Still a Man's Labor Market:

The Long-Term Earnings Gap

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Institute for Women's Policy Research

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About This Report

The research on which this report is based was undertaken by Stephen Rose as part of a larger project on men's and women's working careers, begun while he was a senior economist at the Educational Testing Services, Inc. (ETS). The project makes use of the Panel Study of Income Dynamics, a data set collected and maintained by the University of Michigan. This report, co-authored by Heidi Hartmann, Institute for Women's Policy Research (IWPR), draws upon the larger study to analyze gender differences in earnings, hours of work, occupations, and family status. Like all IWPR publications, it has been reviewed by a group of experts other than the authors. The publication and dissemination of this report by the Institute for Women's Policy Research is made possible by support from the Ford Foundation, the Annie E. Casey Foundation, and the many foundations, organizations, and individuals who contribute to IWPR's general support.

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EXECUTIVE SUMMARY

Many argue that women's prospects in the labor market have steadily increased and that any small remaining gap in earnings between women and men is not significant. They see the remaining differences as resulting from women's own choices. Others believe that with women now graduating from college at a higher rate than men and with the economy continuing its shift toward services, work and earnings differences between women and men may disappear entirely.

Although the wage gap, measured by conventional methods, *has* narrowed in the last several decades, with women who work full-time full-year now earning 77 percent of what men earn (compared with 59 cents on the male dollar 40 years ago), its sweeping effects are largely unacknowledged because its measurement is limited to a single year and restricted to only a portion of the workforce. *When accumulated over many years for all men and women workers, the losses to women and their families due to the wage gap are large and can be devastating.*

For many families, the quality of children's care and education suffers from women's low earnings throughout their child rearing years. Even with increased time in the labor market after their children are grown, women cannot make up the loss in lifetime earnings. Moreover, most women enter retirement without pensions, either from their own or their husband's employment, and thus lack security in old age.

A New Measure Highlights Wage Gap Understatement

The conventional way of measuring the differences in earnings and labor force experience between women and men is misleading because it fails to capture the difference in men's and women's total lifetime earnings. The more commonly cited wage ratio is based on annual earnings comparing the annual earnings of women and men who work full-time, full-year in a given time frame. Using a more inclusive 15-year time frame (1983-1998), and taking into account women's lower work hours and their years with zero earnings due to family care, this study finds that women workers, in their prime earning years, make only 38 percent of what men earn. *Across the 15 years of the study, the average prime age working woman earned only $273,592 while the average working man earned $722,693 (in 1999 dollars).* This gap of 62 percent is more than twice as large as the 23 percent gap commonly reported.

Women workers in the prime working ages of 26 to 59 make only 38 percent of what prime-age men earn across the 15 years in the study.

This new measure of the long-term earnings gap is based on comparing the average annual earnings, across 15 years, of prime-age workers between the ages of 26 and 59 years, regardless of how many hours they worked or how many years they had earnings. The data used are from the Panel Study of Income Dynamics, a longitudinal data set that tracks the same groups of women and men over many years. *Compared with men, women are more likely to work part-time, less likely to work year-round, and more likely to have entire years out of the labor force.* Thus, the conventional 77 cent comparison underplays all of these factors by focusing only on the earnings of the approximately half of women and the 85 percent of men who work full-time for at least 50 weeks in a given year. To measure the access women and men have to economic resources through working, earnings for all prime-age women and men is a more relevant statistic.

Across 15 years, the majority (52 percent) of women but just 16 percent of men have at least one complete calendar year without any earnings. A career interruption like this has a large effect on the earnings of both men and women independent of their education and previous experience, and such interruptions partially account for lower lifetime earnings. But even among men and women who have earnings in all 15 years, men's average annual earnings are $49,068 while women's are $29,507, or 57 cents on the dollar. Again, this figure is considerably below the commonly cited 77-cent comparison.

Across 15 years, the majority (52 percent) of women but just 16 percent of men have at least one complete calendar year without any earnings.

Women are More Likely to be Long-Term Low Earners

Women's lower average earnings mean that women are much more likely than men to be low earners overall. Even among those who have earnings every year in the 15-year study, 17 percent of women but only 1 percent of men average less than $15,000 per year in earnings – just above the poverty line for a family of three. Women are less likely than men to move up and out of low-wage work. In fact, more than 90 percent of long-term low earners among prime-age adults are women. Furthermore, in the new economy, one's educa-

Among those prime-age adults who work every year and average less than $15,000 anually, more than 90 percent are women.

tional background plays more of a role than ever before. Yet, women with a bachelor's degree earn less than men with only a high school diploma or less (even when the comparison is restricted to those with earnings in all 15 study years).

Again when only committed workers, those with earnings in all 15 years, are considered, the earnings range of $25,000-$49,999 annually is the most common earnings range for both men and women with nearly half of both sexes earning in that range. But for men, that range is effectively the bottom, since 42 percent of men earn more than $50,000 annually, while for women it is effectively the top, since only 9 percent of women average above that amount.

Gender Segregation in the Labor Market Results in Lower Pay for Women

One major reason for the gender gap in earnings is that women work in 'women's jobs' – jobs that are predominantly done by women, while men work in 'men's jobs'—those predominantly done by men. This phenomenon is known as the gender segregation of the labor market.

In this report, we develop a three-tier schema of elite, good, and less-skilled jobs; within each tier, there is a set of occupations that are predominantly male and a set that are predominantly female. In the elite tier, women are concentrated in teaching and nursing while men are business executives, scientists, doctors, and lawyers; in middle tier jobs, women are secretaries while men are skilled blue collar workers, police, and fighters; and in the lowest tier, women are sales clerks and personal service workers while men work in factory jobs. Among prime-age workers who are continuously employed (have earnings every year in the 15-year study period), nearly 60 percent are employed consistently at least 12 of 15 years in one of these six occupational clusters.

Within each of the six major occupational categories in the labor market, at least 75 percent of the workers are of one gender, and 'women's jobs' pay less.

Within each of the six gender-tier categories, at least 75 percent of the workers are of one gender. In each tier, women's jobs pay significantly less than those of their male counterparts even though both sets of occupations tend to require the same level of educational preparation.

Perhaps largely because of the generally low pay scales in the female career occupations, only 8 percent of men work in them. In contrast, 15 percent of continuously employed women, apparently more eager to seek higher-paying male jobs, work consistently in male occupations. These women, however, earn one-third less than their male counterparts in male elite and less-skilled jobs. Among the few women who make it into the middle tier of good male jobs (the skilled, blue collar jobs), the more formal wage structures (due to unions and civil service regulations) mean that their pay lags men's by only one-fifth. Increasing women's entry into this tier of male good jobs would thus increase their earnings substantially.

For the preponderance of women who remain in the female sector of each tier, earnings are strikingly low. In general, even restricting the comparison to women who work full-time, women in women's jobs earn less than men in men's jobs one tier below: women in female elite jobs earn less than men in male good jobs, and women in female good jobs earn less than men in male less-skilled jobs.

