. If it is a drought year, she may dig mud at a government relief site.

"In one day, Shiviben is a self-employed milk producer, a self-employed small farmer, and a piece-rated home-based worker; on another day she is a self-employed milk producer, an 'employee' salt worker, and a self-employed home-based worker."

In presenting this case, Jhabvala points out that of a survey of 5,000 SEWA members: "…only 20 percent of them undertake one type of work a day. Forty percent do two types of work, 25 percent do three types of work, and 14 percent do four or more types of work."

Source: R. Jhabvala, "Excluding the majority: workers, producers and categories of employment," (paper presented at the WIEGO/ Harvard Colloquium on the Informal Economy, May 2000); p. 5.

This early childhood working experience contributes to children's own insecurity and to that of their households over time. Children become part of a vicious downward- ratcheting spiral: they experience a combination of lack of full physical and emotional development, lack of access to uninterrupted formal schooling, exposure to health hazards at work, and lack of access to the skills that would give them a chance to escape the poverty trap and low-paying employment. They have a permanently compromised health status and a permanently compromised potential for increased future earnings.

The ILO *World Labour Report* (ILO 2000) reflects substantial regional differences in rates of children who are involved in economic activities (measured by the percentage of children age 10–15 years old who are economically active, not including domestic duties). In northwestern Asia, and in all of Europe—eastern, southern, northern, and western— there is virtually no registered child employment. By contrast, of the 14 East African countries for which figures are given in the ILO *Report*, 10 had child labor participation at 30 percent and more. Countries in West

Africa were similarly high, and Mali registers a very high rate of more than 50 percent. Latin America and the Caribbean have relatively low rates; in the majority of these countries, child employment rates are well below 5 percent. There are some striking exceptions such as Haiti, at 23 percent, and a cluster of countries where rates hover between 10 and 15 percent (including Bolivia, Brazil, Dominican Republic, El Salvador, Guatemala, and Nicaragua—ILO 2000).

From the changing worldwide trends in employment and in the informal economy outlined in this section, it is clear that proportionately fewer workers in the world will, in future, have access to formal work-related measures of social protection. Poorer workers will find it impossible to make private provision. There is an emerging crisis in which the conditions of existence have become more insecure, yet comprehensive measures of social protection for new groups of workers are lacking.

Transitions in demography, family life, and social protection

The choices that societies make about social protection are related to demographic patterns, the structure of the labor market, the idea of citizenship, and to existing or normative ideals about family life. All of these are subject to continual change, but the transition to the twenty-first century marks some profound changes in each sphere, and a restructuring of the relationships between them.

Formal social security systems are a product of the industrial revolution, and they followed centuries during which political systems, societies, communities, and individuals devised methods for protecting themselves and each other against known and anticipated risks, as well as against the unknown. Beveridge's vision for the welfare state in Great Britain was based on an ideal (though presented as a fact) of a society in which people lived in nuclear families, fathers went to work, there was full employment, and the primary responsibilities of mothers were at home, with the children. Beveridge's model for Great Britain—and Bismarck's for Germany—extended to large parts of the world. In the meantime, much has changed. Demographically, in industrialized countries population structures have changed dramatically, with elderly people constituting a larger fraction of the population, and living longer. Populations are getting older, and worldwide, women live longer than men, though poorer women live less long, as do poorer men.

Fertility rates are dropping all over the world (not just in industrialized countries). AIDS is changing population projections dramatically

for many countries. Where the disease is primarily spread by hetero-sexual transmission, there are increases in numbers of orphans, and the social and economic role of older people in the household changes.

Family life is changing—and again, patterns are similar in industrial-ized and developing countries. Worldwide, more children are born out-side of marriage and live with single parents (usually mothers) or female relatives. Many societies have seen increases in divorce rates; this leaves women vulnerable where they take responsibility for child care, having lost time in the labor market in order to rear children. There is a world-wide increase in the rate of households headed by women. At the same time, laws regarding child custody in cases of divorce may fail to take into account the emergence of a cohort of men who wish to be active parents with primary responsibility for child rearing.

Widowhood is the likely experience of most married women. Chen (2000) relates that in India, more than 50 percent of women over age 50 and more than 60 percent of women over age 60 are widows. Widow-hood can present a range of insecurities: the loss of income earned by a breadwinner, the loss of material assets to the late husband's family, and the loss of esteem and status within the household.

A key social and economic problem is the fact that while the rates of women's participation in the labor force have gone up and the rates of men have gone down or remained the same, there has been little change on the domestic front in terms of gendered exchange of roles. Domestic chores may have been reduced for both middle and working class people through labor-saving devices—not least of which is food preparation and processing in supermarkets. But not nearly enough attention has been given to the implications of the changing demographic structures for demands on caregiving and other domestic work (see Box 7.2), nor to what happens when exchanges are *not* made.

How have countries responded to these changing demographic and working patterns? There are country and regional variations in trends in social security provision, but in very broad terms, advanced industrial-ized countries have been withdrawing from or capping their commit-ments, and the trend in restructuring is toward a diminished role for the state in terms of its commitments to citizens. In OECD countries, how-ever, there is a tendency for states to take more responsibility for em-ployers' contributions, while at the same time transferring more insurance-based responsibilities to individuals. States, however, are locked into long-term commitments to elderly people and to health care. People in transitional economies have been seriously affected by the shift from command- to market-based economies, and have lost many social ben-

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BOX 7.2

Paid and Unpaid Work, Public and Private Care

An unskilled woman is in part-time paid employment in the health services. She shifted to part-time work so that she could care for her elderly mother, which results in lower earnings and less secure working conditions. She spends time at work caring for elderly people and then comes home to do the same caregiving activities, on an unpaid basis, for her mother. Note four things: First, the structure of the health services in which she is employed and the patterns of health care expenditure are determined at least in part by assumptions about her unpaid work as a caregiver at home. Second, the effects of cutbacks in state spending on health will directly affect her role as a caregiver. Third, her shift to part-time work, in order to care for her mother, means that she is excluded from access to an affordable pensions scheme. Finally, she is likely to have fewer children than her mother did, and cannot expect this inter-generational reciprocation when she herself needs care.

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efits. Asian countries on the whole had little work-related social protection, and are being hard pressed now to build social protection and insurance schemes while in recession.

Interest in the idea of "safety nets" for developing and transitional economies began in the 1980s and 1990s, and was strongly associated with the World Bank as a response to structural adjustment policies. It was acknowledged that many poorer people would be rendered economically vulnerable, and social safety nets were advocated as a means of temporary assistance. However the consequences of structural adjustment were not short term, nor did they affect only a few people. The problem with the safety net metaphor is that it presumes that a few people will fall downwards, having been able to start up a ladder of mobility and security. It does not allow for the fact that many are unable to get a secure toehold on the ladder in the first place.

Overall, then, there is a decrease in the numbers of people, proportionate to the whole work force, who are in formal employment that offers social benefits. There is a corresponding trend toward casual or contract employment, including part-time work, in which there is limited or no access to social benefits. There is also an increase in the numbers of people working in unregulated and often hazardous environments, where the work itself brings exposure to risks. This has led to vulnerability and insecurity for people now working and has implications for the security and productivity of tomorrow's generations of workers. There needs to be a new and comprehensive approach to social protection for workers.

The analysis framework

It would be unwise to make a generalization about what women working in informal employment see as priorities for social protection. There cannot be a homogeneous category of "demands of the working poor" as much will depend on country-, class- and gender-specific variations, as well as on the type and extent of social provision, and of poor people's access to it. For example, health services appear to be a consistently high priority, but this would not be the case in countries where health services are free or affordable. The level of demand for child-care services is related to the degree that extended family relations and kin care patterns are intact. In some countries when the husband dies it is customary for his family to raid the assets which both he and his wife built up over their working lives. In such cases, the threat to the widow's security is very specific.

The core question about social protection for informal workers is repeated here: "Under what conditions can what kind of workers in the informal economy (and especially poorer women) get access to what core measures of provision, which can be incrementally improved upon in the future?" (Lund and Srinivas 2000, 2)

The key characteristics of this approach are:

- It recognizes the right to social protection as an inalienable part of work;
- It has as a core variable the different status of employment, along a continuum from wholly formal employment, to informal employment, with many gradations in between;
- It focuses on poorer women, but not to the exclusion of men;
- It keeps open a role in social protection for all interest groups;
- It advocates principles of equity and redistribution.

This approach enables differentiated but concrete goal-setting. It is incremental: it does not expect that fundamental changes in worker benefits will take place at once or in the immediate future, but starts with a commitment to fundamental improvements in worker benefits over time. The main components of the approach are outlined below.

Employment status

Workers in the informal economy can be classified according to the following two types of employment status (Chen et al. 2002):

1) Non-wage workers
- Employers, including:
  - Owners of informal enterprises
  - Owner-operators of informal enterprises
- Self-employed, including:
  - Heads of family businesses
  - Own-account workers
  - Unpaid family workers

2) Wage workers, including:
- Employees of informal enterprises
- Domestic workers
- Casual workers without a fixed employer
- Homeworkers (also called industrial outworkers)
- Temporary and part-time workers
- Unregistered workers

This classification allows for a continuum of employment statuses: from doing unpaid work at one end, to being formally employed at the other end. In formal employment there is a clear, transparent contract, the expectation of continuing employment, standards that are monitored, external appeal mechanisms, and access to a "social wage." In between these two extremes there is a wide variety of positions, with distinct differences between industrial sectors in trends in formal and informal employment and forms of outsourcing. (The usefulness of integrating a commodity-chain approach to the analysis of social protection will be dealt with later.)

A gendered approach to risks and vulnerabilities

The analysis of different kinds of risks helps us to understand the specific ways in which different individuals or groups—or indeed societies—are vulnerable. There has been a rapid adaptation of risk analysis as the basic conceptual framework for social protection. The World Bank, for example, has accepted social risk management as its main current approach to social protection (see Holzmann and Jorgensen 2001).

Risk analysis is a central feature in the developing WIEGO framework, but it is grounded in an understanding of gender relations and with caveats attached, as noted below. We have seen how men and women occupy different positions in the informal economy. Women, and especially poorer women, face particular vulnerabilities, constraints and risks.

First, they must combine both productive and reproductive roles. Second, women's unpaid caregiving work at home, for the sick, the frail, and elderly, supports or subsidizes the formal provision of health and welfare services. However, at the same time, women's productivity and employment and career prospects are constrained by the demands of reproduction.

Third, there are particular risks and vulnerabilities, for boys and girls and for men and women that are associated with different stages of the life cycle. We are especially concerned with the vicious cycle in which girls are less likely to attend school and more likely to engage in child labor; as young women they experience the risks to their health and to their work security associated with maternity, experience the double reproductive/ productive load through middle years (much of which sustains men's ability to undertake paid work and advance), and then face the economic and social risks associated with widowhood.

Fourth, young boys and men face particular risks as well. In most societies, men's status and identity—much of how "masculinity" is constructed—are closely tied to the concept of "work" and "earning the income." Erratic and uncertain employment, and growing unemployment for men diminish this standing. In addition, men are exposed to physical and health hazards and onerous work in certain industries which tend to employ mostly men.

In countries affected by HIV/ AIDS, a gendered and life-cycle analysis of the risks posed by the epidemic helps to assess the demands there will be for social protection and for household survival in the face of this calamity. Obvious ways in which household security is affected include:

- The loss of income security that attends the illness, for those who work and for those who have caregiving responsibilities (i.e., for the infected as well as for the affected);
- The changing demands on both children and the elderly to take on greater economic and domestic responsibilities;
- The use of family savings for health costs and for funerals;
- The effect of illness and death of adults on children's education;
- The relative increase in the number of widowers;
- The amount of "community time" taken up by funerals.

The value of risk analysis is evident—but so also is the need for caution in using it. Its utility can be over-estimated when applied to workers in the informal economy, or to ways of understanding pathways out of poverty for those in formal and informal employment. Be-

ing poor is a risky business. There are sophisticated typologies of risk, differentiating between whether they are random or repeated, affect single individuals or whole communities at one time. These fine distinctions seem to be somewhat superfluous when, for a poor person, the situation of poverty means that the risks are closely inter-connected and compounded: "Worsening incomes lead to worsening health which in turn again leads to worsening income, but also the higher likelihood of losing one's work or succumbing to diseases caused by flooding." (Lund and Srinivas 2000, 48)

On the one hand, applying risk analysis and actuarial science to the poorest of microenterprises has a positive side—it can mainstream informal workers into economic analysis. There are two negative sides, however. One is that using this technical discourse can lull people into forgetting that there really *is* a difference between the asset "portfolios" of the rich and the poor, a difference not only of quantity but of compression of risks. Second is that the focus on risk analysis for the poor can detract attention from the relation between the rich and the poor and the ways that globalization appears to be causing even greater inequities. There is an unhappy tendency to expect the poor to shoulder more of the responsibility for risk insurance themselves—with both state and employers withdrawing from previous commitments.

Analysis of the state regulatory and institutional environment

Notions of "governance," "regulatory regimes," and "institutional arrangements" are pervasive in contemporary development discourses, and they are usually dealt with either in the domain of government or in the domain of firms. To understand the mechanisms of informal workers' access to and exclusion from social protection, we have to look at both government and firm/industry domains, and the interaction between the two.

Starting with government, it is necessary to understand at a country level what policies there are on the development of small enterprises, as well as the relative responsibilities of the different tiers of government (national, provincial, or local) in determining macroeconomic policy, economic development, and the status and conditions of informal work. Macroeconomic policies will shape labor market policies, which in turn affect the status of informal workers. Whether at home or on the street, the working conditions of informal workers are fundamentally shaped by local government policies, regulations, and resource allocations.

Thus it is not sufficient to analyze *national* level policies only. With regard to matters of governance, *local* government decisions may have much more impact on informal workers than do national decisions—in the presence or absence of national policies. At the same time, supranational (i.e., regional or international) alliances of countries may override or influence the autonomy of individual nation states and play an increasingly prominent role in shaping social policy at the national level (Deacon et al. 1997; Mishra 1999).

Analysis of the regime governing the labor market

By some definitions, a key characteristic of the informal economy is that it is not regulated—neither the conditions of those working in it, nor the enterprises in which they work. However, nearly all informal workers are linked to chains of production and distribution, and there is no single, fixed point at which formal regulation ends and informality begins. Indeed, it is this interface that is at the heart of battles about labor standards and wage flexibility. This is where the global value-chain analysis can be used to gain a more specific understanding of how informal workers are excluded from, or get access to, specific measures of social protection.

Different industries or sectors themselves have different conditions governing social protection. In each sector—garments, information technology, agriculture—there is a chain of activity: from design and production of the commodity (or provision of the service), to distribution and final consumption. Chains may be short or long; an entire chain might be present in one country, or may span different countries. Workers have different contractual status at different points of the chain, and may not even know who the employer or owner is. As less and less work is under the aegis of labor regulation, more of the conditions of work are determined by rules, regulations, and practices, both formal and informal, which govern production in a particular sector or industry. As has been pointed out, there is a worldwide tendency for the formal labor standard regulation to be replaced with commercial contractual regulation (Theron and Godfrey 2000, 54).

Sectoral analysis helps to make the owner/employer and the role of the labor broker more visible and present. This takes us a step closer to making estimates of the rewards and vulnerabilities of both owner/employers and labor brokers, and, therefore, estimates of how much latitude there is for achieving greater co-responsibility for protection against workers' risks.

Organization and representation of informal workers

The governments of some countries have introduced, of their own accord, attempts at extending social protection to informal workers. Costa Rica's introduction of voluntary contributions to health and pension insurance by independent and informal waged workers is a good regional example. In the main, however, social protection for informal workers will be the outcome of organizing and of representation of informal workers on policy platforms (Jhabvala and Subrahmanya 2000). An important component of the overall framework, therefore, concerns the extent to which associations of informal workers are able to directly represent their interests in both national and local structures of governance and regulation.

Furthermore, whether a country allows strong civil society activity influences the provision of social protection for informal workers. Many of the innovative schemes for social protection have been pioneered with inputs from nongovernmental and community-based organizations (local, national, and international), and active encouragement from government for such independent activities makes a difference.

Two case studies of social protection for informal workers

The WIEGO framework tries to draw from lessons already learned—often the hard way—by others. We know that it is very hard to achieve the twin goals, tried by many schemes, of reaching the poorest of the poor and achieving financial sustainability. Targeting can be costly, and using community selection mechanisms is problematic. We also know that special strategies are needed for the inclusion of the poorest, women, and other vulnerable groups, yet these strategies may themselves be expensive, and work against short-term financial independence.

Two case studies (see Box 7.3 and Box 7.4) illustrate different ways in which informal workers and informal enterprises get support, directly or indirectly, purposely or serendipitously.[2] The first, from the Self-Employed Women's Association (SEWA) in India, illustrates a scheme tailor-made for, and arising from demands expressed by, informal workers. The second, a state assistance scheme for poor elderly people in South

Africa, shows how informal enterprises can benefit from a scheme that was designed for another purpose—poverty alleviation for older people. There are close similarities in the outcomes of this South African state social assistance, and Brazil's previdencia rurale discussed in the chapter by Barrientos.