Time Spent in Family Care Limits Women's Own Earnings

Women's working experience is conditioned on their experience in families, where they often do most of the child and elder care and family and household maintenance. Because the United States lags behind many other countries in providing subsidized childcare and paid family leave, families are left to their own resources to meet the challenges of combining family care and paid work.

Most women spend the majority of their prime-age years married As a result, women's average standard of living (as measured by household income over 15 years, assuming that all family members share equally in this income) lags men's by only 10 percent (despite women's much lower earnings). For married women, it is still their connection to men that insulates them at least partially from their own low earnings. For women with few years of marriage, however, their family income lags men's with similar marital histories by more than 25 percent.

Because the U.S. lags behind many other countries, families are left to their own resources to meet the challenges of combining family care and paid work.

Women's lack of own earning power limits their options (in the worst case, they may feel forced to stay in an abusive relationship) and exposes them to great risk of poverty and near poverty when they divorce or if they never marry (especially if there are children present). Women who never experienced a year as a single parent during the 15-year study period had an average annual income of $70,200, compared with women who experienced single parenthood in at least 5 of 15 years, who had an average annual income of less than $35,800. Moreover, after the prime earnings years observed in this study, approximately half of women enter the

retirement years alone, no longer married even if they once were. Women's low earnings come home to roost in old age, when widowed, divorced, and never married women all share high poverty rates of approximately 20 percent.

The Gendered Division of Labor is Self-Reinforcing But Increasingly Unstable

Another major reason for the gender gap in cumulative earnings is the self-reinforcing gendered division of labor in the family and its implications for women's labor market time. First, families need childcare and other activities to be performed. Second, since the husband usually earns more than his wife, less income is lost if the lower earner cuts back on her labor force participation. Third, employers, fearing that women will leave their jobs for family responsibilities, are reluctant to train or promote them and may take advantage of women's limited opportunities by paying them less than they would comparable men. Fourth, a set of jobs evolves with little wage growth or promotion opportunities but part-time hours and these jobs are mainly held by women. Fifth, an ideology develops that proclaims this the natural order, resulting in many more men in men's jobs with higher pay and long work hours and many more women working in women's jobs with lower pay and spending considerable time on family care. Women without men particularly suffer from this ideology since they often support themselves and their families on jobs that pay women's wages.

> ***Women without men suffer economically since they often support themselves and their families on jobs that pay women's wages.***

This self-reinforcing arrangement, while long lasting, is also increasingly unstable. Women are demanding more independence and greater economic security throughout the life cycle, whether single or married. Many women and men believe that women's talents are being underutilized and undercompensated.

In the United States, the flipside of women typically being the caregivers and men typically the breadwinners has led to very high working hours, especially for men. Compared with other advanced countries, the United States has developed a set of institutions that leads to significantly longer labor market hours and considerably less leisure.

Policy Changes Can Bring Improvement

Several policy recommendations are offered to help move U.S. institutions toward supporting greater equity between women and men. Among them are: strengthening enforcement of existing equal opportunity laws, increasing access to education and training in high paying fields in which women are currently underrepresented, developing new legal remedies for the comparable worth problem (the tendency of 'women's jobs' to pay less at least partly because women do them), making work places more 'family friendly' through more flexible hours, providing more job-guaranteed and paid leaves of absence for sickness and family care, encouraging men to use family leave more, increasing subsidies for childcare and early education, encouraging the development of more part-time jobs that pay well and also have good benefits, and improving outcomes for mothers and children after divorce. Certainly, the United States should be able to develop a better way to share responsibility for family care and work, resulting in increased gender equity in earnings, family work, and leisure and greater long-term economic security for both women and men.

> ***The U.S. can develop a better way to share responsibility for family care and work, improving long-term economic security for women and men.***

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CHAPTER 1
Introduction

The working world has changed dramatically, especially for women, in the past several decades. Societal norms have changed, civil rights laws have opened up new opportunities, and women's labor force participation has steadily increased. Now, a majority of women with young children work outside the home at least part-time or part-year. In addition, young women are closing the education gap, earning more bachelors and masters degrees than men, and increasing their representation in law, business, and medical schools. No longer are women limited to jobs as domestic servants, factory girls, sales clerks, secretaries, nurses, or teachers.

As each new stride is celebrated, more people seem to think that gender discrimination in the labor market is a thing of the past. News stories on the barriers to women's advancement in the United States are few and far between. A common refrain is: While there still may be a gender earnings gap, it is relatively small and due to personal choices. The women's movement has won – it should just declare victory and fold up its tent. We do not subscribe to this view and find it curious that those who have historically opposed plans to help women workers achieve equality are now saying that the task is complete.

Across 15 years, women's total earnings are dramatically lower than men's. Many women, but few men, have low life-long earnings. The gender earnings gap is bigger than many people think.

In this report, we develop a new approach to looking at workers' careers, examining 15 years of workers' activity in and out of the labor market and presenting new measures of the gender gap in earnings. Our data set and methods are described in detail in Chapter 2. Briefly, the data set used is the Panel Study of Income Dynamics, a longitudinal data set that has tracked a representative sample of households for many years. We study prime-age workers (26-59 years old) who have at least one year of positive earnings. Many have earnings in each of the years in our study (1983-1998), while others have breaks or interruptions in their careers. Not surprisingly, women are much more likely than men to have a full calendar year out of the labor force, the measure of breaks or interruptions used in this study. While women's and men's work careers have become more similar, important differences remain. In fact, these differences are amplified by taking a 15-year perspective. Across 15 years, women's total earnings are dramatically lower than men's. Many women, but few men, have low life-long earnings. The gender earnings gap is bigger than many people think.

Women's total earnings, as they move in and out of the labor market, measure their ability to take income away from the labor market. These earnings are an important indicator of women's overall well-being and their ability to support themselves and their families, affecting their health and retirement security in old age as well (Caiazza 2002, Caiazza and Hartmann forthcoming, Lee and Shaw 2002, Mead et al. 2001). While many women in their prime earning years live with higher earning men, many live on their own or are the primary earners in their marriages. Among these women especially, low earnings can make it difficult to provide for children's care and education and can retard asset accumulation, such as home ownership and pensions, that can provide security in old age. For the study sample, in the 15-year time period between 1983–1998, only 50 percent of prime age women (aged 26-59) were married for all 15 years. And, of married women who worked every year, 15 percent earned more than their husbands on average.

Low earnings also affect women's quality of life. For some women, their low earnings may be a factor in keeping them in abusive relationships. A recent IWPR study shows that if women were paid the same as comparable men, even if only for the hours women currently work, poverty rates would fall by half for both single mothers and married women (Hartmann, Allen, and Owens 1999). IWPR has also found that approximately half of women enter retirement alone, no longer living with men even if they were once married (Shaw, Zuckerman, and Hartmann 1998). Elderly women who are widowed, divorced or never married share a high poverty rate; more than 20 percent of this group is poor. Fewer than half of older women enter retirement with pensions, either their own or their husbands' (Lee and Shaw 2003).

Chapter 3 explores earnings, hours of work, and persistent low earnings. It shows that on average women work substantially fewer hours each year and spend more years out of the labor force than do men. It also shows that differences in the total earnings of women and men remain much greater than the differences in their hours of work would warrant, confirming that women's average hourly wage is substantially lower than men's. Even among women and men who have earnings every year across the 15-year study period, women are the overwhelming majority of those who earn less than $15,000 per year on average.

In order to understand why women earn so much less than men, we next look at occupational segregation by gen-

der (Chapter 4). Using a 15-year time window presents many methodological challenges because workers change jobs, creating an enormous number of possible job sequences. In order to simplify the presentation and analysis, we divide occupations into three large tiers based generally on the educational requirements of jobs. Within each of the three tiers, there are two clusters of occupations: those that are held predominantly by men and those held predominantly by women. This gives us a total of six occupational categories. Our research demonstrates that most workers are employed persistently in one of these categories (defined as being employed in this field for at least 12 of 15 years) and that the earnings in men's jobs within each tier are considerably higher than those in women's jobs in the same tier (even though years of education required are similar). Indeed on average, women in the top tier of women's jobs have annual earnings that are barely higher than those of men in the bottom tier of men's jobs.

Our next topic is the gender gap in earnings, addressed in Chapter 5. Although earnings data are useful in gauging women's economic well-being, and especially their ability to be self-supporting, earnings differences between women and men are difficult to interpret. Differences in hourly wages or in annual earnings for full-time, year-round workers are often taken as a rough measure of discrimination by researchers who justifiably seek to compare only similar entities (invoking the old adage of avoiding comparing apples and oranges). The concept of the 'gender gap' is meant to portray in a concise manner the differences in pay between male and female workers. Yet, the most commonly cited figure of a 23 percent difference between women and men in 2002 (women earn 77 percent of what men do[1]) does not present the full picture. This figure is based on comparing the annual earnings of only those workers who work full-time year-round in a single year (U.S. Census Bureau 2003a). Many low-paid women are excluded from this calculation because they do not meet the full-time, full-year standard.

We calculate the earnings gap in several different ways across the 15-year earnings histories for the women and men included in our study. However the gap is calculated, it is important to note that women's and men's earnings differ for many reasons. Discriminatory treatment of women in the labor market (in hiring, working conditions, promotion, or pay) or in labor market preparation (access to training and education, for example) is certainly important. Some of the difference is due to unequal social norms at home and at work, and some is due to preferential choices women and men make about work and home issues. Disentangling all these factors is difficult. When women 'choose' to spend more time out of the labor market taking care of children than their husbands do, how much of that choice is constrained by lack of affordable, good quality alternative care, women's lower pay or inferior working conditions on the job, their expectations that they won't be promoted anyway, or social norms in their kinship network, religious group, or community? We do not attempt to analyze these factors separately here; rather we present the aggregate differences that still remain in women's and men's labor market activity and the outcomes of that activity.

When women 'choose' to spend time out of the labor market taking care of children, how much of that choice is constrained by lack of affordable, good quality alternative child care, women's lower pay, or social norms in their community?

All the alternative gender gaps we calculate result in a much greater gap than the often cited 23 percent gap that is noted above. The largest gap is found when men and women with all levels of work experience are compared across the 15-year study period and when yearly earnings regardless of full- or part-time or non-work status are used as the measure. Each of the comparisons and the resulting gender gaps has validity, each answers a different question, and which answer is 'best' depends on which question is the most relevant.

In Chapter 6, we examine the earnings, hours of work, and family incomes of women and men by marital status and presence of children. Both marriage and children are seen to affect earnings and hours greatly, especially for women. In general, women with more years of marriage and more years with children work and earn less than those with fewer of these family years. Yet among women who work full-time consistently throughout the 15-year study period, marriage and children make substantially less difference. To what extent do these patterns reflect choice or constraint? Most women are lower earners living with higher earning men, a situation which insulates them somewhat from the effect of the gender gap in earnings. A substantial portion of women, however, out earns their husbands. Overall,

[1] Most research on pay equity uses weekly or yearly earnings of full-time workers to compare the earnings of different groups. The most common source of wage gap data is the Current Population Survey. The U.S. Census Bureau bases its yearly wage gap estimates on annual earnings reported in the Current Population Survey Annual Social and Economic Supplement (ASES) which is fielded in March and asks respondents about the previous calendar year and includes the self-employed as well as wage and salaried workers (U.S. Census Bureau, 2003a). The Bureau of Labor Statistics bases its wage gap comparison on the annual average of median weekly earnings of full-time wage and salaried workers collected every month in the Current Population Survey. Hourly earnings, which more accurately distinguish levels of work effort among full-time workers, are not commonly available.

it appears that married women and men make joint decisions about work hours, earnings, and family care.[2] Yet many women who find themselves on their own suffer from the impact of such decisions and the cultural norms that encourage them.

Finally, in Chapter 7, we end with a policy discussion of what needs to change if women's earnings are to equal men's. While important advances have been made and women are certainly in a more equal position with men today than they were 40 years ago, there is still a long way to go before the United States is characterized by gender equity, with women and men working in similar labor markets, earning equal pay, and contributing equitably at home. Such a society would provide greater long-term economic security to both genders.

[2] Joint decisions are not necessarily equitably made; one partner may have more say than the other (see Blumstein and Schwartz 1983, Lazear and Michael 1988, Lundberg and Pollack 1996).

CHAPTER 2
Methodology and Data

Of the dozens of books and hundreds of articles on inequality, social class, and the differences between male and female workers in the United States, virtually all rely on single-year snapshots as the basis of their analyses (Blau, Ferber, and Winkler 2002, Oaxaca 1973, Sanborn 1964). Changes over time are determined by comparing two snapshots in different years. While most would agree that long-run economic conditions are the more appropriate measure of well-being, single year information is used as a proxy for long-run status because the data are much more readily available. There are very few sources of information that track the same people over many years ('longitudinal panel studies'). Such panel studies provide a wealth of information, but they are challenging to work with because people's circumstances change over time and because there are few established ways to analyze multi-year data.

This study uses the Panel Study of Income Dynamics (PSID), conducted by the Institute for Survey Research at the University of Michigan since 1968 (see Hill 1992 for details).[3] This data set provides annual information on earnings, income, and changes in family structure for a sample that is roughly representative of the United States population. The survey is self-reproducing because it includes the children of the original panel members. We use data for 15 years of the survey, from 1983-1998, and count any prime-age adult as a worker who has at least one year with some earnings in this period. Only workers with reported labor market information in all working years are included. Both self-employed and wage and salaried workers are included in the study sample. Among prime-age adults, approximately 5 percent of women and 1 percent of men had no years with earnings during the study period and are excluded from the study sample.