These two forms of social provision hold a number of interesting and possibly surprising lessons for those seeking to build schemes of social protection. First, a well-known problem with many schemes (and indeed of many nongovernmental, community-based, and development projects) is the difficulty of targeting women. Furthermore, while women typically constitute the majority, and may be the poorest, they are not proportionately represented in positions of leadership, and do not have their voices heard on important issues of policy and implementation. Both these schemes have been successful in reaching women—SEWA by intent and design, and the South African scheme "by accident" in policy terms, because of a combination of program design (women draw the pension at a younger age) and demographic fact (women live longer).

BOX 7.3

SEWA Integrated Social Security Scheme

Over 90 percent of India's workers are in the informal economy, and they have little statutory social security. SEWA is a registered trade union, with more than 200 000 women workers, who are hawkers and vendors, home-based workers, and laborers. SEWA's Integrated Social Security Scheme, which insured more than 32,000 informal workers in 2001, is the largest contributory scheme for informal workers in India today.

Components of the scheme include health insurance, life insurance, and asset insurance. Development of the package has been driven by demands from the workers. Financing of the scheme is split three ways between workers' contributions, a subsidized contribution by the Ministry of Labor through the Life Insurance Corporation of India, and through interest on a grant provided by the German Technical Development Agency (GTZ). This simulates the tripartite (workers, employers, and governments) contributory structure found in formal social security schemes. SEWA members play the key role in management and administration of the scheme.

SEWA is showing that social security provision can exist for informal workers; that workers will pay increasing amounts for premiums so long as the service is appropriately designed and sensitive to their needs; and that partnerships that go to scale can work. The 2001 earthquake that shook Gujarat led to a huge boost in membership in the insurance scheme.

Source: Summarized from Lund and Srinivas 2000, 132–135.

BOX 7.4

The South African Old Age Pension

South Africa, with a population of 45 million people, has a healthy private pensions regime. It is a vastly unequal society, however, and for the many poor people who cannot afford private contributions for their retirement, there is an additional social assistance scheme which gives elderly people (women from age 60 and men from age 65) a monthly means-tested cash transfer, payable from general revenue. The benefit, which goes to more than 80 percent of all poor elderly people (about 1.5 million people), has interesting characteristics: it goes disproportionately to women (who receive it earlier, live longer, and, arguably, spend it better), it reaches rural areas, and it helps to alleviate poverty in the three-generation households in which most elderly people live, since it is pooled as general household income.

The pension is a vitally important source of household security, and plays a role in promotion of small enterprises. It has the effect of smoothing household income; it is spent on "social" items such as children's schooling and transport to health services; it is used for agricultural inputs and for small enterprise development. There are a number of signs of its importance in local and rural economies: major hire/purchase firms have changed their collection schedules to coincide with pension days, and clients of a microfinance organization have asked for coordination between pension payment dates, and dates of microfinance loan repayments.

Source: Summarized from Lund and Srinivas 2000, 138–141.

Second, a common problem of many development interventions is that after the initial expensive years of setting up, they do not succeed in going to scale—that is, they do not reach people in substantial numbers. SEWA itself and its social insurance program have gone to scale, building through years of organizing. SEWA started in 1972, and the insurance scheme benefited from an iterative process during these years of learning, of organizing, of reflecting on lessons learned, and changing. This is very different from many experimental and pilot schemes that are short-term in nature and subject to the changing agendas of donors. A key question now is: To what extent can the SEWA experience be replicated? Or rather: Which parts of it are replicable, under which conditions, and why? The organization has started a three-year research program to answer such questions. In the South African case, the state is arguably the only entity that could reach directly into so many households.

Third, the WIEGO framework advocates for a greater role for employers in social protection. Present employers are not held responsible in either the SEWA or South Africa case. In SEWA's social insurance

scheme, GTZ substitutes for employers in what would otherwise be a typical tripartite arrangement between workers, employers, and the state. In the other parts of SEWA's work, however, the organization has indeed focused on employer responsibility—work contracts have been contested and gains have been made. In South Africa, the state has to, or has chosen to, compensate for the fact that for decades, people who had worked all their lives were not able to participate in contributory retirement schemes. Millions of (mainly black) men worked under contracts that specifically excluded workers from access to social provision; or they worked at wage levels that were so low that their contributions were minimal and their benefits were soon exhausted, so beneficiaries turned to the state as "security" of last resort.

Fourth, the examples show that it is difficult conceptually and programmatically to sort out basic security from social security, and social protection from enterprise promotion. What the vast majority of poor people need and want as the most basic form of security is employment: the opportunity to undertake work that will provide basic security and a better future for their children. SEWA's basic thrust is for protection against the loss of assets, so that women are able to continue to work by insuring against what might appear to be a relatively small incident. Breaking an arm or the theft of a sewing machine will have major implications for the continuity of earnings. Women need not to lose work because they are pregnant; not to lose work because they take another family member to the health service, or because they care for them at home; and not to have their small, hard-earned savings all spent, time and again, on crises.

The South African Old Age Pension reveals that the usual distinction between "support for enterprise promotion" and "welfare handouts" is a spurious one. We have to see how money that is allocated for one purpose is used for others—in this case, how social spending on pensions has direct knock-on effects into enterprise support (Ardington and Lund 1995). Brazil's *previdencia rural*—a non-contributory pension and disability program for the rural poor—appears to do similar things. Armando Barrientos (Chapter 8) refers to a study by Delgado and Cardoso (2000) which finds similar outcomes: the monthly benefit helped households move from subsistence agriculture to sustainable household production; Carvalho (2000) finds that school enrollments for children rise in households with program beneficiaries. Barrientos concludes that: "In the context of structural change and liberalization of the agricultural sector in Brazil, the pension and disability benefit has become a key instrument in supporting rural development and agricultural policy."

In a similar vein, Christian Oberlander's intriguing political and historical account of the extension of the Japanese health insurance scheme to cover all workers—with a special emphasis on including poorer and informal workers—demonstrates the economic efficacy of state social assistance (Oberlander 1999).

Finally, *insurance industries and pensions schemes throughout the world are vulnerable and affected by unanticipated events, no matter how sophisticated the actuarial analysis*. Both our examples are affected. In South Africa, the HIV/AIDS epidemic—with one in five adults now infected—is having a drastic and profound effect on all facets of economic and social life. The scale is such that the role of grandparents and of children is changing as the middle generation of sexually active adults is the most affected by the epidemic. The role of the South African Old Age Pension as a general poverty alleviation mechanism will become even more important over time.

In the India case, the 2001 Gujarat earthquake affected literally thousands of SEWA members, their households and their villages, and a mammoth task of reconstruction has had to take place. Within hours of the earthquake, SEWA started the task of counting what had been lost, assessing the extent of the disaster, and defining what would be needed for short-term survival and longer term rebuilding. Donors responding to the SEWA appeal know that the contributions will be focused, well-spent, and under the control of SEWA members themselves. This is in line with the approach to disaster mitigation presented by Mihir Bhatt. In his integrative perspective on disaster mitigation and social security, he holds that: "… disasters are unresolved problems of development, and disaster victims are the unreached target population of social security" (Bhatt 2000, 176). He emphasizes that the central feature of this approach is that efforts should be made "to support and strengthen the measures the victims are taking on their own," rather than designing new social security schemes (Bhatt 2000, 179).

Areas for further framework development

The WIEGO Social Protection framework attempts to construct a model that will break through dichotomous classification of "north and south," "developed and developing," and "formal and informal." It remains the case, however, that much work needs to be done in identifying the similarities and differences in vulnerabilities of workers in countries with different economic statuses. In this regard, the following considerations are important.

Dealing with dualism in the "formal/ informal" classification

In line with an international trend, this approach moves away from the term "informal sector," and toward looking at all economic activity as constituting a continuum, with a more formal end and a less formal end. From the point of view of promoting small enterprises, using the term "sector" to differentiate the formal and the informal places a separating boundary at exactly the point where one wants to look for the possibility of promoting linkages between formal and informal operators.

However, to talk of a continuum does not mean that the problem of dualism has really gone away. For both theoretical and practical purposes, there *is* a difference between a person in a formal contract with clearly defined expectations and conditions of service, and a person who is irregularly employed (perhaps seasonally) with an unwritten contract. From the worker's of point of view, it makes a great deal of difference in terms of income security and access to other non-wage benefits; from the employer's point of view, each step along the commodity chain has different implications in terms of retaining competitive advantage in relation to labor costs and the firm's responsibility toward workers.

It may be that the task is, first, to avoid continuing with the term "sector", and second, to be aware that different interest groups will use the concepts of formality and informality in different contexts, for different purposes. In Durban, South Africa, at a consultative gathering called by local government, more than one thousand traders gathered to discuss aspects of an emerging informal trade policy. Trader leaders objected to being called "informal workers": "Why are we demeaned like this? We are workers just like all other workers!" The very same trader leaders, in a different kind of meeting, were quite specific about the conditions under which they would agree to enter (in fact, re-enter) a registration and licensing procedure—in other words, to be subject to the process of regulation, and to move away from being defined as "informal workers." The same people, again, in individual interviews, were able to articulate the benefits of being "invisible." They maintained that is was not an issue of avoiding the licensing and registration fees *per se* (fees perceived to be quite fair, and even rather low), but they objected to the amount of time involved in engaging with the bureaucracy—time which represents a material opportunity cost in terms of potential lost income.

The strengths and limits of the sector or commodity-chain approach

Another way of understanding the complexity and dynamics of the changing world of work is through global value-chain analysis—but a version in which the situation of workers and support for their development is put center-stage. The advantage of using a sectoral approach to social protection for informal workers is that it focuses on people as workers, rather than as "excluded," or "poor women," or as "marginalized." It recognizes that both the home-based, piece-rate worker making clothes and the street vendor selling second-hand clothing are involved integrally in the garment commodity chain. Furthermore, sectoral analysis can be a tool for gaining more precision about the dynamics of the linkages between formal and informal ends of the economy.

The limitations are that there are people who do not fall easily into any one "sector," and there are people who work in more than one sector at one time. How far to push the sectoral approach depends on the purposes of any particular study, and must always be combined with an analysis of work location, as well as the relationship between working choices and domestic responsibilities. Analysis of value-chain or commodity-chain work should pay attention to the socio-economic context in which that work takes place, and the patriarchal relations that mold the opportunities and constraints of both men and women.

Appropriate use of a gendered lens

Gender is an important element of the overall framework used here, but it is important to point out two potential dangers with gendered analyses. The first arises when a "gendered analysis" is taken simplistically to mean "something to do with women," or "counting women." The second, associated problem arises when there is lack of understanding about the relationship between men and women in the households and/ or at work. For example, when considering women's access to social protection, we could simply count the distribution of work-created disability for men and women. However, we would not then be able to discern that a wife in self-employment in the informal economy has no access for her disability through her husband's social wage (although she may have access to health services through his social wage).

Furthermore, we need to understand the different ways the material returns to a woman's work stand to benefit her: i.e., the extent to which she has discretionary power over it in the household, and/or the extent

to which she is more dependent for her security on her husband's income. Similarly, it is important to see what arrangements workers can make for child care; and it is important to appreciate the benefits many women find in being able to work at home, even at low pay, so that child care can be combined with paid work.

Gendered analysis, done poorly, can contribute even further to the marginalization of women.

The need for improved classifications

The growing awareness of the extent and importance of the informal economy is in part due to recent improvements in the collection of statistics about different types of informal economic activity (see, for example, Charmes 1998, and ILO 2002). There will always be problems of definition, about what constitutes "work" and "employment," "unemployment," "part-time work," and work by family members which is expected but does not carry a specific wage. There will always be problems with asking household members of migrant workers what the migrant earns, let alone what social benefits he or she receives as part of migrant employment. Despite these problems, it does make a difference that questions consciously move toward seeking out the informal. A number of specific aspects of classification that are relatively easy to do and that make a positive difference in the estimation of the extent and contribution of informal economic activity and access to social protection are outlined below.

First, *location of work*: Large numbers of informal workers ply their trades in their own or in others' homes, or in public places such as streets and parks. Attention needs to be given—and is easily given—to location of work. The usual employment-related question: "What work does X do?" can be followed up the simple question: "Where does this work take place?" This one question immediately allows the street-based or home-based nature of the work to become visible, and counted. The location of work is important in the study of social protection because different locations intrinsically carry different types of vulnerabilities and risks. For example, the street-based worker may be more vulnerable to the elements and to the risk of assets being confiscated by local officials than the home-based worker.

Second, the classification of *domestic and agricultural work*: Different countries classify domestic work and agricultural work differently, as either formal or informal work. Each country has its reasons (or simply inherited practices) for doing this. Both are sectors in which large num-

bers of women and large numbers of poor people are employed. For domestic workers, particular vulnerabilities come from the isolated conditions of their work; agricultural workers are exposed to particular vulnerabilities deriving from seasonality, hazardous equipment, and feudal relations. For the purposes of social protection and risk assessment, it is not very important whether these categories are classified in informal or in formal employment (Valodia 2000). What matters is that they are categorized separately, so that they can be separately estimated and analyzed.

Third, *multiple work activities*: The example given earlier in this chapter of Shiviben Aiyer in India (Box 7.1), showed how one person can, in the same day, be involved in many different types of work (excluding unpaid domestic and caregiving work in the household). This is a complex thing to capture in routine surveys, and there does not seem to be an easy way around it. Time-use series surveys, in which people are asked to record their actual use of time in, for example, half-hour increments, may help us to understand the nature of these activities. The same person does different types of work, with different work statuses, in one day or one month; also, some people (especially women) perform multiple tasks at the same time, for example, doing paid sewing on a piece-rate basis, while watching the children and cooking the family meal.

Fourth, *access to social protection*: It seems to be in the nature of research on social security that different scholars specialize in either the public or the private pillars of provision. Different people collect different bits of the picture, and the whole cannot be seen. In particular, this works against seeing who falls between the cracks between the public and private pillars. There is a need for reliable figures about who gets access to what benefits, under what conditions, and for how long. Do women get access in their own right as workers? How many women and dependents not in formal employment have access to benefits through their husband's employment? What do changing patterns of labor force participation in different kinds of male employment mean for women and for children?

One common and persistent problem in many surveys is that of asking a household member, often called "the knowledgeable household informant," to report on social benefits received by another household member. Most frequently, this involves a woman reporting on the working conditions of absent men. She may be a wise person in other respects, but it is a lot to expect her to be reliably informed on his social benefits, such as retirement provision, leave, transportation allowance, and so on.

She may know very accurately what she receives from him for household expenses, but she may know nothing about what does not come to the household. The more the labor market is characterized by informality, the more this problem with household-based surveys will occur.

Conclusion

Improved social protection for informal workers, in the current climate of international macroeconomic policy? Many would say this is a pipe dream. However, it is not necessary to fall into the trap of "policy fatalism," that is, that macroeconomic policy choices are a "given," and that there is no room for maneuver in terms of social provision (Alber and Standing, 2000). The framework presented in this chapter opens the way for identifying specific points of entry for policy.

The WIEGO Social Protection Program will promote research on a country-by-country basis, starting by promoting research networks in the Latin American and Aisan regions. It is hoped that the analytical work will lead directly to better understanding of the strategic interventions that can be made to improve social protection for informal workers. It is important to start with a coherent framework; this needs to be followed with new empirical work done for countries and regions. The maternity entitlement index for Latin America presented in the chapter by Armando Barrientos is a good example of the development of a tool for comparative analysis.

The WIEGO approach learns from the best that organizations of informal workers have to offer. It holds out for a role for different interest groups, including employers, organized trade unions, governments, and informal workers themselves. To do this, it is imperative to take as the first point of departure the fact that workers in the informal economy are indeed workers, many working in small enterprises. Women's changing economic contribution needs to be recognized, as well as their specific needs for social protection. Steps toward this process include a need to have the changing nature of work recognized, and to have the unpaid caregiving work that (mostly) women do both estimated and acknowledged.

There is much current debate about "voice," meaning how the interests of certain groups get articulated and represented. The flip side of voice, of course, is that there need to be ears to hear. Only by taking an institutional approach can one see the importance of looking at the continuing regulation of voice: How are the interests of workers represented

in different policy platforms? What is the penalty to the dominant groups for the failure to show up, or to implement agreements?

Finally, the current emphasis on risk management needs to be strengthened by a program with a redistributive aim, and a strategy for re-allocation of resources. In the absence of these, it will be as useless to the poor, and to addressing global inequality, as all the focus on poverty measurement and monitoring of programs in the absence of policies and interventions which really and substantially address the causes of poverty, and the patterns and processes of inequity.

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8

Women, Informal Employment, and Social Protection in Latin America

Armando Barrientos

There is an important gender dimension to the growth of informal employment in Latin America in the 1980s and 1990s. In terms of average earnings, conditions of work, and income security, informal employment includes a higher proportion of low quality jobs than formal employment. Women are over-represented in informal employment. They are also more likely than men to be found in lower paid and precarious jobs within informal employment. To a large extent, entitlements to social protection in Latin America are acquired through market production, and specifically through formal employment. Women in informal employment face significantly higher levels of economic vulnerability, with adverse consequences for their welfare and that of their households. This chapter provides an overview of women in informal employment in Latin America, examines their access to social protection, and considers public policy issues in extending social protection to these workers.

Informal employment has risen in Latin America in the last two decades, and now accounts for one in two workers in the region (ILO 2000). The rise in informal employment began with the acute economic crisis felt throughout the region in the early 1980s leading to a sharp contraction of output, unstable growth, and rising unemployment and inflation (Edwards 1995). Informal employment has continued to rise

with further crises in the 1990s and with the structural adjustment and economic liberalization policies that followed.[1] A recent ILO report stated that 6 out of every 10 jobs created in the 1990s in Latin America were informal jobs (ILO 2000).