The age range of 26-59 is chosen to avoid the changing circumstances at the beginning and end of careers. By age 26, with few exceptions, people have finished their schooling and are well on their way to finding their best labor market match. Conversely, at age 59, most have not yet retired or cut back on their hours in anticipation of retirement.[4] The resulting study sample of nearly 3,000 prime-age workers is described in Table 1. Figure 1 depicts the age distribution of all person work years in the study sample. No one is ever younger than 26 or older than 59. At the start of the study period, workers range from 26 to 44 years in age, while at the end they range from 41 to 59 years.[5] As Figure 1 shows, most of the work years studied fall in the middle of this age range. Approximately 38,400 person work years are analyzed in this study.

Table 1. Characteristics of the Study Sample, Workers Aged 26-59 with 15-Year Histories, 1983- 1998 (unweighted data)

	Women	Men	Total
All	1,614	1,212	2,826
Age in 1983			
26-31 years	665	489	1,154
32-38 years	567	457	1,024
39-45 years	382	266	648
Race and Ethnicity			
White	960	833	1,793
Black	596	339	935
Asian American & Other	20	10	30
Hispanic	38	30	68
Work Experience			
With earnings in at least one	1,614	1,212	2,826
With earnings in every year	775	1,040	1,815
With earnings in every year and worked at least 1,750 hours in 12 of 15 years	355	918	1,313

Source: Authors' calculations based on the Panel Study of Income Dynamics.

There are several problems with this data set that should be noted. Since the costs of maintaining a continuing longitudinal set are high, the number of cases is modest, as shown in Table 1. Although the PSID has more than 15,000 participants each year, the number of prime-age workers is considerably smaller. In addition, because the PSID began in 1968 and tracks the same individuals over time, the numbers of Hispanics and Asian Americans surveyed are considerably smaller than are warranted by current conditions.[6] Further, a reduction in funding in the 1990s reduced the processing ability of the sponsor of the PSID. The latest final release data was the survey conducted in 1993 in which questions were asked about earnings and employment in 1992. Only 'early release' data are available through 1999 (concerning employment in 1998).[7] In addition, starting in 1997, surveys were conducted every other year rather than every year. In this study,

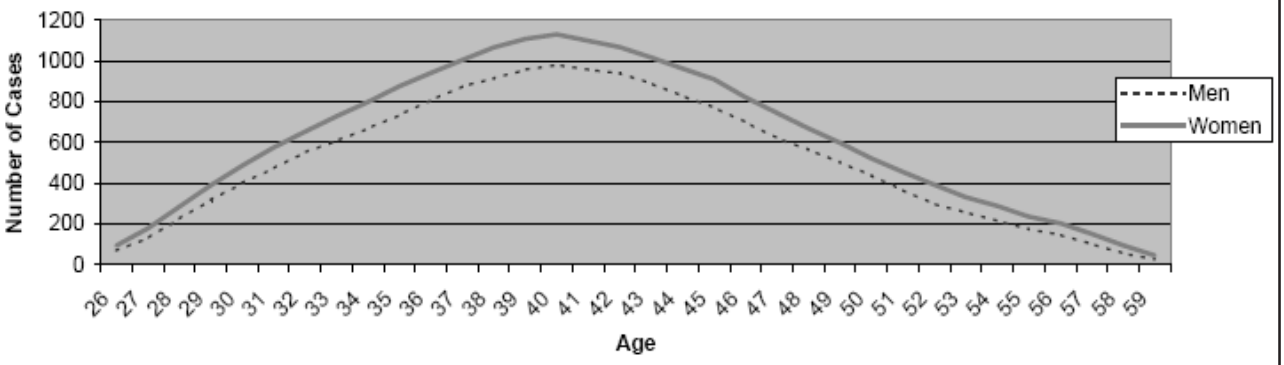
[3] The PSID is the only longitudinal data set that has been continuously maintained since 1968 that covers all age groups.

[4] When looking at long time periods, it is important to select carefully the age range covered because transitions into and out of the labor force result in large earnings swings. Including teenagers, for example, would overestimate earnings gains since many teens work part-time while they attend school and have large earnings gains after graduating (see Cox and Alm 1998).

[5] Analyses disaggregated by age are not reported because few differences were found.

[6] While the results presented are based on weighted data (using the person weights provided for the most recent year), the weights cannot fully correct for

Figure 1: Distribution of Person Work Years in Study Sample, by Age and Gender



Source: Authors' calculations based on the Panel Study of Income Dynamics.

the missing year is simply ignored, and the fifteen-year time window runs form 1983 to 1998 with one missing year. Despite these limitations, data from the PSID are considered to be representative of the white and African American populations and closely match data taken from the U.S. Census Bureau's Current Population Survey, a much larger cross-sectional survey that is used to measure employment, earnings, and income (Fitzgerald, Gottschalk, and Moffitt 1998).

Longitudinal data permit the presentation of lots of information about diverse long-run labor market and family histories. Managing this information is a daunting task because the number of possible combinations of occupations, labor market exits and entries, and earnings and family changes is so large. To identify trends and patterns without getting lost in the details, certain simplifying assumptions and new categories are needed.

Fifteen years of labor market information can be summarized in a variety of ways. *Average* earnings are adjusted for inflation and are always presented in 1999 dollars in this report; the average is the sum of the earnings across several years, divided by the number of years.[8] Either the average for an entire group can be compared with another group, or the distribution of average earnings across the full range of values can be used to show the varying experiences of one or more population groups.

Two other methods of summarizing long-term data are the related concepts of *persistence* and *ever-experienced.* These concepts can be used to supplement information based on the average earnings concept. For example, the proportion of low earners can be presented as the share with:

average annual earnings below $15,000 across the 15 years; or

persistent low earnings – earnings less than $15,000 in every year; or

ever-experienced low earnings – earnings below $15,000 in at least one year.

These figures are very different because of yearly volatility, but each concept is useful in forming a full picture. The share of workers with earnings below $15,000 in every year (persistent low earnings) is very small while the share that experiences at least one year of low earnings is many times higher. The share of those with average annual low earnings across 15 years is in between, and is the figure often used in this report. The amount of yearly variation in longitudinal data is surprisingly large.[9]

The concepts of averages, persistence, and ever experienced are also useful when considering other variables. For example, a full-time worker can be defined by number of work hours in all three ways: based on average hours worked per year across all years, or as having worked full-time every year, or as having worked full-time in one year.

This report uses the *persistent* concept often. Many tables present information only on persistent workers or those with 'strong labor force attachment' – those who have positive earnings in all 15 years. In the study sample, less than half the women but most men meet this criterion (see Table 1). This study also makes use of the concept of persistent full-time workers; these are defined as workers who work 1,750 hours or more for 12 of 15 years in the labor market (1,750 hours,

[7] The early release data do not have all the imputations and consistency checks that are part of the final release. Consequently, there are a number of cases that have no reported earnings, even though in the final release they will have earnings. In order to avoid skewing the results because of these false zero earnings entries, analyses through 1998 include only people with positive earnings in all 15 years of the study—the 'continuously-employed.' Comparisons of earnings during the early release years for this group do not differ substantially from previous years so there should be little bias added to the analysis because of the missing cases in the early release. Fifteen-year data for those with zero-earnings years are estimated using data from 1983-1992. Fifteen-year data regarding family income and marital and parental status are estimated using data for 1983-1996. Since the research for this report was completed, the 2001early release data have become available. These data differ significantly, however, from the previous 1999 early release numbers and we were unable to determine a strategy of combining the new data with the earlier data and so did not include them.

[8] In order to minimize the effects of very high earners, earnings are "top coded" at $200,000 when computing averages. Averages presented in this report generally exclude years with zero earnings or work hours, unless otherwise noted.

[9] Appendix 1 presents several figures demonstrating 15-year earnings histories for 30 randomly selected male workers.

50 weeks at 35 hours per week, is the minimum number of annual hours regarded as full-time by the Bureau of Labor Statistics). As shown in Table 1, many more men (918) than women (355) in the study sample meet this criterion.

Another important dimension of labor market experience is *mobility* or the movement up or down over the course of the study period. There is a presumption (supported by many studies of movements in average earnings) that one's earnings increase over time as the best labor market niche is found, seniority is accumulated, and job-specific skills are learned. Later in one's career, earnings generally tend to plateau or even decline. Earnings mobility is briefly examined for the women and men in this study (for more information, see Rose 2002).

Another methodological choice concerns the measure of pay – whether to use hourly wages or annual earnings. Each has advantages. In most of the tables presented, we report annual earnings because this is a better indicator of one's ability to support a family. In several analyses of the differences between male and female workers, we first use annual earnings and then show what the earnings differences would be adjusted for hours of work (i.e. on the basis of hourly wages).[10]

Occupation is another central economic indicator. Occupational classifications are used to group and understand a very large number of jobs in the economy. The most commonly used approach is the 'three-digit' occupational categorization of slightly more than 500 occupations developed by the U.S. Census Bureau. Researchers studying gender segregation use these categories to determine the amount of 'dissimilarity' between the distributions of men and women across occupations (Albelda 1986, Blau and Hendricks 1979, Powell 1993).[11] While the index of dissimilarity is revealing, it does not convey information about who is in which jobs and how much comparable jobs pay.

Most men but less than half of women in the study sample are 'strongly attached' workers (have earnings in all 15 years). Three-fifths of strongly attached workers have persistent employment in one of six major occupational clusters that are identified either as 'men's jobs' or 'women's jobs.'

Furthermore, very few people report being in the same three-digit occupational code persistently for 15 years. In order to make sense of people's work histories, it is necessary to aggregate jobs into larger categories. In this report, we present a system developed by Rose and Carnevale (1998) that groups occupations into eight broad categories (which is similar but not identical to the Census Bureau's 'one-digit' codes of professionals, managers, craft workers, clerical workers, etc.)[12] In this study, the occupations are further grouped into three grand tiers largely based on educational requirements (see Appendix 2 for more details):

elite jobs – managers and professionals;
good jobs – supervisors (including non-professional self employed workers and managers in food service and retail trade), blue-collar craft workers, technicians, police, fire fight-ers, and clerical workers; and
less-skilled jobs – sales clerks; personal, food, and related service workers; and unskilled blue-collar jobs.

Within each tier, there are two sub groupings of occupations – those that are held either disproportionately by men or disproportionately by women. In the top tier, men are more likely to be managers and business professionals while women are concentrated in the professions of teaching, nursing, and social work. In the middle tier, women are clerical workers and medical technicians while men work in construction crafts and other skilled blue-collar jobs and as police officers and fire fighters. In less-skilled jobs, men are disproportionately in unskilled blue collar positions while women are more likely to be in sales and services.

Workers are assigned to one of these six groups if they work in that group for at least 12 of the 15 years of the study period. Given the diversity of many people's careers, many workers do not spend 12 years in any of the six groups. People with mixed occupational histories comprise the largest single category, encompassing about 42 per-

[10] In many economic studies, hourly wages are calculated because they are seen as the best indicator of "the price of a unit of labor;" workers can then decide how much labor to supply to maximize their self-interest. This is a somewhat idealized view of the world. In reality, the highest paying jobs tend to be a package deal – long hours and high hourly wage rates. Few workers have the option of tailoring their hours to the precise amount they want. Many workers in top managerial and professional jobs are expected to be on the job close to 50 hours per week, and those who do not meet this standard may not advance. In mid- and lower-level jobs, overtime can be virtually mandatory. Other workers cannot find jobs with enough hours of work. It is likely that few workers have the control over their hours of work that they would like.

[11] The dissimilarity or segregation index was developed by Jahn, Shmid and Schrag (1947) and Duncan and Duncan (1955) and is used extensively in the research literature on sex segregation in the labor market. It can be interpreted as the percentage of female (or male) workers who would have to switch jobs in order for the occupational distributions of the two groups to be equal.

[12] The one-digit census categories are generally hierarchical – based on pay and skill level – but they contain several anomalies that make the major groupings less consistent than desirable (e.g., including restaurant managers with corporate executives in the managerial category; including stock brokers and real estate agents with sales clerks in the sales category; and including police and fire fighters with building guards). This phenomenon has been noted by other researchers and adjusting the categories to improve consistency is common (see Gittelman and Howell, 1995, for an example).

cent of the strongly attached, or persistent, workers in the study sample (those with earnings in all 15 years); the remaining 58 percent of strongly attached workers do have persistent employment in one of the six occupational clusters. Within those with mixed histories, those who move among male and female professional and managerial jobs are identified separately because their earnings are much higher than other workers who move fairly regularly between occupations. The largest single group, about 38 percent for both women and men, move among less-skilled and good jobs.

CHAPTER 3

Career Earnings, Work Hours, and Persistent Low Earnings

Long-term earnings of prime-age women workers differ quite substantially from those of men workers in the 1983-1998 time period of this study. The average woman in the study sample earned only $273,592 across the 15-year period (in 1999 dollars), while the average man earned $722,693. Across all 15 years, the average woman earned just 38 percent of what the average man earned. What accounts for this huge difference? As we shall see, several factors are important: women and men work different amounts of time, they work in different types of jobs, and they are paid differently even when they have similar levels of education. This chapter focuses primarily on differences in amount of time worked, looking at both persistent workers (those with earnings every year) and workers with one or more years out of the labor market. Average earnings, both hourly and annually, over the work career, are considered for these groups of differently attached workers. Low earnings, both persistent and intermittent, are also described for these same groups of men and women workers.