Women's activity rates in Latin America have been rising since the 1960s, and rose more rapidly in the 1980s and 1990s (Arriagada 1997; ILO 1999b). The regional activity rate of women aged 15–64 in the urban sector is currently 44 percent. Explanations for the rise in women's activity rates include secular trends associated with lower fertility rates, growth of service employment, and access to education; but the acceleration of the trend in the 1980s and 1990s is explained by structural adjustment and a sharp decline in male pay (León 2000). Women's unemployment rates are higher than men's in the context of high and persistent unemployment in the 1990s. There is a large and persistent gender earnings gap in Latin America, which averages around 40 percentage points (ILO 1999b), and women's employment is concentrated in the tertiary sector (Psacharopoulos and Tzannatos 1992).

The rise in informality and the over-representation of women in informal employment underline the need to consider how to extend social protection to this group of workers. Prior to welfare reforms in the 1990s, formal social protection in Latin America was based on social insurance and employment protection regulations for selected groups of workers. A feature of formal social protection is that entitlements depend on participation in market production and more specifically in formal employment. In the 1990s, a number of countries implemented reform of social insurance provision. Social insurance funds have been consolidated and replaced, wholly or partially, by individual saving plans. Reforms to labor market institutions have weakened employment protection. Against this background, extending social protection to women in informal employment is a pressing policy issue.

Women in informal employment in Latin America

Informality of what? Sector, economy, or employment

In this chapter informality is considered in the context of employment. Informality is here defined by the extent to which workers concentrate

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[1] Some countries, including Chile, began economic liberalization in the late 1970s and early 1980s.

economic risk.[2] In the context of Latin America, rising informality is a product of changes in the employment relationship, and of labor market liberalization and welfare reform, all of which have the effect of transferring and concentrating economic risk onto workers. As far as dependent employment is concerned, informality is associated with changes in the employment relationship which shift to workers the risks associated with variations in product demand and labor market adjustment. These include the rise in the incidence of employment without contract, the rise in fixed-term and temporary employment, and in sub-contracting and other flexible forms of employment (Ypeij 1998). Rising informality is also associated with reduction in employer-provided social protection arising from welfare reforms. In terms of self-employment, informality is associated with the exclusion of the self-employed from formal social protection programs, and their vulnerability to changes in product demand. An approximate measure of the extent of informality is the proportion of the labor force not contributing to formal social protection programs.

This approach to informality is in contrast to conceptualizations of informality as a sector, or as an economy. Despite its common currency, there is a marked lack of consensus on the definition and measurement of informality.[3] Initial conceptualization of informality focused on defining an "informal sector" (Thomas 1992). Noting the high incidence of unemployment among rural migrants who made a precarious living by engaging in a range of largely unregulated economic activities, it defined an "informal sector" by reference to a "formal" or "modern" sector. The "informal sector" was characterized by ease of entry, family ownership, labor intensive small-scale production, and competitive product markets. The Regional Employment Program for Latin America and the Caribbean (PREALC) extended this approach to Latin America (Mezzera 1989). It argued that informality applied to enterprises or productive units, which emerged as a result of the inability of the modern sector to absorb the available labor supply. Workers excluded from modern sector employment find themselves forced to generate their own employ-

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[2] Economic risk, also commonly referred to as social risk, describes the probability that events such as unemployment, disability, or the death of the breadwinner, to mention a few factors, force individuals and their households to lower their standards of living (in some cases below the poverty line).

[3] See, inter alia, Thomas (1992); Moser (1994); Rakowski (1994); Portes, Castells, and Benton (1989); Wilson (1998a); and Berger (1989). An illuminating account of the concept of informality from a policy perspective is provided by Márquez (1994).

ment in the informal sector. A measure of the size of the informal sector used by PREALC is the combined share of self-employment and microenterprise employment in the labor force (Mezzera 1989).

The approach of Portes, Castells, and Benton (1989) to conceptualizing informality focuses on the incidence of state regulation.[4] In their view, the informal economy is made up of economic activities which, due to the absence of state regulation, are ruled by the logic of unrestrained market competition. This is what identifies these activities as a different "economy." In line with this view, an appropriate measure of the informal economy would be the share of employment operating outside tax or labor regulations (employment protection, social protection, hygiene, and safety at work, etc.).

Focusing instead on informality in employment addresses some issues raised by recent economic change in the region, and has a number of advantages in the context of developing a gendered approach to social protection for informal workers.

The view that informality represents surplus labor is at odds with current labor market conditions (Leiva and Agacino 1994; Levenson and Maloney 1998; Maloney 1998a; Wilson 1998a). Changes in labor market institutions have produced a relaxation in the rules applying to the employment relationship across industries and occupations. Temporary or fixed-term employment, for example, is common in both private and public sectors, and in large and small establishments. The rising informality in Latin America has as much to do with the absence of regulation as with the decline in rewards to formal employment associated with structural adjustment and global competition. The "employment relationship informals" are not surplus labor, and are in fact a very heterogeneous group as regards productivity and labor intensity in production (Maloney 1998a, b; Weller 1998a). Increasingly, informal employment in Latin America overlaps with "flexible labor," "secondary employment," or "precarious labor" concepts used in developed countries (Amadeo and Horton 1997), which have a strong gender dimension.

Defining informality as a sector, or an economy, suggests a separation of formal and informal production and employment. In fact, an impor-

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[4] Portes, Castells, and Benton (1989) define the informal economy as "a process of income generation characterized by one central feature: it is unregulated by the institutions of society" (p.12). This approach makes it difficult to identify the institutions, norms, and practices governing informal employment.

tant feature of the emerging structure of Latin American economies after economic reform is the extent to which formal and informal employment are integrated (Portes, Castells, and Benton 1989; Wilson 1998b). The postulated separation between an "informal" and a "modern" sector at the root of the original view of informality is no longer representative of most Latin American economies.[5] It may also be harmful in providing support for the exclusion of a large proportion of the labor force from social protection, and for diluting corporate and government responsibility for welfare provision, as indicated in Lund and Srivinas (2000). It further reinforces women's labor market disadvantage.

The approach to informality adopted in this chapter encourages a different view of the relative significance of structural and agency factors in informal employment. There is growing evidence from studies on earnings differentials (Marcoullier, Ruiz de Castilla, and Woodruff 1997) and sectoral mobility (Maloney 1998a), to the effect that informality can be fruitfully studied as the outcome of an, albeit imperfect, worker-job matching process. Given the decline in the rewards to formal employment, informal employment may be a more rewarding option for a significant section of the labor force. Workers without formal educational qualifications, for example, may be at a disadvantage in formal employment. To the extent that formal employment undervalues the productivity potential of some workers, due to gender or age discrimination, for example, informal employment may be a better option for women and older workers (Barrientos 1999). Focusing on informality in the context of employment gives a wider role to agency factors, which will prove a more helpful context in which to examine gender issues, and opens at the same time a wider policy agenda for extending social protection to these workers.

Size and composition of urban informal employment in Latin America

There are two measures of informal employment commonly used. The first measure, used by the ILO (referred to as the "ILO measure" hereafter), defines informal employment as including workers in microenterprises (five employees or less), the self-employed (excluding professionals), work-

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[5] The experience of the Latin American economies in the 1980s and 1990s sets aside the view that economic growth ensures the gradual disappearance of informality (Fields 1990; Turnham, Salomé, and Schwarz 1990).

TABLE 8.1

Urban Informal Employment in Latin America, 1990 and 1998

	Men		Women		Total	
	1990	1998	1990	1998	1990	1998
ILO measure[1]	41.2	45.0	49.2	52.0	44.4	47.9
of which:						
Self-employed	22.8	24.9	24.4	24.4	23.4	24.7
Microenterprise	17.9	19.6	10.7	11.6	15.2	16.3
Domestic	0.5	0.6	14.1	16.0	5.7	6.9
Uncovered measure[2] (excludes self-employed)	31.6	36.8	34.9	39.7	33.4	38.4
ILO measure[1] excluding self-employed	18.4	20.1	24.8	27.6	21.0	23.2
Uncovered measure plus self-employed[3]	47.2	52.5	50.8	54.4	48.9	53.7

Data source: ILO (1999b) based on household survey and official data.

[1] Includes workers in enterprises with five workers or less, the self-employed, and domestic work as a proportion of the total labor force. Figures are weighted averages of 12 countries (Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, Honduras, Mexico, Panama, Peru, Uruguay, and Venezuela).
[2] Share of employees not contributing to social insurance programs. Figures are weighted averages of 10 countries (Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, Mexico, Peru, Uruguay, and Venezuela).
[3] Uncovered measured recalculated as a proportion of the total labor force plus the self-employed.

ers in domestic employment,[6] and family workers (unwaged). The second measure defines informal employment as including those workers not covered by social insurance programs or labor market regulations, referred to as the "uncovered measure" hereafter. This can be operationalized, in descending order of strictness, by counting the number of dependent workers legally entitled to affiliate to social insurance programs, or those currently affiliated to social insurance programs, or those actually contributing to social insurance programs. Unless stated, the "uncovered measure" below will refer to the latter.[7]

Table 8.1 provides a snapshot of the situation in 1998.[8] A key point shown in the table is that, compared to men, women are over-represented in informal employment. This applies whether the ILO measure or the uncovered measure is used. Looking at the ILO measure first, the

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[6] In the PREALC measure, domestic workers are excluded because the emphasis is on the informality of productive units not people.

[7] More specifically, it measures the number of dependent workers with social insurance payroll contributions.

[8] It is important to keep in mind that the data cover urban employment only. Another issue with regard to the data is the extent to which women are less visible than men in employment statistics, and especially in informal employment statistics (Henriquez and Perez 1994).

disaggregation of informal employment shows that the over-representation of women is in the main due to the high incidence of domestic work among women compared to men. Women are under-represented in microenterprise employment. In so far as the figures do not include unwaged family work, with a high incidence of women, these understate women's over-representation in informal employment.

Leaving aside the self-employed, the two measures of informal employment produce roughly similar results for women, but significantly different figures for men.[9] Taking the measured share of employees not contributing to social insurance, and adding the self-employed, who are largely uncovered, puts the overall share of informal employment at 52.5 percent for men and 54.4 percent for women.

Trends in the size and composition of informal employment

There is general consensus that informal employment has risen significantly in Latin America in the 1980s and 1990s (Turnham, Salomé, and Schwarz 1990; Charmes 1992; Weller 1998b). Both Mezzera (1989) and Charmes (1992) measure informal employment in the period between 1950 and 1980 using data from national censuses. They find that urban informal employment remained more or less stable throughout this period. Mezzera (1989) estimates informal employment (microenterprise and self-employment) at around 20 percent of the employed urban labor force, and he further estimates that domestic employment declined from 10.2 percent of total urban employment in 1950 to 9.5 percent in 1970, and 8.4 percent in 1980. An ILO measure of informal employment would have been roughly 30 percent for the period 1950–1980.[10] The figures after the 1980s show a steep increase. In the period from 1990 to 1998, the share of informal employment increased from 44.4 to 47.9 percent according to the ILO measure, and from 34.4 to 38.4 percent according to the uncovered measure (excluding the self-employed) (ILO 1999b).

Disaggregating the ILO measure for the period 1990 to 1998 in Table 8.1 shows that the growth of informal employment applies to all com-

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[9] It can be speculated that this has to do with gender differences in social insurance coverage of employees. The figures are consistent with a higher proportion of men than women employed in microenterprises being covered by social insurance, or with a larger number of men than women working in medium and larger enterprises without social insurance coverage.

[10] Aggregate data on informal employment by sex for this period is lacking.

FIGURE 8.1

ILO Measure of the Female Urban Informal Sector for Selected Countries in Latin America

Share of total female employment

■ Self-employed   ■ Microenterprise   ■ Domestic work

Source: ILO (1999b); ECLAC (2000b).
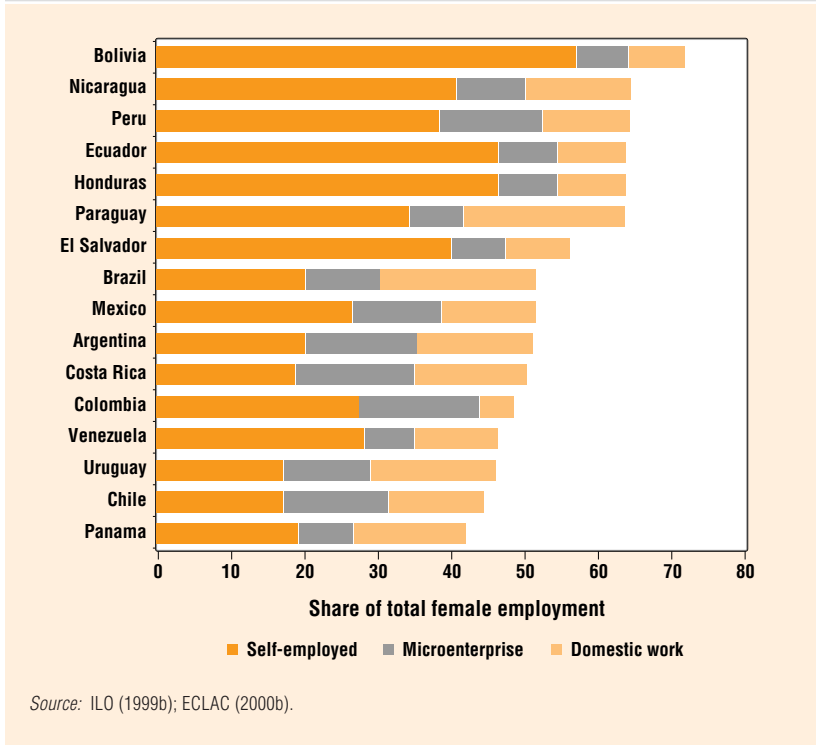
ponents: self-employment, microenterprise employment, and domestic work. When further disaggregated by gender the figures show that the share of women's employment in microenterprise remained stagnant from 1990 to 1998, while the share of male employment in this sector rose. They also show that the rise in the share in domestic work was far more pronounced for women than for men.

Cross-country comparisons of the size of informal employment

The shares of women workers in informal employment according to the ILO measure in 1998 for selected Latin America countries are shown in Figure 8.1. The informal employment share of female employment ranges from 42.3 percent in Panama to 73.1 percent in Bolivia. It is larger in countries with a larger indigenous population (Bolivia, Ecuador, and

Peru),[11] but is otherwise similar across countries. Notably, the level of economic development does not appear to be correlated with the share of informal employment among women.

Disaggregating informal employment shows that the incidence of self-employment is larger in countries with a larger indigenous population, and this accounts for their larger informal share of employment. Women's employment in microenterprise is the smallest component of informal employment in most countries, except Chile, Colombia, Costa Rica, and Peru. There are large variations in the share of informal employment in domestic work, from 4.7 percent in Colombia to 21.4 percent in Brazil.

Figure 8.2 shows the uncovered measure of men's and women's employment for selected countries in Latin America in 1998. The share of informal employment for women ranges from 24.2 percent in Uruguay to 57.9 percent in Peru. This measure of informality naturally reflects the development of social insurance institutions, and, through these, the level of economic development of the countries involved. The gender differences in the share of informal employment are small, although women's informal employment shares are significantly higher than men's in countries with a more developed social insurance system such as Argentina, Chile, Costa Rica, and Uruguay. It is important to keep in mind that self-employed workers are not included in this measure.

Component groups in women's informal employment

As informal employment is heterogeneous, this section presents some points on each of the component groups of informal employment.

Self-employed

The self-employed are themselves a very heterogeneous group, but a common factor is that they are often excluded from formal social protection institutions and programs. Self-employment as a proportion of the labor force is around a quarter, and almost identical for men and women.

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[11] Psacharopoulos and Patrinos (1994) estimate the indigenous share of population at 56.8 percent for Bolivia, 29.5 percent for Ecuador, and 40.8 percent for Peru in the 1980s. They find that indigenous people have significantly lower access to schooling and higher rates of illiteracy, and that indigenous women have lower education attainment levels and higher rates of illiteracy than indigenous males. This is explained by their socio-economic status, language barriers, and their predominantly agricultural employment.

FIGURE 8.2

Male and Female Urban Informal Sector in Latin America in 1999, Measured as the Share of Employees not Contributing to Social Insurance.