The average woman earned only $273,592 across the 15-year period, while the average man earned $722,693. Across all 15 years, the average woman earned just 38 percent of what the average man earned, leaving a gap of 62 percent.

Work Hours and Work Interruptions

Table 2 shows that women and men spend considerably different amounts of time working over the 15-year study period. Approximately 6 of every 7 men report earnings in every year while just fewer than half of women work every year. Almost 3 in 10 women report four or more years without earnings, whereas fewer than 1 in 20 men report that many years without earnings.

Women also report working fewer hours each year they work than men report. For both women and men, those who report the most years out of the labor market also report the fewest hours of work in years with work, suggesting that low work attachment is reflected in both years of work and hours per year. As Table 2 shows, annual work hours for women average 1,498 per year of work, more than 700 hours less than men's average of 2,219 hours. Even for men and women who report earnings in every year of the 15 years in the study, women report nearly 500 fewer hours per year than men (1,766 for women versus 2,260 for men). In other words, persistent or strongly attached women workers work about 22 percent fewer hours than persistent male workers.

Women also earn less per year and less per hour at every level of labor force attachment shown in Table 2. Even when the comparison is restricted to years in which both women and men have earnings, the average working man earns more than twice what the average working woman earns annually ($49,068 versus $21,363). And, as many other studies show as well, men out earn women even controlling for hours worked. On average women earn about 60 percent of what men earn per hour. Finally, when comparing women and men who report earnings in all 15 study-years,

Table 2. The Long-Term Labor Market Experience of Women and Men: Earnings, Work Hours, and Years Out of the Labor Force, 1983-1998

	15 Year Averages[a]				
Number of Years Out of Labor Force	Share (percent)	Annual Earnings	Annual Hours	Hourly Wage[b]	Hourly Wage Ratio[b]
Females (weighted population = 33.9 million)					
All (Aged 26-59)	100.0	$21,363	1,498	$12.82	60.0
None	48.5	$29,507	1,766	$15.72	69.6
1	10.2	$19,341	1,513	$12.25	72.3
2 or 3	11.8	$14,868	1,376	$10.56	75.6
4 or more	29.5	$11,280	1,100	$9.25	63.8
Males (weighted population = 32.7 million)					
All (Aged 26-59)	100.0	$49,068	2,219	$21.38	
None	84.0	$52,510	2,260	$22.60	
1	7.5	$36,867	2,210	$16.94	
2 or 3	4.8	$28,777	2,062	$13.97	
4 or more	3.7	$21,896	1,524	$14.50	

Notes:[a] Zero-earnings years are not included; i.e. averages for earnings and hours are calculated only for years when work is reported. Weighted data are used to calculate all figures.
[b]Hourly wages are person-weighted rather than hour-weighted so that each person's wage counts equally in the calculation regardless of how few or many hours the person worked. The hourly wage ratio is calculated as 100 x women's average hourly wages/men's average hourly wages.
Source: Authors' calculations based on the Panel Study of Income Dynamics.

women still earn only 69.6 percent on average of what men earn per hour.

We can also compare the hours worked and earnings of the *super attached workforce* – those who regularly work full-time, full-year (defined as working at least 1,750 hours for 12 of the 15 years in the study). Among prime-age workers from 1983 to 1998, 26 percent of women and 74 percent of men meet this standard of strongest labor force participation. Even among this group, women report fewer work hours per year than men: 2,081 versus 2,312, or 10 percent less. The norm of working time for most men is thus considerably higher than the working time norm of even the top quarter of women (those with the strongest labor force attachment). The earnings difference among these regularly full-time, full-year workers is even greater as women average just $34,915 per year, or about 64 percent of men's average of $54,188 (data not shown).

Table 2 also shows that workers with just one year out of the labor market earn considerably less per year of work than those who had no zero-earnings years. Men's annual earnings fall 30 percent, despite similar annual hours of work for those with both no and one year out of the labor market. The annual earnings of women fall even more (34 percent), along with their much lower work hours (a 14 percent reduction in work hours for women with one year out of the labor market compared to those with none). Additional analysis showed that the impact of time out of the labor market was not affected by the timing of the break: whether it occurred predominantly in the first five years, second five years, or third five years of the study made no difference.

Table 3. Percentage Loss in Earnings Due to Years Out of the Labor Force, Women and Men, 1983-1998

Number of Years Out of Labor Force	Gross Percent Earnings Loss[a]	Percent Earnings Loss Adjusted[b] for:	
		Education	Education and Hours
Females (Aged 26-59)			
1	-34	-32	-20
2 or 3	-50	-46	-30
4 or more	-62	-56	-29
Males (Aged 26-59)			
1	-30	-25	-23
2 or 3	-45	-41	-35
4 or more	-58	-42	-14

Notes: [a]The percentage loss in earnings is calculated by comparing the average annual earnings in all years worked (for all those with the listed number of years out of the labor force) with the average annual earnings for those with no years out of the labor force. Weighted data are used to calculate all figures (see Table 2).
[b]Adjustments are made in the earnings loss calculation to account for differences in educational attainment and hours worked among those with differences in years out of the labor force. Those with more years out of the labor force tend to work fewer hours and have fewer years of schooling.
Source: Authors' calculations based on the Panel Study of Income Dynamics.

Table 4. The Long-Term Labor Market Experience of Women and Men: Earnings and Years Out of the Labor Force, 1968-1982

Number of Years Out of Labor Force	Share (percent)	Average Annual Earnings[a]	Ratio of Women's Earnings to Men's
Females			
All (Aged 26-59)	100.0	$13,804	0.29
None	28.3	$22,273	0.45
1	8.3	$17,976	0.50
2 or 3	13.5	$13,709	0.37
4 or more	49.9	$8,330	0.39
Males			
All (Aged 26-59)	100.0	$47,268	
None	87.3	$49,448	
1	5.1	$35,809	
2 or 3	4.2	$27,024	
4 or more	3.4	$21,418	

Note: [a]Zero-earnings years are not included; ie. annual averages for earnings are calculated only for years when work is reported. Weighted data are used to calculate all figures.
Source: Authors' calculations based on the Panel Study of Income Dynamics.