Share of employees not contributing to social insurance

■ Male   ■ Female

Source: ILO (1999b).
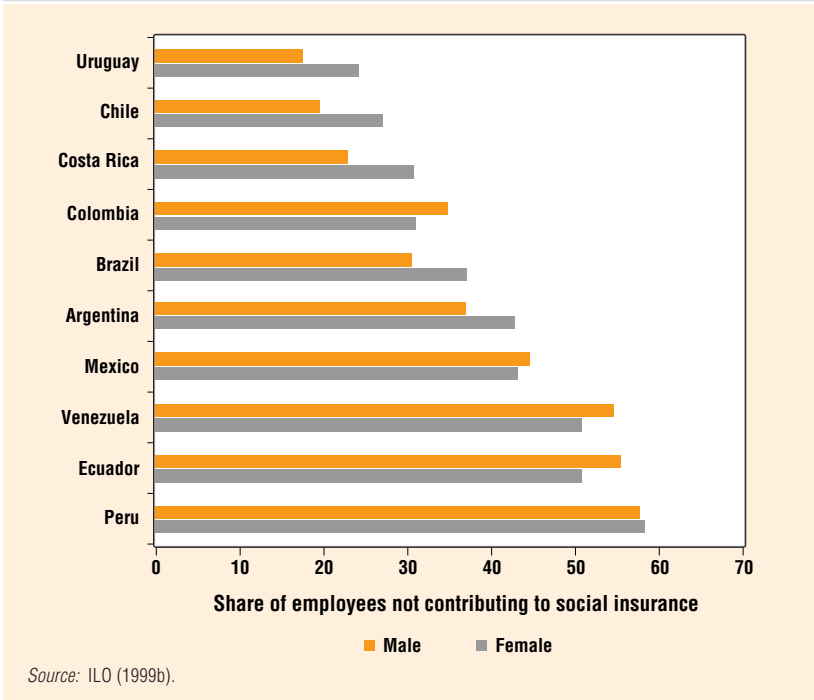
There is an important gender difference in the quality of self-employment. Women's self-employment is of lower quality as reflected in lower pay and occupation concentration in services and commerce.

The self-employed are on average older than dependent employees. There is an association existing between the incidence of self-employment and education, on the one hand, and life-course factors, on the other. Multivariate analysis of earnings shows that education is less important as a predictor of self-employed earnings, and that returns to education are lower for the self-employed (Gindling 1991; Funkhouser 1996; Marcoullier, Ruiz de Castilla, and Woodruff 1997).[12] These find-

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[12] Smith and Metzger (1998) use data from street vendors in Mexico and argue that the estimated returns to education are in line with human capital models, but that they are overstated due to the difficulty in decomposing labor earnings and capital returns in self-employed income.

ings suggest that there is a link existing between access to education and self-employment. Another important factor regarding self-employment in Latin America relates to life-course changes in labor market activity. Studies have shown that the share of self-employment in total employment increases rapidly for older workers, both men and women. Self-employment can be a means of postponing exit from the labor market for older workers, or a specific transition mode (Barrientos 2000). These may be due to the presence of labor market discrimination against older workers which pushes older workers into self-employment, or to an age-related decline in the rewards for formal employment which pulls older workers into self-employment. The accumulation of human, physical, and financial capital over the life course is also an important factor explaining the rise in the share of self-employment with age.

The gender gap in self-employed earnings and occupational distribution is also connected to the constraints on access to credit faced by women, as discussed in Lycette and White (1989). Women in Latin America experience important constraints in accessing credit from formal financial institutions. They find it difficult to take loans in their own names, administrative requirements are especially burdensome due to the absence of independent taxation and legal status, and they receive smaller loans than men.

Microenterprise employment

Microenterprise jobs are considered better quality jobs within informal employment because of the higher average pay associated with this sector, although this may be driven by the higher earnings of microenterprise owners. Women are under-represented in this sector compared to men, and the extent of their under-representation increased in the 1990s. Whereas roughly one in five men can be found in microenterprises, only one in ten women work in this sector. The under-representation of women in microenterprise employment arises because of their occupational concentration on services and credit constraints (Berger and Buvinic 1989).

Domestic work

The incidence of domestic work among women is very high. In 1998, domestic work accounted for 16 percent of women's employment in Latin America. The share of domestic work increased significantly in the 1990s, accounting for 22 percent of all new jobs created in the decade (ILO 1999b). The profile of female domestic workers shows they are

younger, have fewer years of schooling, and are more likely to be single than the average woman in employment (Arriagada 1997). Domestic work constitutes an important labor market entry employment for women without educational qualifications. Domestic work is largely unprotected, due to the fragmented and personal nature of employment. Domestic workers are largely non-unionized, but Arriagada (1997) noted the establishment of the *Confederación de Trabajadoras del Hogar en América Latina y el Caribe*, a region-wide network of domestic workers.

Whether the rise in domestic work in Latin America is mainly a consequence of the rise in women's activity rates, or a response to household need, is an interesting issue. Rising activity rates among women generate a demand for market household services, which could explain the rise in domestic work. Another factor is population ageing which generates demand for long-term care for the elderly. These are the demand-side explanations for the rise in domestic work. On the other hand, there is evidence that domestic work is a response to household economic need, in many cases associated with the decline in male pay. This is a supply-side explanation for the rise in domestic work. The long-term trends and associated policy issues in domestic employment will be different in the two cases. If the rise in domestic work is mainly the result of demand-side pull, earnings in domestic work and working conditions ought to show a relative improvement. To the extent that unskilled domestic workers enable more skilled women to work, it also produces unskilled-skilled labor complementarities and contributes to economic growth. On the other hand, to the extent that domestic employment is simply a factor of household economic need, and is deployed as cheap surplus labor assisting wealthy, inactive women, the impact on growth is minimal.

Unwaged family workers

Women make up the majority of unwaged family workers, and are an important group in Latin America. ILO data on women's unwaged family workers as a proportion of the urban labor force show large variations from country to country, with a mean for the region of around 10 percent.[13] In the early 1990s, the share of unwaged family workers in

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[13] The difficulties involved in measuring this group from household survey responses are greatest because the boundary between employment and homework is fuzzy. The ILO data referred to in the text have been taken from ILO (1999a).

TABLE 8.2

Average Earnings of Formal and Informal Women Workers for Selected Latin American Countries as Multiples of National Poverty Lines, 1997–1998

	All	Enterprises >5 employees	Micro-enterprise	Domestic Work	Own-Account
Chile	5.6	3.8	2.7	2.2	5.0
Costa Rica	4.7	4.2	1.8	2.2	2.1
Panama	4.6	4.0	2.7	1.4	2.3
Uruguay	3.7	3.8	2.6	1.8	2.3
Brazil	3.6	3.2	2.3	1.5	2.0
Dominican Republic	3.6	3.5	2.0	1.4	2.9
El Salvador	3.1	3.1	2.0	1.8	1.7
Colombia	2.9	2.4		1.6	2.0
Venezuela	2.8	2.2	1.6	1.2	3.0
Mexico	2.7	2.5	1.5	1.1	1.6
Bolivia	2.5	2.6	1.8	1.0	1.7
Ecuador	2.4	3.1	1.7	0.9	1.4
Paraguay	2.4	2.7	2.0	1.1	1.7
Nicaragua	1.9	2.7	1.3	0.9	1.6
Honduras	1.4	1.6	0.9	0.5	0.8

Source: ECLAC (2000a)

the female labor force was 16.5 percent in Mexico (1995), 10.2 percent in Brazil (1990), 15.1 percent in Bolivia (1995), 8.8 percent in Peru (1995), and 8.3 percent in El Salvador (1995); but 5 percent in Colombia (1995) and 2.5 percent in Venezuela (1995). Unwaged family workers' employment is precarious. These workers are largely unprotected by formal social protection programs and institutions.

Earnings and earning differentials in informal employment

The level of earnings of informal workers is an important indicator of income adequacy and therefore of the risk of poverty faced by these workers. Table 8.2 provides information on average earnings of women workers in formal and informal employment for selected countries in Latin America as multiples of the national poverty line.[14] These provide evidence on income adequacy. Notwithstanding country differences, a hierarchy of earnings for different groups can be observed in the figure.

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[14] There are two data issues that need to be kept in mind here. First, all studies of the distribution of earnings show this to be lognormal, with the mean being higher than the median. Second, data on self-employed earnings may include returns to capital (Smith and Metzger 1998).

Women employed in medium and large enterprises have the highest average earnings, followed by women in microenterprises, self-employment, and finally domestic work. Average earnings for all women in paid work and for women in medium and large enterprises are roughly similar.

Women's average earnings in domestic work are just above the poverty line for most countries, and at or below it for six countries. Only in Chile and Costa Rica are average earnings in domestic work twice above the poverty line. The average earnings of self-employed women vary significantly across countries, but tend to be low in the less developed countries of the region, at around 1.5 of the poverty line. With very few exceptions (the self-employed in Chile and Venezuela), informal employment attracts much lower average earnings in formal employment.

Another interesting issue is the presence of a formal-informal earnings gap, a gender earnings gap, and the interaction of these two. The presence of a gender earnings gap within informal employment provides information as to the relative quality of women's informal employment. Table 8.3 shows the gender earnings gap for workers in formal and informal employment for 1990 and 1998. The figures in the first panel of the table show, for each employment category, the average earnings of women as a percentage of the average earnings of men. The gender earnings gap is lowest for domestic work, at 26 percent in 1998, which is probably explained by the very small numbers of men in this employment group. The gender earnings gap is also lower for workers in formal employment and in microenterprises (it is 29 percent in both cases). It is largest for self-employed workers, as the earnings of women are less than half of those of men. Over time, the trend is for the gender earnings gap to decline, although this is likely to be a function of the decline in male pay. Table 8.3 also shows the formal-informal earnings gap among women. In 1990, the gap is 70 percent for domestic workers, just over 50 percent for the self-employed, and 27 percent for microenterprise employment. These indicate a large earnings premium for workers in formal employment. The formal-informal earnings gap increases by 1998.

Both the gross gender earnings gap and the gross formal-informal gap in earnings can have a number of explanations. Differentials in earnings may be simply a reflection of underlying differentials in productivity arising from differences in worker or job characteristics. If women in informal employment have lower levels of education or work experience, or are concentrated in low productivity jobs, their earnings would be lower than women in formal employment or men. A

TABLE 8.3

Formal and Informal Gender Earnings Gap for Latin America; 1990 and 1998.

	Average women's earnings as a percentage of men's earnings					
	All	**Formal**	**Informal**	**Microenterprise**	**Self-employed**	**Domestic**
1990	60	71	46	65	48	66
1998	64	71	52	71	49	74
	Average women's earnings as a percentage of women in formal employment					
	All	**Formal**	**Informal**	**Microenterprise**	**Self-employed**	**Domestic**
1990	76	100	49	73	49	30
1998	76	100	48	69	42	32

Data source: ILO (1999b).
Note: Figures are a weighted average for 12 countries accounting for 91 percent of the urban labor force in Latin America (Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, Honduras, Mexico, Panama, Peru, Uruguay, and Venezuela).

number of studies have attempted to control for differences in worker and job characteristics, and their findings provide evidence on gender and formal-informal earnings gaps *net* of observed differences in workers or jobs. Funkhouser (1996) uses household data for a number of Central American countries to provide estimates of the gender earnings gap in formal and informal employment. He finds that the gender earnings gap net of differences in worker and regional characteristics is much larger in informal than in formal employment. In formal employment the net gender gap is in the range of 10 to 16 percent for Guatemala, El Salvador, Honduras, and Costa Rica, and 33 percent for Nicaragua. By contrast, the net gender earnings gap in informal employment ranges between 26 and 56 percent for these countries. Marcoullier, Ruiz de Castilla, and Woodruff (1997) estimate separate earnings equations for men and women in formal and informal employment using data from household surveys for El Salvador, Mexico, and Peru, and they are able to control for worker, industry, and regional characteristics. They find that these differences explain between one half and two thirds of women's gross formal-informal employment gap for Peru and El Salvador. This implies a net formal employment premium in these two countries. Interestingly, once differences in worker, industry, and regional characteristics are controlled for, the gross positive formal employment premium among women workers in Mexico becomes a net informal employment premium.

Three important conclusions follow from this. First, the earnings of women in informal employment are low relative to those of women in

formal employment, and also relative to the poverty line. This is especially the case in domestic work. Second, there is a large gender earnings gap in informal employment, which is pronounced for the self-employed, although less pronounced for workers in microenterprises. The gender earnings gap is greater in informal employment than in formal employment. Third, the formal-informal earnings gap remains for most countries after controlling for differences in worker, industry, and regional characteristics, although this may not be the case uniformly across the region. The gross formal-informal employment earnings differential overstates the formal employment earnings premium as it fails to account for systematic differences in worker and job characteristics.

Women in informal employment and social protection

Concern with the scope and effectiveness of social policy in developing countries against the background of globalization has encouraged renewed interest in social protection. Social protection is increasingly understood in a wider sense to include all public interventions taken in response to unacceptable levels of poverty, vulnerability, and risk. It includes the provision of basic services and infrastructure, social insurance and market insurance, social assistance programs, as well as labor market regulations and labor standards (World Bank 2001, ILO 2001). Social insurance and employment protection are the two main components of formal social protection in Latin America (Barrientos 2004). Compared to industrialized nations, non-contributory social protection or social assistance programs are very rare in Latin America. Most countries in the region have strong employment protection legislation including legal restrictions on the grounds of termination, minimum length of termination notice, and severance compensation. This is the nearest equivalent to income support programs in industrialized countries, but it applies only to workers in formal employment. This section will therefore focus on social insurance, which had expanded to cover a range of contingencies before extensive reform in the 1990s, and alternative social protection instruments such as individual savings accounts, non-contributory programs, and labor standards.

Social insurance

Social insurance funds developed from the early decades of the twentieth century in the more advanced countries of Latin America (Mesa-

Lago 1991). In line with European social insurance programs, workers and their employers are required to make payroll contributions into a fund, which is used to pay benefits for specified contingencies. Initially the contingencies covered included sickness, funeral expenses, and widows' benefits, but later (mainly in the 1960s and 1970s) expanded to cover old age and service pensions, preventative and curative health care expenses, family benefits, unemployment or severance benefits, and housing credit. Social insurance funds developed piecemeal for specific groups of workers, resulting in considerable diversity of contributions and entitlements.

A feature of social insurance in Latin America is that participation is normally restricted to formal workers. In many countries informal workers, and especially the self-employed and the unwaged, are explicitly excluded. In other countries, participation in social insurance by these groups is voluntary, but administrative procedures and restricted entitlements discourage voluntary participation by workers with irregular employment and low pay.

Exclusion of these workers is common in social insurance programs elsewhere. Atkinson (1995) explains the emergence of social insurance in Britain as a response to rising economic risks associated with urban industrial employment. Compared to rural employment, urban industrial employment was discrete, with workers being either in work or unemployed, and provided few opportunities for older workers. Social insurance ameliorated these risks through support for the unemployed and old age pensions. To be sustainable and effective, social insurance required some measure of homogeneity in the pattern of risks affecting workers, and transparency in worker's behavioral responses to insurance. Social insurance therefore developed for workers in specific trades or regions, and excluded high-risk workers. This also explains, according to Atkinson, why pension schemes developed faster and further than unemployment insurance.

This perspective on the development of social insurance applies well to the situation in Latin America. Social insurance funds developed for specific groups of workers and pension schemes quickly became the largest component of social insurance. The exclusion of informal workers from social insurance in Latin America can be explained in the context of its sustainability requirements. Social insurance works imperfectly where risks are heterogeneous, and where the behavioral response of workers to insurance is opaque. There are, in addition, administrative reasons commonly put forward to justify exclusion of informal workers from social insurance. These are associated with the difficulties in calcu-

lating contributions and entitlements, but also with the irregular nature of their employment and earnings, and their vulnerability to unemployment. These also raise the costs to employers of managing employee participation in formal social insurance. As noted, these apply with greater force to female informal workers.

Argentina was the only country in Latin America with a social insurance fund dedicated to self-employed workers, the *Caja de Autónomos*. Self-employed workers were required to contribute to this fund according to defined categories of economic activity. Entitlements were awarded in terms of the contribution category of the self-employed. The majority of the self-employed worked in services, followed by manufacturing (Lopez and Monza 1995). The social insurance fund produced a surplus in the 1950s and 1960s, but from the 1970s onwards it developed large deficits. The financial imbalances were due to evasion (as only one in two self-employed contributed to the fund), a rapid expansion of retirement awards in the 1970s associated with the government decision to grant retirement pension to groups by exception, and softer entitlement requirements (Schulthess and Demarco 1993). The *Caja de Autonomos* was consolidated with other social insurance funds at the time of pension reform in 1994. The Argentine experience confirms the inherent limitations of stratified social insurance programs in incorporating informal workers.

The pattern of exclusion of women workers in informal employment applies to most areas of social insurance: maternity programs, severance compensation, unemployment insurance, work-related injury compensation, and disability pensions. Table 8.4 provides summary information. With few exceptions, core elements of formal social protection are not available for either female or male informal workers in Latin America.

The pattern of exclusion of female informal workers from formal social insurance can be observed most clearly in the context of maternity employment protection and benefit provision, as these apply exclusively to women. Table 8.5 shows social insurance's legal coverage, exclusions, and entitlements related to maternity. As the table illustrates, most countries explicitly exclude some groups of female informal workers. Only Colombia and Costa Rica extend maternity protection to all residents, while Chile covers all those in employment. Exclusion of domestic, agricultural, and family workers is common. Many countries exclude the self-employed (eight countries), some include the self-employed (seven countries), or offer coverage by voluntary affiliation (three countries). This information refers to legal coverage, but administrative requirements may in practice exclude women in informal employment.

Table 8.4

Legal Exclusion of Informal Workers in Latin America from Formal Social Protection Programs

Country	Categories of informal workers excluded from specific programs (X indicates the program is absent)						
	Maternity benefit	Family allowances	Work-related injury or disability insurance	Disability pension	Severance fund compensation	Unemployment insurance
Argentina	Self-employed Domestic	Self-employed Domestic	Self-employed Domestic		X	Self-employed Public sector Domestic Agriculture
Bolivia[1]	Self-employed	Self-employed	Self-employed		X	X
Brazil					Self-employed	Self-employed
Chile					Self-employed	Self-employed
Colombia		Self-employed	Self-employed	Self-employed Agriculture	Self-employed	X
Costa Rica		X	Self-employed		X	X
Cuba	Self-employed	X			X	X
Dominican Republic	Self-employed Domestic Unwaged relatives	Self-employed Microenterprises Domestic Homeworkers	Self-employed			
Ecuador	Self-employed	X	Not insured	Self-employed Unwaged relatives	Self-employed	Self-employed
El Salvador	Agricultural Domestic Casual	X	Self-employed Domestic Casual	Self-employed	X	X

(Continued)

Table 8.4

Legal Exclusion of Informal Workers in Latin America from Formal Social Protection Programs (continued)

Country	Categories of informal workers excluded from specific programs (X indicates the program is absent)					
	Maternity benefit	Family allowances	Work-related injury or disability insurance	Disability pension	Severance fund compensation	Unemployment insurance
Honduras	Self-employed Domestic Unwaged relatives Casual Temporary		Agricultural Domestic Casual			
Mexico	Self-employed		Not insured	Self-employed		Self-employed All workers below age 60
Nicaragua	Domestic Family	Self-employed Domestic workers	Self-employed Domestic workers	Self-employed		
Panama	Agriculture Unwaged relatives		Self-employed	Agriculture Unwaged relatives Casual		
Paraguay		Self-employed		Self-employed		
Peru	Self-employed		Self-employed	Self-employed	Self-employed Public Sector	
Uruguay		Self-employed	Self-employed			Self-employed Agriculture Domestic workers Public sector
Venezuela	Self-employed Casual Homeworkers Temporary		Self-employed Casual Homeworkers Temporary	Self-employed Casual Homeworkers Temporary		Self-employed Domestic workers Casual Homeworkers Temporary

[1] Bolivia has coverage by special programs only.
Source: U.S. Social Security Administration (1999); Cox-Edwards (1997); Lora and Pagés (1997).

TABLE 8.5

Maternity Entitlements in Latin America (1990s)

Country	Legal coverage[1]	Maternity benefit contribution qualification period in months	Maternity benefit earnings replacement rate	Maternity benefit duration in weeks	Maternity (% of urban entitlement index (0–1)	Female informal employment female employment in 1998	Adjusted maternity entitlement index (0–100)
Argentina	Employees, except domestic workers	10	100	18	0.57	51.4	29.1
Bolivia	All workers, but special programs only	4	90	18	0.70	72.1	50.4
Brazil	Employees and self-employed; special programs for public sector	0	100	24	1.00	51.9	51.9
Chile	All women workers	6	100	18	0.70	44.8	31.3
Colombia	To be extended to all residents	3	100	12	0.67	48.8	32.5
Costa Rica	Employees and self-employed	6	50	24	0.50	50.7	25.3
Cuba	Employees	2.5	100	18	0.82		
Dominican Republic	Employees, except high earnings white collar, domestic and family workers	7.5	50	12	0.18	46	8.4
Ecuador	Employees, except family workers	6	75	12	0.40	64.1	25.6
El Salvador	Employees and self-employed, except agricultural, domestic and casual workers	3	75	12	0.50	56.4	28.2
Honduras	Employees, except agricultural, domestic, temporary and family workers	11	66	12	0.17	64.1	11.1

(continued on next page)

[1] Legal coverage identifies workers legally entitled to participate in maternity programs, although in most cases actual coverage will be determined by social insurance contribution requisites. Two broad categories of workers are used: employees and the self-employed (in Spanish, asalariados and trabajadores por cuenta propia, respectively).

Source: Data from U.S. Social Security Administration (1999).

TABLE 8.5

Maternity Entitlements in Latin America (1990s) *(continued)*

Country	Legal coverage[1]	Maternity benefit contribution qualification period in months	Maternity benefit earnings replacement rate	Maternity benefit duration in weeks	Maternity (% of urban entitlement index (0–1)	Female informal employment female employment in 1998)	Adjusted maternity entitlement index (0–100)
Mexico	Employees	7.5	100	16	0.61	51.8	31.3
Nicaragua	All employees, except domestic workers; voluntary for self-employed and family workers	4	60	12	0.37	52	19.0
Panama	Employees, except agricultural and family workers, voluntary for self-employed	9	100	12	0.47	42.3	19.7
Paraguay	Employees, voluntary for self-employed; special programs for public sector	1.5	50	9	0.32	63.9	20.2
Peru	Employees; special programs	3	100	12	0.67	64.6	43.0
Uruguay	Employees, self-employed, and those receiving unemployment benefit	0	100	12	0.73	46.4	34.0
Venezuela	Employees, except temporary, causal, and home workers; special programs for public sector	0	66	18	0.64	46.6	29.8

[1] Legal coverage identifies workers legally entitled to participate in maternity programs, although in most cases actual coverage will be determined by social insurance contribution requisites. Two broad categories of workers are used: employees and the self-employed (in Spanish, asalariados and trabajadores por cuenta propia, respectively).

Source: Data from U.S. Social Security Administration (1999).

It is useful to consider country differentials in the generosity of entitlements. A maternity entitlement index was constructed by standardizing information on the qualification period required for entitlement, the earnings replacement rate, and the duration of maternity leave provided in Table 8.5.[15] The maternity entitlement index provides a single measure of the generosity of maternity entitlements. Figure 8.3 ranks countries in descending order according to the generosity of their maternity entitlements. With exceptions there is some association existing between higher values of the index and economic development. Interestingly, there is no clear association existing between women's activity rates and the generosity of maternity entitlements (as would be suggested by a demand-explanation of labor market regulation).

Where information on the share of women's formal employment is available, an adjusted maternity entitlement index is shown. This is computed simply by multiplying the index value by the fraction of the labor force in formal employment in each country.[16] The adjusted maternity entitlement index shows much less variation across countries than the unadjusted index.

Individual savings as social protection and informal workers

Alternatives to social insurance include individual savings plans, universal basic income programs, and labor standards (James 1999; Standing 1999). These are briefly discussed below with examples.

Recent welfare reforms in the region have aimed to replace social insurance programs with individual saving plans.[17] These have been introduced in pension, health insurance, unemployment insurance, and

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[15] The index was constructed by standardizing each variable as:

$$x_i^j = \frac{y_i^j - y_{\min}^j}{y_{\max}^j - y_{\min}^j}$$

where x is the index value for variable j and country i, and y is the observed value in the variable. The index has a range of 0 to 1. The maternity entitlement index is the simple average of the three variable indexes (Rama 1995).

[16] As the index values provide a relative measure (relative to the average), and the size of the formal sector is an absolute measure, the values for the adjusted index have no straightforward interpretation.

[17] See Folster (1999) for a discussion of the social protection based on individual savings.

FIGURE 8.3

Maternity entitlement index for Latin America.

Source: Data from U.S. Social Security Administration (1999).
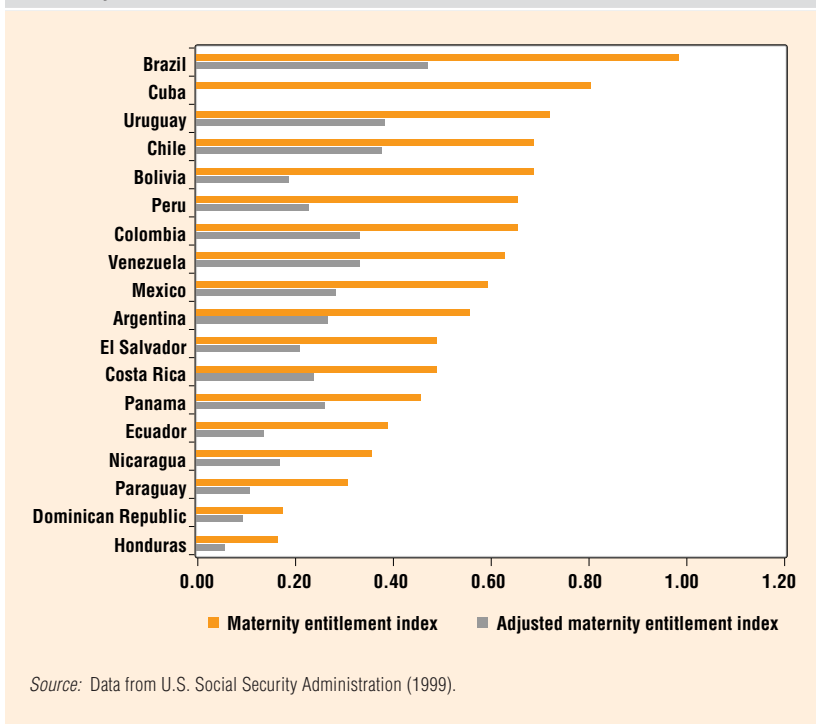
education.[18] Setting aside the issue of whether, in general, individual savings plans have advantages over social insurance programs, it can be seen that for female informal workers specifically, individual savings plans have significant disadvantages (Barrientos 1998b).[19] Workers with low pay and irregular employment are unlikely to be able to fully protect themselves against economic risk through saving. In the case of indi-

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[18] Individual retirement savings accounts have been introduced in Argentina, Bolivia, Chile, Colombia, Costa Rica, El Salvador, Mexico, Nicaragua, Peru, and Uruguay. Individual health insurance plans have been introduced in Argentina, Chile, Colombia, and Mexico. Chile and Colombia have extended the financing of education through demand subsidies. Individual savings unemployment accounts have been introduced in Chile and Colombia.

[19] See *Superintendencia de Administradoras Privadas de Fondos de Pensiones* (1999) for a study on extending pension plan coverage in Peru.

vidual savings for unemployment insurance, for example, and assuming that contributions to the individual savings plan are set as a fraction of earnings, workers with uninterrupted employment will probably end up with a balance in their accounts well in excess of their needs.[20] On the other hand, workers experiencing repeated spells of unemployment will not have been in a position to make sufficient savings.

Chile has developed an employment termination program aimed specifically at domestic workers (Barrientos 1998a). Employers of domestic workers are required to contribute 4.11 percent of pay into a termination savings account held with any of the private pension fund managers. The balance of the account is invested in interest-yielding financial assets in the same way as retirement savings accounts. In the event of the termination of employment, the domestic worker is entitled to the balance of the account. This has the main purpose of securing termination compensation for these workers, who are particularly affected by irregular employment. In addition, the program is intended to encourage domestic workers to access the range of financial services provided by pension fund managers, including voluntary savings and retirement savings accounts. Participation in retirement savings plans is voluntary for domestic workers in Chile, but the employment termination program is expected to strengthen their voluntary participation.

Colombia reformed its health system in 1995, introducing health insurance providers who collect payroll contributions and fund health care expenditures. Redistributive and solidarity objectives are a feature of the new system. The health insurance system includes two regimes. The contributory regime is for formal workers, and the subsidized regime is for informal or low-paid workers, and generally those not covered by the contributory regimes. The government collects solidarity contributions from formal workers and, together with funds from general tax revenues, subsidizes a basic health care package for those in the subsidized regime. There are for-profit or not-for-profit health insurance providers. NGOs have used government subsidies to extend coverage to informal workers. Specific case studies have been evaluated in Lund and Srivinas (2000) and in Centro Latinoamericano de Investigaciones de Sistemas de Salud [Latin American Center for Health Systems Research—CLAISS (1999)]. The evaluation shows that health insurance coverage of informal workers has expanded in Colombia, and that the plans are sustainable, but that the number of workers benefiting from these plans is small.

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[20] In fact, unemployment insurance schemes usually specify a maximum balance above which workers are not required to continue saving.

Non-contributory universal social protection
for informal workers

There are very few non-contributory universal programs in Latin America due to the prominence of social insurance models of social protection.[21] Brazil's *Previdencia Social Rural* (Rural Social Welfare) provides a rare example of a non-contributory pension and disability program to the rural poor. The 1988 Constitution extended universal entitlement to basic pension benefits to the old and disabled in informal rural employment. The program secures a monthly benefit equivalent to one minimum wage to men (over age 60) and women (over age 55) who are laborers or in subsistence agriculture, fishing, or mining, and to their dependants in the event of the death or disability of the main beneficiary. The reform extended pension benefits especially to women workers,[22] and in the south of Brazil, 63.2 percent of beneficiaries are women. Evaluation studies have shown that the program has had an important impact on poverty reduction among beneficiaries, but that it has also had an effect in helping beneficiary households to move from subsistence agriculture to sustainable household production (Delgado and Cardoso 2000). It has also been found that school enrollments among children have risen in households with program beneficiaries (Carvalho 2000). In the context of structural change and liberalization of the agricultural sector in Brazil, the pension and disability benefit has become a key instrument supporting rural development and agricultural policy.

Labor standards, codes of conduct,
and women in export horticulture

Trade liberalization and globalization have created the conditions for a rapid expansion of employment in export horticulture in Latin America. More broadly, there has been a rapid expansion of non-traditional exports of fruit (Chile, Mexico, Brazil), flowers (Colombia), and sea products (Chile, Peru, Ecuador). Export production in these sectors is directly inserted within supply chains to the northern countries. Women account for the majority of workers employed in these sectors, and employment

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[21] Provision of universal health care, however, is a stated aspiration of most countries in the region.

[22] Prior to the reform, a lower benefit was paid to heads of households over age 65, with only one benefit paid per household. Disability and survivor pensions are now paid to either female or male partners.

is largely informal, flexible, and temporary. For example, women make up 52 percent of temporary workers in the fruit export sector in Chile (Barrientos 1996; Barrientos et al. 1999). In some cases, the expansion of these sectors produces seasonal migration from the cities to the country-side of temporary workers, and forms of sub-contracted employment to gang masters are common. The implementation of core labor standards and the emergence of codes of conduct imposed by northern suppliers on private producers have led to some improvement in social protection for these workers. The MERCOSUR and NAFTA regional trade agreements have reinforced these standards. The confluence of international labor standards, enforcement of national labor regulations, and pressure from northern suppliers could provide the conditions for improving basic social protection for women in export horticultural employment.

The main conclusions from this section are that women in informal employment are largely excluded from formal social protection in Latin America. Social insurance programs have shown inherent limitations in extending social protection to informal workers. Alternatives to social insurance include individual saving plans, universal basic income programs, and labor standards. It was shown with specific examples that these may, given appropriate design features, help in extending social protection to women in informal employment. At the same time, and in the context of current conditions in Latin America, these alternatives are limited. Individual saving plans in pensions and health in Latin America have not succeeded in extending coverage to women in informal employment, except where government subsidies and NGOs provide the necessary financial and institutional support. A universal basic income program appears to have been successful in Brazil's rural sector, but it constitutes an isolated example in Latin America, and focuses on older groups only. International labor standards may at best extend limited social protection to some workers in some sectors. Broader, and integrated, institutional reform is needed. The next section considers the main policy issues in extending social protection to women in informal employment.

Policy issues related to women in informal employment and social protection in Latin America

As argued above, focusing on informality in the context of employment encourages a different view of the relative significance of structural and agency factors in informal employment. The main thrust of policy on

informal employment and social protection in Latin America relied on economic development gradually reducing informal employment, and on extending credit facilities and training to microenterprise development (Mezzera 1989).[23] Focusing on informality in the context of employment gives a wider, and complementary, role to agency factors. For some women workers, informal employment is triggered by the following factors:

- The need to avoid social insurance payroll taxes in order to generate enough net income to satisfy basic household needs (as shown above, this is especially the case for women in informal employment);
- Earnings in formal employment are, in specific sectors or for specific skill levels, too low relative to informal employment earnings;
- Earnings in formal employment fail to reward individual worker productivity (this may be a consequence of discrimination against women in employment and pay);
- Receipt of social insurance benefits is unlikely or uncertain (this may be a consequence of women's discontinuous employment, of existing gender bias in benefit entitlement, or of direct exclusion from social protection programs);
- High payroll taxes combined with unlikely or uncertain benefits;
- Workers are covered through family members (this especially applies to women).

This opens up a wider policy agenda, including, in addition to economic development: reducing the costs of formal social protection, reducing earnings inequality, reducing discrimination in employment, removing exclusion in formal social protection and supporting informal social protection initiatives, and unbundling formal social protection programs, to name the most important. These are discussed in more detail below.

Reforming labor market institutions

Women in informal employment share with other women workers significant discrimination in pay and employment opportunities, and, as shown in the paper, these may apply more strongly to women in infor-

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[23] An excellent discussion of how to extend social protection to informal workers can be found in Mesa-Lago (1992). It has an interesting section on policy recommendations, some of which are included here.

mal employment (Barrientos 1997). Eliminating gender discrimination in the labor market is an important, though longer term, policy objective (ECLAC 2000a). A key to women's disadvantage in the labor market is the need to reconcile the responsibilities arising from the family and paid work. Labor market institutions and regulations addressing the social protection needs of women should be developed, and these should be designed specifically to include women in informal employment.

A key factor in the growth of informal employment is labor market liberalization. Proponents of labor market liberalization have argued that informal employment in Latin America is, in the main, a consequence of strict employment protection regulations and high non-wage labor costs. Labor market liberalization should have been associated with a reduction in the share of informal employment, but instead it has fuelled a growth in informality. Effective and stronger labor market institutions are needed to turn the tide of informality (Weller 1998b). From the perspective of women in informal employment, it can be argued that the emphasis in Latin American countries on employment protection (associated with male breadwinner social protection models) is unhelpful. The emphasis of employment protection should shift toward supporting active labor market policies facilitating investment in workers' skills, and toward setting in place voice and participation mechanisms in the workplace, which alone can secure strong worker-firm attachment. Labor market policies that facilitate women's efforts in combining work and family responsibilities are very important. These extend beyond child care provision, as important as this is, to cover women's financial and legal independence.