Since less educated workers were more likely to have years without earnings, the skill levels of those with some zero-earnings years were slightly lower than those without any zero-earnings years. Table 3 shows, in the second column, the gross comparisons of earnings loss depending on the number of years out of the labor force (shown as the percent reduction relative to those workers with no years out of the labor market). The losses shown in the third column adjust for the educational differences. The adjusted figures show the annual earnings loss of having a single calendar year out of the labor market as 32 percent for women workers and 25 percent for male workers. Having multiple years without earnings exacts at least a 40 percent reduction in annual earnings compared to those who report work every year. The fourth column of Table 3 adjusts for both education and work hours. Because those with years out of the labor market work fewer hours, the loss in hourly wages (about 20 percent less for both women and men

with a single zero-earnings year) is less than the loss in annual earnings.[13]

It is well established that women's participation in the labor market has increased dramatically over the last forty years. Table 4 reports on earnings levels and years without earnings for the first 15 years of the PSID, 1968 to 1982. During these earlier years, 72 percent of prime-age women had at least one year with zero earnings compared with only 51 percent in the later years (see Table 2); almost half had at least four years with no earnings compared with 30 percent in the later years. For male workers during these years, 87 percent had earnings every year (no years out of the labor force) compared with 84 percent in the later years. Because of data limitations (working hours were not collected for all working wives in the early years of the PSID), comparisons of hours worked per year cannot be produced. The female/male earnings ratios during this period were substantially lower than those reported above (in Table 2). Even among workers with strong labor force attachment (i.e., no zero-earnings years), women earned just 45 cents for each dollar of men's earnings. Counting only years with earnings (eliminating zero-earnings years) for all workers in the sample, women earned just 29 percent of what men earned on average ($13,804 vs. $47,268) in the 1968-1982 period.

Persistent Low Earnings

Table 5 limits the analysis to strongly attached or persistent workers – those men and women without any labor force interruptions lasting a calendar year – and shows how annual average earnings for men and women are distributed across the earnings range, from low earners to high earners. Very few of the strongly attached men (1.3 percent) but a sizable number of strongly attached women (17.4 percent) fail to earn at least $15,000 a year on average. *Thus, more than 90 percent of low-earning workers (averaging less than $15,000 per year) with strong labor force attachment are women.* If the bar were set at $25,000, only 11 percent of these male workers would fail to surpass this standard while nearly 45 percent of female workers would fall below it. Finally, at the other end of the scale, 93.5 percent of high earners (averaging more than $75,000 per year) are men.

Table 6 shows how many years women and men experienced low earnings during the 15 years in the study. More than three quarters of female workers in the study sample (76 percent) and a significant share (39 percent) of male workers have at least one year with low earnings. Limiting the analysis to those with strong labor market attachment (those with no years out of the labor force) reduces the prevalence of low-earnings years, but it is still substantial: 58 percent of strongly attached women and 29 percent of strongly attached men have at least one year with earnings less than $15,000.[14] Of these workers with strong labor force attachment, it is

Table 5. The Distribution of Average Annual Earnings Among Women and Men with Strong Labor Force Attachment, 1983-1998

Average Annual Earnings[a]	Percent Distribution			Women as a Percent of
	Women	Men	Total	Total
All (Aged 26-59)	100.0	100.0	100.0	36.7
Less than $15,000	17.4	1.3	8.3	90.1
$15,000 - $24,999	27.1	9.5	17.2	68.7
$25,000 - $49,999	45.9	45.1	45.4	43.9
$50,000 - $75,000	8.3	29.7	20.4	17.7
More than $75,000	1.3	14.4	8.7	6.5
Study Sample				
Weighted Population	16.3 million	28.1 million	44.4 million	

Note: [a]For those with earnings in every year. Weighted data are used to calculate all figures.
Source: Authors' calculations based on the Panel Study of Income Dynamics.

Table 6. Prevalence of Low Earnings by Labor Force Persistence for Women and Men, 1983-1998

Number of Years Out of Labor Force	Share (percent)	Number of Years Earning Less Than $15,000 (percent distribution)				
		None	1	2 or 3	4 or more	All[a]
Females						
All (Aged 26-59)	100.0	24	11	16	49	100
None	48.5	42	12	14	33	101
1	10.2	14	8	22	56	100
2 or 3	11.8	4	7	10	80	101
4 or more	29.5	6	11	20	63	100
Males						
All (Aged 26-59)	100.0	61	13	13	13	100
None	84.0	71	12	10	7	100
1	7.5	28	23	18	31	100
2 or 3	4.8	28	14	23	35	100
4 or more	3.7	31	5	30	34	100

Notes: [a]May not sum exactly to 100 due to rounding. Weighted data are used to calculate all figures.
Source: Authors' calculations based on the Panel Study of Income Dynamics.

[13] It is not clear, however, that those with years out of the labor market worked reduced hours when working for purely voluntary reasons. Perhaps greater hours of work were not available to them or they were not able to provide as many hours to the labor market as they would have liked because of care-giving responsibilities and the lack of alternative care givers. So, depending on one's view of the reasons for the reduced hours, one can use either column 3 or 4 to determine the penalty for having a year out of the labor force, or some number in between.

rare (7 percent) for men to have four or more years with low earnings while it is common (33 percent) for women to have four or more low-earnings years.

Workers with any years out of the labor market are very likely to have years with low earnings when they are employed. While the effects are stronger for women, they are also substantial among the much smaller group of men who have work interruptions. As Table 6 shows, among women with one year out of the labor force, 86 percent earn less than $15,000 in one or more years; for men the figure is 72 percent. Large majorities of women who have multiple years out of the labor force also have multiple low-earning years. For example, 90 percent of women with two or three years out of the labor force have two or more years with earnings below $15,000 and 80 percent have four or more low-earnings years. Among men, 31 percent of those with at least four years out of the labor force avoided a low-earnings year but a slightly higher proportion, 34 percent, have at least four or more low-earnings years.

Men appear to be much more likely than women to have only isolated years of low earnings from which they recover better, while women accumulate more years of low earnings and years with no work leading to long-term low earnings.

Across the full 15 years of the study, men appear to be much more likely than women to have only isolated years of low earnings from which they apparently recover better, even though their earnings penalties are similar in percentage terms. Women have more years out of the labor market and more years of low earnings with the result that their long-term aggregate earnings are much lower than men's. As noted at the outset of this chapter, across 15 years, the average woman earns only 38 percent of what the average man earns.

[14]Even among those who have average earnings greater than $50,000 per year, 19 percent of women but only 5 percent of men have at least one low-earnings year (data not shown).

CHAPTER 4
Occupational Segregation

Although most people understand how important occupations are (as reflected in the common first question on meeting, "What do you do?"), economists are divided about the significance of occupations in affecting earnings. Traditional economists argue that employers pay workers in proportion to their productivity and skills, and workers with similar skills should be paid similarly regardless of their occupations since they are free to move around until their skills are properly rewarded.[15] Similarly, the 'invisible hand' of the labor market forces companies to pay workers no more or less than their economic worth because any company that pays more would be undercut by a competitor who can produce the same output for lower cost and a company that pays less would not be able to hire any workers. Market forces can equalize payment for productivity and skill, even though these concepts are hard to measure, because given enough time, a trial and error process rewards those companies that pay correctly and penalizes those that do not. This theory has a strong internal logic that seems fair: people are paid in proportion to what they produce. And workers of the same gender with more education (the best simple proxy for skill) earn more than those with less education.