Labor market regulations are reasonably well-developed in Latin America, but their implementation is limited by the resources available to the regulators, the weakness of labor organizations, and the dominant influence exercised by employer groups. It is interesting that much of the recent labor market reform in Latin America has taken place without extensive change to existing legislation and regulation (Lora and Pagés 1996). The need for stronger labor market institutions in the region may be satisfied to an important extent through a stronger commitment to enforcing existing regulations.

Reforming welfare institutions

Social insurance reform in Latin America has led to a decline in coverage and, therefore, a decline in social protection. In part this is due to the redesign of welfare programs. Reliance on individualized saving as a social

protection device effectively divests social protection programs of key redistributive and insurance properties. Formal social protection programs put the emphasis on formal (and male) workers as the key constituency. This is true of the old social insurance welfare institutions as well as the new, reformed individual capitalization institutions.

It is important to design welfare institutions so that they are inclusive of informal workers. This implies a change in perspective. From the perspective of women in informal employment, the following points have been identified in the context of pension provision, but have wider import (Barrientos 1998a; Barrientos 1998b):

- Eliminating gender biases in entitlements will make participation in social protection programs more attractive. Unfortunately, gender bias in program design is common.
- Making pension savings more liquid and flexible would be a key advantage for workers with irregular employment and low pay. At present, pension savings can only be withdrawn at retirement or death. This is not very attractive to workers straddling formal and informal employment.
- Relaxing entitlement to basic pension guarantees, so that all contributions to retirement saving plans count would benefit those in informal employment. In Argentina, for example, minimum pension benefits are guaranteed only after workers complete 30 years of contributions. It is unlikely that women in informal employment will manage to have such a long contribution record.
- Unbundling insurance coverage for contingencies may provide a better match for the social protection needs of heterogeneous informal workers. Self-employed women will be attracted to contributing to disability insurance, but are unlikely to contribute to old age pensions because they would be keener to invest in their businesses.

It is important to encourage voluntary savings as a means of ensuring social protection, but this will not be enough to secure social protection for informal workers, and especially for women. Non-contributory programs will be needed to assist vulnerable workers. There are few examples of this in Latin America, but evidence from Brazil's *Previdencia Social Rural* shows that non-contributory pension programs that target informal and vulnerable workers and their households can be sustainable, and can generate dynamic processes that re-

duce economic risk on a longer term basis.[24] A mixture of contributory and non-contributory programs complemented by subsidies and institutional support by governmental and nongovernmental organizations can, as the Colombian microhealth insurance case demonstrates, make inroads in extending social protection to informal workers and other vulnerable groups.

Women's informal employment and life-course choices

Life-course factors are very important to women's informal employment.[25] Informal employment is an important gateway into the labor market for younger women lacking formal educational qualifications. At the other end, informal employment is commonly used by older women as a means of avoiding age-related decline in labor market opportunities and for postponing exit from the labor market. Informal employment is a gateway out of paid employment and into retirement. Informal employment is, in a life-course context, a consequence of the household division of labor and of women's disadvantage in the labor market.

While informal employment provides opportunities for women that are not available in formal employment, there are also long-term adverse effects of informal employment on women's earnings, income, and well being. Eliminating these adverse effects involves integrated, lifelong interventions aimed at supporting women's life-course choices. It involves improving women's access to education, as well as the quality of education. This is particularly necessary in Latin America where large inequalities in access and provision by income status remain (Gajardo 1999). Policies to facilitate the transition from school to work for women can be effective in preventing involuntary informal employment. It also involves securing women's autonomy in old age by securing basic income in old age independent of employment status. This has been achieved in other countries by taking account of women's care-related employment gaps in the calculation of entitlements (the United Kingdom, for example). As can be seen, extending social protection to women in informal employment requires supporting life-course choices early and later in life.

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[24] Although on paper, the program has contribution requisites, these are satisfied through an affidavit from the applicant supported by a letter from a relevant trade union.

[25] See Roberts (1991) for an early discussion on informal employment and the life course.

Data issues and further research

This chapter has identified a number of areas where further research is needed, as well as gaps in available data. These are as follows:

- The availability of household survey data in the region has greatly facilitated research on informal employment, but cross-section data place some limitations on research. On the other hand, longitudinal studies are costly. The use of retrospective questions on economic activity and employment in cross-section surveys (employment status a year ago, for example) may provide important additional information at very marginal extra cost (see, for example, Henriquez and Perez 1994).
- It would be useful to examine with consistent data and methods the gender and formal-informal earnings gap across countries in the regions with the available household survey database.
- A study of gender bias in formal social protection programs across the region is overdue.
- The study of informal social protection, and especially microinsurance, could be advanced by the development of an inventory of such programs in the region, and by comparative studies which take account of gender differences (see Lycette and White 1989).
- There is a gap in attitudinal surveys of workers in informal employment regarding their perception and ranking of economic risk, demand for insurance, and strategies to reduce the impact of economic risk. These would clarify the issue of what changes are needed to make formal social protection attractive to these workers, and the issue of whether unbundling social protection would help expand coverage (see a recent study from Packard 2002).

Conclusion

It has been argued in this chapter that there is an important gender dimension to informal employment in Latin America. Women are over-represented in informal employment, and, within informal employment, women concentrate in the lower paid and more precarious jobs. Their over-representation in informal employment increases their vulnerability, as entitlements to social protection in Latin America are largely secured through formal employment.

The chapter considers informality in the context of employment, and defines it by the transfer and concentration of economic risk onto workers. Economic crises, labor market liberalization, and welfare reforms have contributed to the growth of informality in the region, and especially to the growth of women's informal employment. In 1998, 52 percent of women workers worked in informal employment. The self-employed account for just below one half of women in informal employment, domestic work accounts for a third, and microenterprise employment for the residual. Differences exist across countries in the region in both the share of informal employment and the relative size of the different component groups, but variations in self-employment are dominant. The average earnings of women in informal employment are lower than average earnings of women in formal employment, and they are also lower than men's.

Access to social protection by women in informal employment is restricted both by the design of social insurance programs and by the precarious nature of their employment and low pay. Social protection entitlements in the region depend largely on employment status and exclude workers in informal employment. This applies to the whole range of social protection programs. The chapter argues that extending social protection to women in informal employment requires that consideration be given to reforming labor market institutions and social protection programs. The reforms should aim to reduce women's disadvantage in the labor market, to redesign social protection programs to include women in informal employment, and to establish non-contributory programs where needed. It is also important to develop life-long interventions supporting women's life-course choices.

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9

Pension Reforms and Incentives for Contribution Among Women

Alejandra Cox Edwards

Payroll taxes are earmarked to finance programs that benefit workers—primarily pensions, although health, housing and training are popular additions. By and large, these programs have been designed to finance "group" benefits—that is, payroll contributions finance programs for all workers. In the absence of a direct link between individual contributions and individual benefits, payroll contributions are a tax, and program benefits are an entitlement. The viability of programs with this type of design depends on the effectiveness of tax collection systems and the capacity of the programs to ration benefits. In Latin America, weak tax collections systems, tax evasion, and tax avoidance have been pervasive, leaving the bulk of funding for these programs to the central government budget. Recent reforms have redirected payroll contributions to "individualized" pension benefits, or simply eliminated the payroll tax as a funding source for specific programs.[1] These reforms represent significant reductions in payroll taxes, particularly for groups that did not benefit from the old programs, mainly women.

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[1] Chile, for example, eliminated the earmarked contribution to fund training programs in the early 1980s, and introduced a tax credit incentive to subsidize training in the private sector.

This chapter examines the effect of pension reforms on workers' incentives to formalize employment contracts. If expected pension benefits fully depend on individual contributions, there is an added incentive to formalize employment contracts or pay social security contributions. The focus here is on characteristics of the pension programs because this is the area where the region has seen policy change. Chile launched a full pension reform in 1981; Argentina and Colombia carried out pension reform in 1993; Costa Rica and Peru followed in 1995; Uruguay in 1996; Mexico in 1997; and El Salvador and Venezuela in 1998.

Both traditional and reformed systems are financed by payroll contributions, but there are key differences in how pensions are determined. In the traditional systems, pensions are defined benefits (DB). This means that pensions are set according to a formula based on the worker's earnings and years of service. Contributors qualify for pension benefits after a certain age and after contributing a minimum number of years. They receive benefits until death, and a reduced amount is inherited by surviving spouses or dependent children. These pre-established formulas give people a sense of security, but in reality the traditional systems are unsustainable. Workers are faced with poor incentives to contribute and strong incentives to maximize pension benefits. The tendency to evade or avoid paying taxes is often facilitated by poor fiscal controls.

Reformed systems have moved away from defined benefits, at least partially. A strict defined contribution (DC) benefit has been introduced, which is a function of the accumulation of funds in an individual account. They also combine the DC benefit with a distributive-type benefit that either guarantees a basic pension or tops up the DC benefit, aiming at a basic pension guarantee. This distributive benefit is typically restricted to individuals who have made a minimum level of contributions and is determined by a DB formula.

The close link between individual benefits and individual contributions as determined by the DC pension changes labor market incentives in a fundamental way. Individuals begin to see payroll contributions as a deferred payment rather than a tax. This is equivalent to increasing labor compensation by holding labor costs constant, a clear improvement in labor market efficiency. This issue has been addressed in the literature,[2] but less attention has been given to the fact that these labor mar-

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[2] See Edwards and Edwards (2002) and Siebert (1998) for discussions regarding the Chilean reform. In addition, the papers collected in Gruber and Wise (1999) analyze in great detail the way social security affects labor-force decisions of older persons in 11 industrialized countries.

ket effects are likely more pronounced for specific groups of workers.[3] As will be made clear, there are some important gender differentiated effects, but there are also significant differences in effects among women of different education levels.

This chapter proceeds as follows: the first section uses a simple demand-and-supply model to describe the labor market effects of social security reforms, paying particular attention to the features of reform that are likely to affect formal employment. The second section focuses on the characteristics of the Chilean reform, and presents estimates of "money's worth" ratios, which are the ratio of discounted benefits to discounted contributions. If this ratio is equal to one, it means that contributions pay off as if funds were invested at the discount rate. If the ratio is less than one, it means that contributors are taxed. These estimates indicate that (*a*) the payroll tax was substantially reduced in Chile with the social security reform, and (*b*) the relative reduction of the payroll tax was larger among women. The third section examines repeated cross-section data for Chile, looking for evidence on changing patterns of behavior among women. The most important evidence presented is an increase in the proportion of employed women who make social security contributions—or who are formally employed. The final section presents the main conclusions.

Social security reforms and payroll taxation

Figure 9.1 presents a simple demand-and-supply model of the labor market. Employment is measured on the horizontal axis, and the wage rate is measured on the vertical axis. This simple model assumes that all labor is homogeneous and belongs in the same market, but it is useful as it illustrates the effect on the labor market of a policy tool. The upward-sloping function S_0 depicts the supply price of labor, or the reservation wage at which workers are willing to supply various quantities of labor. The downward-sloping function, D_0, depicts the value of the marginal productivity of labor, or the maximum wage that employers are willing to pay for various quantities of labor. In the absence of any taxes, the equilibrium level of employment will be E_0, and the equilibrium wage will be w_0.

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[3] See James, Edwards, and Wong (2002) for a comparative analysis of the gender impact of reforms in Argentina, Chile and Mexico. The emphasis of this paper is on the impact of reform on individual pensions and deals less with labor market incentives.

FIGURE 9.1

Impact of Payroll Contributions on Labor Market Demand and Supply

Source: CELADE (1998)
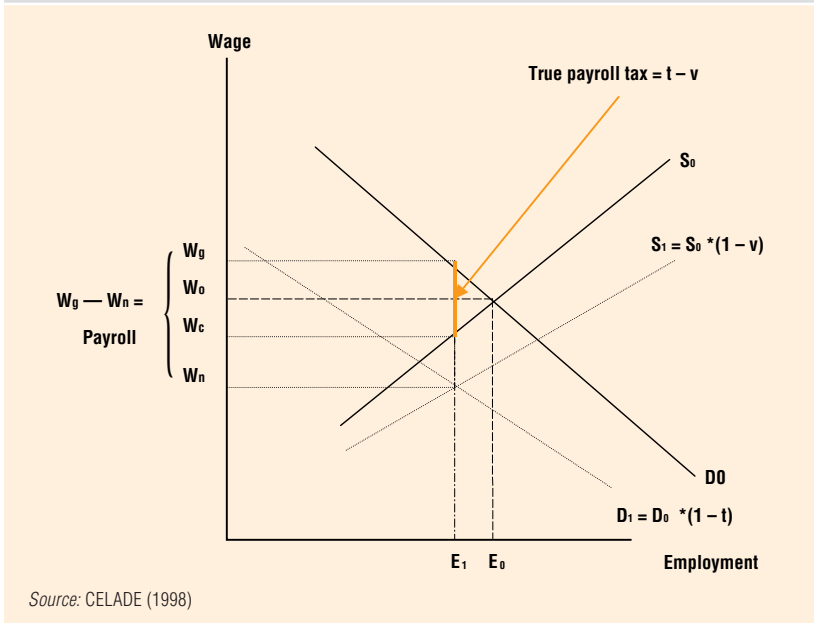
A payroll contribution equivalent to t percent of the gross wage[4] can be represented by a downward shift of the labor demand to D_1, where $D_1 = D_0 * (1 - t)$. This shift will tend to reduce the equilibrium level of employment, and distribute the tax burden between employers and workers. The gross wage would go up by less than t percent, and the net wage will fall somewhat.

However, the analysis is not complete if the labor market effects of the benefits associated with the payroll contribution are ignored.[5] If there are benefits directly linked to the payroll contributions, e.g. social security, workers recognize that their compensation for working includes take-home pay plus a "social security" benefit. In other words, the payroll contribution and its associated benefits reduce the minimum net wage at which workers are willing to supply their labor. The combined effects of the payroll contribution on labor costs, and the workers' valuation of the associated benefits on labor supply, lead to a new equilibrium. To see

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[4] This t percent combines employer and employee contributions.
[5] See, for example, Musgrave (1959) and Summers (1989).

this, let v, also measured as a percentage of the gross wage, represent the value to workers of the benefits associated with the payroll contribution. Then the upward-sloping function S_1, where $S_1 = S_0{}^*(1 - v)$, depicts the net wage workers are willing to accept once the value of benefits associated with the payroll contribution ($v * S_0$) are subtracted from the gross wage. The function D_1 depicts the net wage that employers are willing to pay, given that they are making a payroll contribution of t percent of the gross wage. The equilibrium level of employment E_1 will be determined by the intersection of the functions D_1 and S_1.

The closer v is to the tax rate t, the smaller the impact on the labor market of the mandated contribution. If workers valued the payroll contribution at face value, they would be willing to accept a net wage (or take-home pay) equal to $w_1 - t$, and the level of employment would remain at E_0. In Figure 9.1, it is assumed that $v < t$. The labor market will reach equilibrium with a gross wage equal to w_g and a net wage equal to w_n, and the equilibrium level of employment E_1. The labor compensation as seen by employees is $w_c = w_n + v$. The payroll contribution in excess of v is, therefore, a true labor tax. The labor market distortion caused by the payroll contribution is a function of $t - v$.

This simple model has powerful implications for the analysis of the welfare effect of payroll contributions. Payroll contributions distort the labor market equilibrium to the extent that the programs funded by them are not fully valued by contributors. Thus, any analysis of the labor market effect of payroll taxes must begin with an assessment of the value to workers of mandated contributions.

In all Latin American countries, the employer and/or worker make a contribution toward the worker's old-age pension. Yet cross-country differences in the design of the systems imply that the labor market effects of relatively similar payroll contribution rates can be very different. Table 9.1 lists the key features of the contribution and benefit rules for the old and new systems. The various rules establish if and how much additional pension benefits an individual contributor would receive if he or she were to contribute 1 peso more to the social security system. The features of these rules are described below.

- *Funding of own pension.* In the old systems, individual pensions are financed from payroll contributions to the general social security fund. In contrast, in the new systems, the DC portion of the individual pension is financed from a contribution to an individual account. This change links 1 peso of contributions directly to future pension benefits, reducing $t - v$.

- *Benefits*. In the old systems, pension benefits are set by formulas that create a gap between t and v. In contrast, in the new systems, the DC portion of the individual pension is financed strictly from the individual account. Since the DB formula typically takes the last 5 or 10 years of wages, a relative low rate of growth reduces the money's worth ratios for women. In contrast, a DC system would accumulate contributions made at any given point of the life cycle at the market rate of return to produce a fund at the time of pension eligibility. Women have relatively more to gain from this feature of reform, because female wages tend to grow less than male wages throughout the corresponding life cycle. This change creates a marginal value for each peso of contributions, which the old systems lacked.

- *Funding of survivor benefits*. Survivor benefits are usually mandatory in social security systems. These benefits are important for women who have longer life expectancy and marry men who are typically three years their senior. The precise arrangements used to finance these benefits have changed with reforms. In the old systems, the funding of survivor benefits comes from the social security general fund. Thus, if a married man has the same work and earnings patterns as a single man, both receive the same pension, but the married man will also bequeath a pension to his widow. In contrast, in the new systems, husbands are more likely to be required to purchase insurance or joint annuities to finance survivor benefits. No longer can beneficiaries obtain benefits for added family members without bearing the implied cost. This change reduces cross-subsidies from single to married contributors, and from married women who work to married women who do not work.

- *Compatibility between own pension and survivor benefits*. In many of the traditional pay-as-you-go systems, a woman eligible for her own pension and a widow's pension had to choose one of the two. In contrast, in the new systems, the DC portion of the individual pension is the property of the individual independently of other income sources. In the case of Argentina, Chile, and Colombia before reforms, the typical married woman in the labor force could not combine her own pension and the widow's pension. This rule implied a large $t - v$ difference for married women, or a large disincentive to be formally employed. Reforms removed this restriction, improving the incentives for women to contribute. With the new rules, every peso of contribution adds to future benefits independently of marital status, the spouse expected pension, or other related values.

- *Eligibility.* In the old systems, eligibility requirements to obtain pension benefits included a minimum age and a minimum number of years of contributions. In contrast, in the new systems, the DC portion of the individual pension will be available to the contributor after he/she satisfies the minimum age requirement independently of past work patterns. Clearly, the pension benefit for a contributor with only two years of contributions will be small, but it will not be zero. This change creates a positive marginal value for each peso of contribution even if the person has a weak attachment to the labor force. In the old system, individuals who worked sporadically had no incentive to make social security contributions.
- *Indexation.* In the old systems, pension benefits were not indexed. Pensioners would get occasional adjustments to correct for inflation, but there was no guarantee to protect pension benefits against inflation erosion. In fact, inflation was often the mechanism through which social security systems dealt with deficits. In contrast, in the new systems, the DC portion of the individual pension is a function of the accumulation of funds plus interest. This link eliminates the inflationary pressures of the old systems. Furthermore, to the extent that interest rates are market determined, accumulated funds will grow at a nominal interest rate, which includes inflation.
- *Postponing pension age.* In many of the traditional pay-as-you go systems a person who reaches benefit eligibility age has to retire, those receiving pensions cannot work formally, and postponing pension implies the refusal of benefits. In contrast, in the new systems, retirement age and pension age are independent. In fact, there is a very strong incentive to postpone retirement and/or pension age. The DC portion of the individual pension will grow if the individual contributes beyond the benefit eligibility age and will grow as expected survival falls. This change is also very important for women who typically are eligible for pension benefits five years earlier than men, but have longer life expectancy and more career interruptions. Given the continuous increase in life expectancy, a system that offers individuals an actuarially fair option to continue working after reaching benefit eligibility age is more desirable than one that discourages work and pushes individuals to draw their pensions as soon as they are able.

Some of the features described in Table 9.1 have particularly strong implications for women's valuation of contributions; these features are listed in Table 9.2. In particular, a required period of contributions to

TABLE 9.1

Contribution and Benefit Features of Old and New Pension Systems

Design	Old system	New system	
	Pay-as-you-go	Defined Contribution	Distributive Program
Funding of own pension	Payroll contribution to general funds	Payroll contribution to individual account	Payroll contribution to general funds and/or other taxes
Funding of survivor benefits	General funds	Reserve put aside from contributor's funds	
Benefits	Formula defined benefit	Annuity funded by accumulated contributions	Complementary or fixed benefit, usually means-tested.
Eligibility requirement	Minimum age and at least X years of contributions	Minimum age	Minimum age and at least Y years of contributions. May be means-tested.
Indexation provisions	Political decision	Yes	Political decision
Effect of receiving survivor benefit	A woman with the right to her own pension may not be able to combine it with a survivor benefit	Own pensions and survivor benefit are added	Eligibility to this benefit is less likely with survivor benefit
Effect of postponing pension age	Loss of benefits	Continue accumulation, postpone benefit withdrawal	Loss of benefit

TABLE 9.2

Three Social Security Rules that Affect Value of Women's Contributions

Country	Minimum years of contributions to qualify for pension benefits		Minimum years of contributions to qualify for minimum pension guarantee		Compatibility between own pension and survivor benefit	
	Before reform	DC benefits after reform	Before reform	After reform	Before reform	After reform
Argentina	30	Zero	30	30	No	Yes
Chile	10	Zero	10	20	No	Yes
Colombia	18	Zero	18	18	No	Yes
El Salvador	25	Zero	25	25		Yes
Mexico	25	Zero	25	10		Yes
Peru	5	Zero	5			
Uruguay	35	Zero	35	35		Yes

gain benefit eligibility results in contributions having a zero marginal value among women with low attachment to the labor force. Lifting that minimum requirement represents a significant reduction in the payroll tax for these women.

As shown in Table 9.2, before the reform the minimum number of years of contributions to qualify for pension ranged from 5 years in Peru to 30 years in Argentina. After reforms, in no country is there a minimum contribution to access the DC portion of the individual benefit. The reforms have very different treatments for the requirement to access the minimum pension guarantee or the flat pension. Uruguay and Argentina maintain a high floor of 35 and 30 years of contributions, respectively. El Salvador left the requirement at 25 years of contributions, and Colombia left it at 18 years of contributions. Chile lifted the requirement from 10 to 20 years of contributions, while Mexico lowered it from 25 to 10 years.

A minimum pension guarantee as is used in Chile, acts as a complement to the DC individual pension whenever a person's own funds are insufficient to generate a pension above the minimum. The minimum pension guarantee mostly benefits women, given their low rates of pay and limited years of contributions. A flat pension benefit—as is used in Argentina—is a complement to everyone's DC individual pension. Since benefits are not a function of behavior, the flat pension benefit has neutral labor market effects. However, the fact that this benefit is funded from payroll contributions generates large cross-subsidies within the

system. For high-wage earners, $t - v$ goes up, and for low wage earners, $t - v$ goes down.

In short, there are many aspects of pension system design that affect individual valuation of contributions, and reforms do not affect all individuals in the same way. To deal with this heterogeneity, the analysis in the next section looks separately at men and women, distinguishes men and women of various schooling levels, examines the case of married and single men and women separately, and also considers the case of individuals with very weak attachment to the labor force. In all, there are 50 individual or group "types" for which estimates of money's worth ratios are offered. Calculations of money's worth ratios rely on careful understanding of the system's rules and sensible estimates of contributions to the system. The availability of previous research on Chile makes it a natural choice for a case study here. In addition, the case of Chile is particularly attractive because other reforms in health and training have reinforced the pension's reform effect in reducing the labor tax.[6]

Estimating the value of payroll contributions toward pensions before and after reforms in Chile

Estimates of the present value of contributions in the systems before and after reforms in Chile are based on estimated wages and employment patterns for synthetic cohorts (Edwards 2001 and James, Edwards, and Wong 2002). The contribution toward pensions was 26 percent just before the reform. It is assumed here that 23 percent goes to the pension fund and 3 percent is used to finance administration costs and life and disability insurance—the reformed system charges 3 percent for the equivalent services. The current system contribution rate toward pensions is 10 percent.

To calculate money's worth ratios, one divides the present value (PV) at age 65 of estimated pension benefits, by the interest-compounded value of estimated contributions to age 65. The analysis applies the old and new systems' rules to estimate pension benefits, given the contribution flows. The estimation of benefits relies on current survival age for men and women at age 65, the discount rate, and the systems' rules that determine individual benefits. For a thorough discussion of the method used, see Edwards (2001).

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[6] For a more detailed description of the Chilean reform, see Edwards (2001).

The analysis is done for representative men and women in five schooling categories. The employment history of a representative person throughout his/her life cycle is estimated from sample average employment rates by age within the corresponding schooling category. Corresponding wages are estimated from sample average wages of full-time workers by age within the corresponding schooling category. There are important differences in wages and employment patterns across gender and schooling categories. Regarding wages, women with a given level of schooling and age earn less than the equivalent man, resulting in lower levels of contributions to the system. Regarding employment, individuals with more schooling start work at a later age and have stronger labor-force attachment relative to their counterparts. Thus, they tend to contribute steadily to social security. Less educated individuals, particularly women, tend to have more interruptions in their work careers relative to more educated women.

In order to capture the old system's rules to qualify for the minimum pension, it is necessary to distinguish a category of woman who works and contributes for exactly 10 years. To illustrate some of the features of the old and new systems' benefits rules, particularly in regards to the funding of survivor benefits, it is necessary to distinguish married and singles. The category "average household" combines contributions and/or benefits for representative men and women within a schooling category as defined above. This category allows a nice comparison of the impact of the system's rules on the household rather than on individuals. Finally, the analysis considers the case of "full-career" women. They represent women who work as intensely as men within each schooling category, but earn the average wage of women in their corresponding schooling category. The purpose of separating this category is to show how patterns of labor-force participation affect the money's worth ratio before and after reform.

Estimated money's worth ratios are given in Table 9.3. The top panel shows calculations relevant for the old system, where money's worth ratios are generally less than one. This indicates that contributors were taxed in the old system—or that the payoff in benefits was not sufficient to offset contributions. The extreme case featured is that of individuals who worked less than 10 years, with estimated ratios of "zero". These individuals got nothing in exchange for their contributions because they did not meet minimum qualifications for benefits. As a general rule, money's worth ratios are higher for individuals with more schooling. This is explained by the benefits formula that combined salaries in the last 10 years of work, and the number of years of contributions. An

TABLE 9.3

Money's Worth Ratios of Required Contributions Before and After Pension Reform in Chile; Different Groups and Education Levels

	Incomplete primary	Incomplete secondary	Complete secondary	Up to 4 years post-secondary	More than 4 years post-secondary
Present value (PV) of benefits divided by PV of contributions before reform					
Married man	0.4	0.5	0.5	0.6	0.6
Single man	0.4	0.5	0.5	0.6	0.6
Average married woman	0.5	0.6	0.8	0.8	0.8
Full-career married woman	0.6	0.6	0.7	0.5	0.5
Married woman / 10 years of contributions	1.4	1.5	1.4	1.5	1.6
Average single woman	0.5	0.6	0.8	0.8	0.8
Full-career single woman	0.9	0.9	1.0	0.6	0.6
Single woman / 10 years of contributions	0.6	0.6	0.4	0.5	0.4
Woman / less than 10 years of contributions	0.0	0.0	0.0	0.0	0.0
Average household	0.4	0.5	0.6	0.6	0.6
Present value (PV) of benefits divided by PV of contributions after reform					
Married man	0.9	0.8	0.8	0.8	0.8
Single man	1.0	1.0	1.0	1.0	1.0
Average married woman	3.2	2.4	1.5	1.2	1.3
Full-career married woman	1.6	1.3	1.2	1.2	1.3
Married woman/ 10 years of contributions	1.9	1.9	1.9	1.7	2.0
Average single woman	3.2	2.3	1.3	1.0	1.0
Full-career single woman	1.5	1.1	1.0	1.0	1.0
Single woman / 10 years of contributions	1.0	1.0	1.0	1.0	1.0
Woman / less than 10 years of contributions	1.0	1.0	1.0	1.0	1.0
Average household	1.6	1.3	1.1	1.0	1.0

interesting comparison is the money's worth ratios for "single women/ 10 years" and "married women/10 years." Both are assumed to contribute in the same way, but married women may be eligible to receive survivor benefits at the end of their life cycle. This option increases the PV of benefits substantially.

The bottom panel of Table 9.3 shows money's worth ratios according to the new system's contributions and benefits rules. A significant portion of these ratios is equal to one, indicating that contributors get benefits that exactly match their contributions. This is not surprising since the new system pays benefits according to contributions. However, married men show ratios below one and married women show ratios above one. These deviations from one are mostly explained by the rule on funding survivor benefits. In addition, some of the large deviations of ratios from one on the left-side columns—corresponding to low schooling or low-wage categories—are explained by the impact of the minimum pension guarantee. This guarantee is more likely to complement pensions of individuals who accumulate insufficient funds, which includes women in the low schooling categories.

From the point of view of labor market incentives—or money's worth ratios—all these groups gained from reform.[7] This positive effect is captured in Table 9.4, which shows the increase in money's worth ratios due to reform for each of the individual or group "types." These ratios are derived from the differences between the bottom and top panels in Table 9.3. Differences are all positive, except for full-career single women with secondary schooling. A new column, with the average difference in ratios across schooling groups, was added to Table 9.4. Using this new column, the individual or group "types" were ranked from the highest to the lowest difference. By this measure, married women gained the most, followed by single women and people working less than 10 years. All other groups gained, but to a lesser extent.

As indicated so far, the traditional DB systems taxed all workers and used the social security system to direct important cross-subsidies. Some individuals received expected and unexpected gains, and many others tried to avoid paying contributions in order to escape taxation. Women with short active careers in the labor market and married women had relatively little to gain from making social security contributions toward pensions. Reforms have brought benefits much closer to contributions

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[7] This not a comparison of pension benefits before and after reform. Readers interested in this issue should see James, Edwards, and Wong (2002).

TABLE 9.4

Change in Money's Worth Ratios Following Pension Reform in Chile; Different Groups and Different Education Levels

	Incomplete primary	Incomplete secondary	Complete secondary	Up to 4 years post-secondary	More than 4 years post-secondary	Simple average
Average married woman	2.7	1.8	0.8	0.5	0.5	1.2
Average single woman	2.7	1.7	0.5	0.2	0.2	1.1
Woman / less than 10 years of contributions	1.0	1.0	1.0	1.0	1.0	1.0
Full-career married woman	1.0	0.7	0.5	0.7	0.8	0.7
Average household	1.2	0.8	0.5	0.4	0.4	0.6
Single man	0.6	0.5	0.5	0.4	0.4	0.5
Single woman / 10 years of contributions	0.4	0.4	0.6	0.5	0.6	0.5
Married woman / 10 years of contributions	0.4	0.4	0.5	0.3	0.4	0.4
Married man	0.5	0.4	0.4	0.3	0.3	0.4
Full-career single woman	0.6	0.2	0.0	0.4	0.4	0.3

for all, reducing the implicit tax on labor. Since the tax reduction has been more pronounced among women, it is of interest to examine changes in the propensity of men and women to contribute to social security. This is the focus of the next section.

Evidence on rising contributory rates among women in Chile

The key data source for the statistical analysis of women's contributions to social security is the micro data set of the *Caracterización Socioeconómica Nacional* (CASEN), a nationally and regionally representative household survey, conducted in 1987, 1990, 1992, 1994, 1996, 1998, and 2000.[8] The survey is financed by the National Planning Office of Chile and administered by the Economics Department of the University of Chile. The main objective of this data collection is to measure living standards and the impact of social programs. The survey provides information on demographic characteristics and current labor-force participation, including working status. While there are other household surveys in Chile, CASEN is the only one that collects data on social security affiliation and contributions. However, information on contributory status is restricted to the four surveys conducted between 1992 and 1998; since this is a key aspect of this research, the empirical work is based on these four surveys.

The analysis is restricted to urban areas, which represent 84 percent of the population and 85 percent of total employment. Rural areas would have to be examined separately because they are characterized by lower standards of living, more poverty, and less schooling. In addition, rural areas have seen less variation in behavior, which might be explained by the relatively lower impact of social security reform in these areas. For the very poor there is a means-tested transfer program, providing important coverage in rural areas (Edwards 2000).

Existing estimates indicate that Chile's old pay-as-you-go system received contributions from up to 86 percent of those employed in 1975 and 71 percent of those employed in 1980 (Cheyre 1991). It has been argued that the drop in coverage in the 1970s was motivated by the high, and then rising, payroll tax rates from 1975 to 1980. While it is likely that the ratio of contributors to workers was falling in the 1970s, pre-reform estimates of the ratio of contributors to workers are not com-

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[8] Of these, the 2000 survey is not yet publicly available.

parable to post-reform estimates reported in this chapter. The former are based on group data as opposed to individual data, and subject to double counting. The best estimate of the pre-reform ratio of contributors to workers is provided by Edwards (2004) and stands at 51.4 percent in 1980, one year before the reform went into effect.

The privatization reform reduced contribution rates toward retirement from 26 percent to 10 percent, and tied benefits to contributions, increasing the attractiveness of the system. The reduced contributions, the indexation of benefits, and the added sustainability benefited everybody, irrespective of gender. The contributory behavior of men and women begins to be observed through the CASEN household survey only in 1992. In spite of the lack of data prior to 1992, the evidence is indicative of changes in the way workers contribute toward their retirement.

The series of graphs presented here summarize two indicators: the labor-force participation rate, and the proportion of working individuals who contribute to social security. Observations are grouped by year of birth, schooling category, age, and gender, and the averages are weighted by the expansion factor.[9] The four surveys examined (1992, 1994, 1996, and 1998) are divided in adjacent year cohorts. For example, the population born in 1935 and 1936 are considered a cohort; the population born in 1937 and 1938 another cohort, and so on. The combination of four surveys, and the definition of each cohort by two adjacent birth years, results in eight observations per cohort. For example, individuals born in 1935 and 1936 are observed from ages 56 to 63. The adjacent cohort, born in 1937 and 1938, is observed from ages 54 to 61. Clearly, any two adjacent cohorts have six ages in common. The graphs in Figures 9.2 and 9.3 show an array of lines that summarize cohort averages by age.[10] The left-most line represents the youngest cohort shown (for birth years 1969 and 1970) and the right-most line is the oldest cohort shown (for birth years 1935 and 1936).

To the reader who is not familiar with this type of data summary, it is useful to note the following: If the lines form a smooth pattern where the end points of adjacent lines coincide, we have a case where the various cohorts conform to a behavior that varies in some way by age, but is common across cohorts. If, on the other hand, the various lines do not

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[9] The number of observations for the urban sample range from 95,000 in 1992 to 132,000 in 1998.

[10] These are Stata graphs and are programmed to deal with outliers, and as a result some lines look a lot shorter than others. However, all cohorts have eight observation points.

have points in common, there is evidence of change in age-related be-
havior across cohorts.

The first set of results is summarized in figures for each schooling
category. Figures 9.2A–9.2F correspond to groups of men and women
who have some post-secondary education, have completed secondary
school, and have not completed secondary school, respectively.
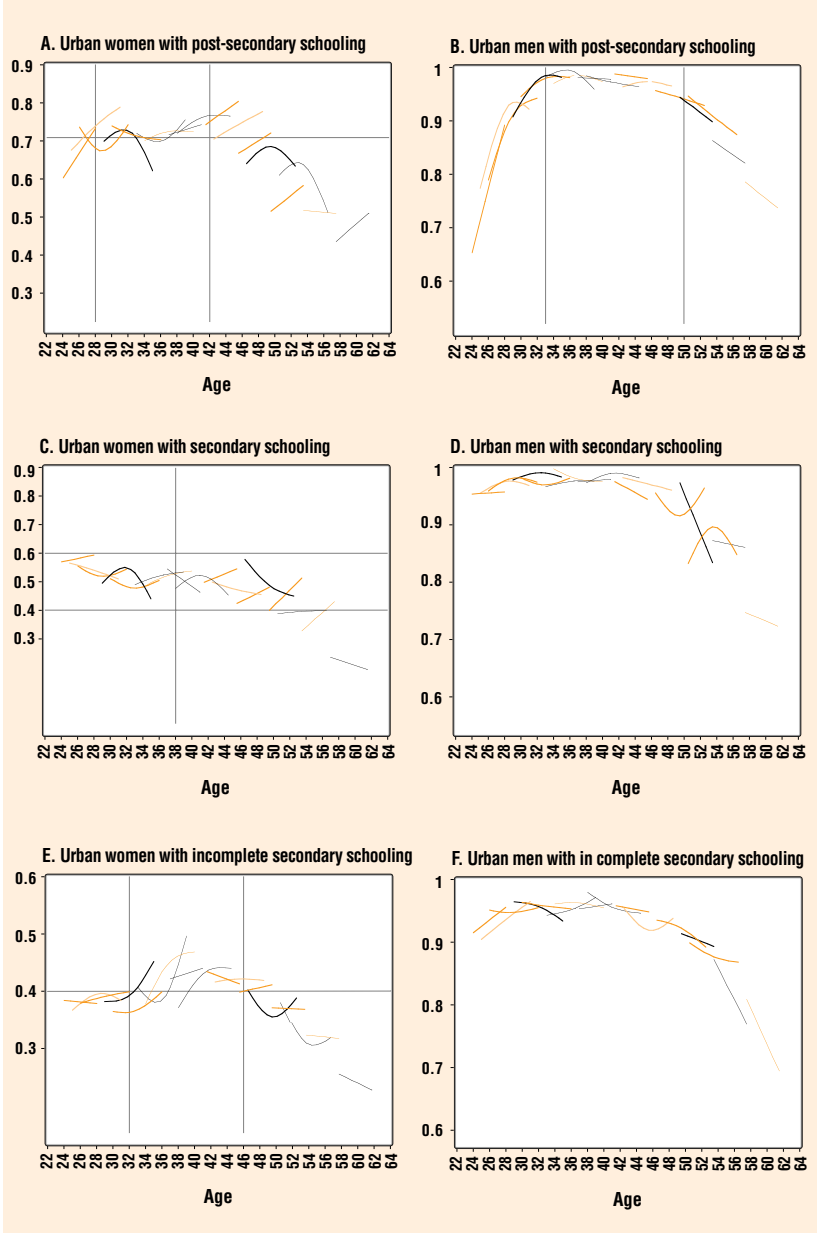
Labor-force participation

Figures 9.2A–9.2F describe patterns of labor-force participation by age.
Figure 9.2A, representing patterns for women with post-secondary school-
ing, can be dissected in three sections. Female labor-force participation
ratios from age 22 to 28 appear to rise from about 60 percent to about
70 percent. From age 28 to 46, there is a fairly stable participation rate
of just above 70 percent. The pattern observed for women aged 42 to 64
is less stable through cohorts. If one looks at participation rates by age
within each cohort, they have consistently risen. If one looks at partici-
pation rates by age across cohorts, they are consistently higher for younger
cohorts. In short, in the case of females with post-secondary schooling,
there has been an observed increased in participation rates since 1992
among women above 40 years of age. In contrast, the corresponding
figure for males (Figure 9.2B) is suggestive of a common life-cycle pat-
tern across generations. Men with post-secondary schooling rapidly join
the labor force from age 24 to 33, so that average labor-force participa-
tion increases from 70 percent to close to 100 percent. The average par-
ticipation rate remains fairly high until age 50, when there is a steady
proportion dropping out, so that by age 64, participation is down to 75
percent. There is no visible sign of a cohort effect in the case of males.

Figure 9.2C illustrates the rate of labor-force participation for women
with exactly 12 years of schooling. Participation rates appear to be the
highest at the very young ages, going from about 60 percent among 20-
year-olds to about 40 percent among 40-year-olds. This declining labor-
force participation with age seems to be more of a life-cycle pattern than
a cohort effect. There is an exception among women over age 40, who
have increased their labor-force participation in the 1990s. Figure 9.2D
captures labor-force participation for males with secondary schooling,
and describes extremely stable rates, approaching 100 percent for ages
28 to 48; these rates fall steadily after age 48, without any visible cohort
effects.

Figure 9.2E captures the rate of labor-force participation among women
with less than secondary schooling. Rates are close to 40 percent for

FIGURE 9.2

Labor Force Participation among Urban Men and Women in Chile, By Age and Education

A. Urban women with post-secondary schooling

B. Urban men with post-secondary schooling

C. Urban women with secondary schooling

D. Urban men with secondary schooling

E. Urban women with incomplete secondary schooling

F. Urban men with in complete secondary schooling

ages 22 to 32 and fall steadily from age 46 on. The graph suggests rising participation rates across cohorts for women aged 33 to 45. The corresponding figure for males (Figure 9.2F) is once again suggestive of a stable life-cycle pattern. Participation is around 95 percent from age 24 to age 50 and falls steadily afterwards.

To summarize, the graphical analysis suggests increased labor-force participation in the 1990s among relatively educated women in their 40s and 50s, and among less educated women in the 33–45 age range. There is no evidence of changing labor-force participation among males in any schooling category. These changes are consistent with the ones observed for women across the Latin American region and they do not necessarily reflect the impact of the social security reform. Social security reform is expected to increase formal employment.
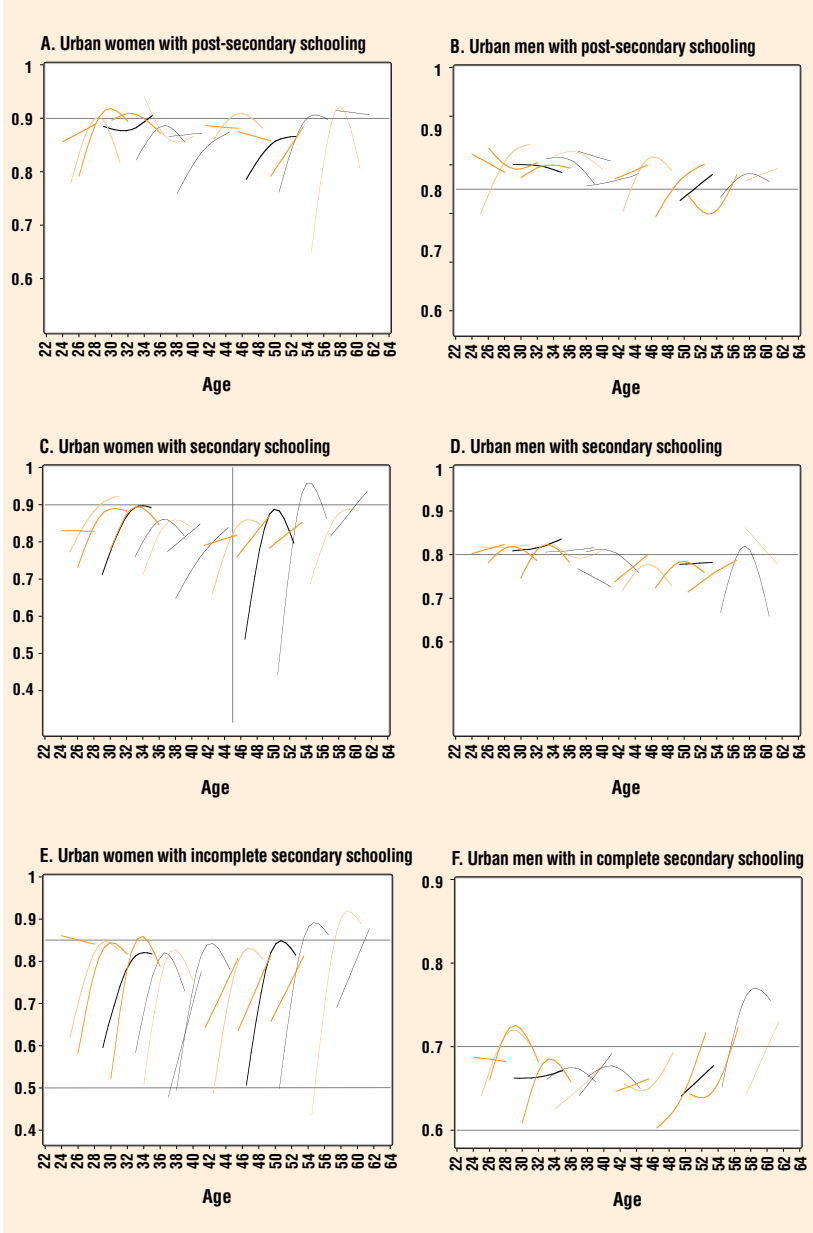
Contributors to the social security system

Chilean law requires employees working under contracts to make contributions to their personal retirement accounts. The self-employed and those without contracts may, if they wish, make voluntary contributions to the pension system, and many of them do so or report to doing so. In urban areas, for example, the employees' category accounts for about 72 percent of working men and about 60 percent of working women. However, there are a significant number of workers who make contributions without being obliged to do so. Edwards (2002) estimates that up to 24.8 percent of those not required to contribute—the self-employed and employees without contracts—do make contributions.

The figures presented in the previous section indicate that female labor-force participation accounts for approximately 70 percent of women with post-secondary schooling, around 50 percent of women with secondary schooling, and around 40 percent of women with less than secondary schooling. In all three groups of women, there are some who never participate in the labor force, and some who participate with interruptions. The number of participants as well as average attachment of participants to the labor force rises with schooling. Since labor-force attachment was required to qualify for pension benefits in the traditional system, the taxation by that system was particularly burdensome on less educated women in formal employment. Therefore, the reform is expected to reduce the tax burden of the less educated group, leading to relatively larger involvement in formal employment for these women.

Figures 9.3A–9.3F describe patterns of contributions to social security, by age, among working women and men. Interestingly, the graphs

FIGURE 9.3

Percentage of Working Women and Men in Chile Contributing To Social Security, By Age and Education

A. Urban women with post-secondary schooling

B. Urban men with post-secondary schooling

C. Urban women with secondary schooling

D. Urban men with secondary schooling

E. Urban women with incomplete secondary schooling

F. Urban men with in complete secondary schooling

reveal that women of young and old generations have experienced an increase of 90 percent in the probability of their making social security contributions, a higher rate than men. Among females, contribution rates have gone up with age in all cohorts; among males, this increase is only obvious among older men. Among both men and women, contribution rates within cohorts have risen with age where these rates were below 80 percent in 1992.

Figures 9.3C and 9.3D focus on individuals with exactly 12 years of schooling. Interestingly, we see a clear pattern where contribution rates among women have risen to about 90 percent for all age groups. Since contributory rates were significantly lower for older women, the relative increments in contributory rates are the largest for women above age 45. On the other hand, contribution rates among men with secondary schooling have been stable at around 80 percent. Figures 9.3E and 9.3F, which show contributory rates for women and men with basic schooling, indicate that the rising rates of contributions among women are significant—from about 50 to 85 percent—while contribution rates for men are more moderate—from 60 to 70 percent.

There is no doubt that the proportion of working women making contributions to social security has increased, and this is particularly true among women over age 40. It may surprise readers to find that contribution rates have reached the 90 percent range among working women with secondary schooling or less, while the contribution rates of men remain in the 80 percent range. However, assuming that women have lower attachment to the labor force, the way for them to accumulate pension funds—and work toward eligibility for the minimum guaranteed pension—is to contribute each time they are employed.

Interpretation of results and final comments

Pension reforms can improve incentives to formalize employment contracts since they reduce the payroll tax. The extent to which incentives are improved is a function of the characteristics of pre- and post-reform systems and of variations across population groups. These differentiated effects brought about by pension reforms need to be understood by policy makers. An important contribution of research on the microeconomic impacts of social security reforms is that it reveals the heterogeneity in labor market histories and life expectancies of different groups of men and women.

Overall, the new pension systems create an incentive to contribute to social security, particularly among women. In the specific case of Chile, women's incentives to contribute have improved because of the following features of the reformed pension system:

1) Under the new system there is no minimum level of contributions to obtain a pension, while in the old system contributors with less than 10 years of contributions could not receive a pension benefit.

2) The new system guarantees a minimum pension for those who have contributed for a minimum of 20 years. In the old system, the guaranteed minimum was available to whoever had contributed for a minimum of 10 years. These changes hurt women with 10 to 20 years of contributions who would have qualified for the old minimum pension and would not qualify for the new minimum, and generally encourage women to work and to contribute. However, the incentives to contribute at low levels of wages disappear after 20 years of contributions, because at that point, workers qualify for the minimum pension and any additional contributions have a zero marginal impact on the annuity.

3) The new system requires married men to build a joint annuity leading to a within-family distribution for women. This is in contrast to the old system where widows' pensions were financed from the social security system's funds, causing an important redistribution toward higher income families. In addition, the new system allows widows to keep their own pension benefits in addition to the survivor benefit, restoring the marginal benefit of working women's own contributions.

4) The reform gives increased weight to early years of contributions through compound interest, in contrast to the weight given to wages earned in the last five years of employment to determine the pension benefit under the old system. This change favors women because they are more likely to hold paid jobs when young and later drop out of the labor force. Even if women maintain a significant attachment to the labor force, their age-earnings profiles tend to be flatter than those of men.

Overall, the new Chilean system is more fiscally sustainable and discourages tax evasion. The main efficiency gain brought about by the reform is the elimination of large cross-subsidies within the system. Pension benefits for women, particularly married women, depend directly on their own social security contributions and their husbands' fund ac-

cumulation, except for the minimum pension guarantee, which is financed with general taxes.

Undoubtedly, in the new system, women who work only a few years and/or earn relatively low wages will receive relatively small pensions. But this outcome may be a rational choice made at the household level because women can be protected by survivor benefits and joint annuities financed by their spouses. The new system offers public subsidies toward women earning low wages, rather than toward middle-class women. This structure provides a social safety net while encouraging work and discouraging dependency.

The analytical model used in this chapter leads us to predict that women will be relatively more interested in contributing to the social security system after reform. Do we observe the expected changes in behavior? The analysis of labor-force participation and contributory behavior corresponds to the mid- to late 1990s, a decade after the reform in social security was first put in place, and is based on household surveys that began to collect data on social security affiliation and contributions in 1992. The empirical evidence shows that contributory rates among women increased between 1992 and 1998. The evidence is consistent with the analytical model. Evidence presented here for the case of Chile supports the idea that the change in incentives has been accompanied by a significant increase in the rate at which women contribute to social security. This change is particularly important among women with lower levels of education and less attachment to the labor force, since this group of women was heavily taxed in the old social security system.

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Women's labor market insertion has been referred to as the major socioeconomic change of the second half of the twentieth century. Increased employment opportunities for women have direct benefits for their own well-being and that of their families through higher income, enhanced financial security for the household and strengthened women's bargaining power within the family. Higher levels of employment and earnings for women thus contribute not only to current economic growth, but also to future progress by breaking the cycle of intergenerational transmission of poverty. Further, women's economic empowerment is bringing about significant changes in gender relations.

Women at Work reviews the progress achieved by Latin American women in the labor market as well as the challenges ahead, providing policy recommendations. The book presents a series of empirical studies that use household survey data to analyze trends in female participation rates, the impact of trade liberalization on women's work, tendencies in gender wage differentials and occupational segregation, and the gender implications of pension reform. *Women at Work* shows that women are overrepresented in the informal sector, which means that a large and growing majority of working women have no access to formal social insurance and labor protection instruments. A comparative analysis across countries provides a general perspective of the situation of Latin American and Caribbean women in the labor force.

Women at Work presents new evidence that investing in women's education may not be enough to break some of the constraints that Latin American and Caribbean women face in the world of work. It underlines the need to remove persistent barriers to improve employment opportunities, particularly addressing the needs of different groups of women.

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