But traditional theory does not do as well in explaining pay differences between genders and seems at odds with certain commonly observed facts. For example, workers of seemingly similar abilities get paid differently depending on what job they have and what company they work for. These differences are generally larger than could be accounted for by differences in workers' preferences. On another front, the ideal of perfect competition in which companies face other competitors is often limited in practice. Instead, there are barriers to entry that reduce competition, and many firms in the same industry act more often as informal partners with distinct specialties and clients rather than as cutthroat competitors.

Finally, the relationship that a company has with its employees is complex. Especially where job-specific skills that require training are important and where it is difficult and expensive to supervise workers closely (for example, where workers have advanced skills), employers may seek to build relationships with their workers, especially their better-paid workers, to get a stronger work effort and to encourage longer job tenure. George Akerlof (1982, 1984) has argued that, in many cases, there is a 'gift exchange': in return for slightly higher pay, workers regulate themselves and put in a higher level of effort. Other researchers also point to many additional sources of lack of competition in labor markets (Dickens and Lang 1993, Doeringer and Piore 1971, Weiss 1990). In these cases, market forces are not operating to reduce the wage to the going rate in the external market; rather, an internal labor market formed by institutional norms operates.

Consequently, institutional theorists argue that the traditional view of how labor markets operate is not appropriate. While there are some industries (mainly ones that rely on low-paid workers with frequent turnover) that seem to fit the dog-eat-dog competitive model, for most industries and workers, earnings are connected to social norms. A sense of fairness permeates this arrangement, and companies that grow are expected to share their success with employees. Norms need not be fixed but do not change rapidly. There is a great sorting out process as workers try to find the best fit for their skills and the best labor market niche with the most sharing of company profits, while firms seek a unique combination of worker skills and wage rates to achieve their strategic goals. Interestingly, even within an industry, firms are generally arrayed by wage levels with some firms being wage leaders and others wage followers.

Fairness would seem to dictate that workers in the same firm in the same position with the same seniority get paid the same amount (assuming similar performance levels). Yet the labor market has evolved in such a way that women and men are often concentrated into occupations and job titles that they do not share with the opposite sex, and those traditionally held by men tend to pay more than those traditionally held by women. For example, among the most educated workers, women are disproportionately teachers and nurses while men are disproportionately engineers. Other differences are more subtle, e.g., women sales clerks tend to work in departments that pay much less than product lines dominated by male sales workers. Among manufacturing industries, women tend to be in lower paying industries and are almost excluded from the top-paying ones. Even within the same industries, women often work disproportionately in the lower-paying firms. Some job differences seem to have been created simply to segregate the sexes by job title and justify lower pay for women – for example in hospitals, male orderlies and female nurses' aides did much the same work, but at different rates of pay.[16] Thirty years after the

[15] Workers may also be interested in nonpecuniary rewards, so, for example, many people may remain in the acting profession, despite low pay and despite their ability to earn higher pay if they switched occupations. The important point for traditional market oriented economic theory is that workers are free to move to their most preferred labor market position.

[16] Several court cases, including Bowe v. Colgate-Palmolive Co. (7th Circuit, 1969) and IUE v. Westinghouse Electric Co. (3rd Circuit, 1980) found discriminatory hiring practices based on each company's hiring of men and women into separate job categories with lower pay in the women's jobs.

passage of the Equal Pay Act, which requires equal pay between women and men for jobs that are substantially equal, most of the situations producing this last type of discrimination should have been eliminated, yet the EEOC recovers millions of dollars every year for women workers whose employers violate the 1963 law and its 1964 sequel, the Civil Rights Act.[17]

All these gendered arrangements, along with the job structure, hiring, pay, and promotion practices that sustain them, were once considered perfectly fair, even in large, bureaucratic workplaces with rules and norms regarding equal treatment. Title VII of the 1964 Civil Rights Act addresses many of these practices and there have indeed been many changes that increase fairness, but enforcement efforts have not eradicated all discriminatory employment practices. For example, one recent study sent women and men with equal resumes to apply for waiting jobs in restaurants and found that at the high end restaurants, the women were about half as likely to get interviews or job offers as the men (Neumark 1996).

Gender differences in the workplace are revealed in several ways by the data on occupational segregation presented here. First, women and men do indeed hold and remain in different clusters of jobs in the labor market. Second, regardless of the level or tier of the jobs or whether one is looking at the female or male job clusters at that level, women earn substantially less than men, even considering only full-time work. Third, both men and women earn more in the male sector of each tier than their counterparts do in the female sector in the same tier, indicating a premium for working in male-type jobs, and conversely a penalty for working in female-typed jobs. Finally, the male sector generally requires more hours of work than the female sector. Women in male jobs typically work longer hours than women in female jobs in the same tier, and when men work in the better female jobs they typically work more hours than even women working full-time work in those same jobs, partially, but only partially, accounting for men's higher earnings.

Of those who are persistently in one of the six defined occupational groups, gender segregation is very pronounced: 92 percent of men are concentrated in the male jobs of each tier, while 85 percent of women are found in the female jobs of each tier.

Table 7 demonstrates that there still is substantial occupational segregation by gender. For both genders, approximately 58 percent of strongly attached workers, those with earnings in all 15 years, work consistently in a *single* one of the six career occupational groups (spending *at least* 12 of 15 years in that group). The remaining 42 percent have mixed work histories, mainly rotating among jobs in the bottom two tiers. Of those who are persistently in one of the six defined occupational groups, gender segregation is very pronounced: 92 percent of men are concentrated in

Table 7. Percent Distribution of Continuously Employed Women and Men Across Career Occupational Groups, 1983-1998

Tier	Male Sector		Female Sector		Mixed		Totals	
Women[a]	All	Full-Time	All	Full-Time	All	Full-Time	All	Full-Time
All (Aged 26-59)	14.6	21.3	43.8	36.7	41.6	41.6	100.0	99.9
Elite Jobs	7.9	11.7	18.6	9.4	3.1	2.9	29.6	24.0
Good Jobs	3.0	3.9	18.9	24.7	--	--	21.9	28.6
Less-Skilled Jobs	3.7	5.7	6.3	2.9	--	--	10.0	8.6
Mixed Work Histories[b]	--	--	--	--	38.5	38.9	38.5	38.7
Men[a]	All[c]		All[c]		All[c]		All[c]	
All (Aged 26-59)	50.1	--	7.7	--	42.2	--	100.0	--
Elite Jobs	24.1	--	4.5	--	3.8	--	32.4	--
Good Jobs	16.2	--	2.0	--	--	--	18.2	--
Less-Skilled Jobs	9.8	--	1.2	--	--	--	11.0	--
Mixed Work Histories[b]	--	--	--	--	38.4	--	38.4	--

Notes: [a]The weighted population for continuously employed women is 16.3 million and for full-time women is 7.5 million. The weighted population for continuously employed men is 28.1 million and for full-time men is 24.8 million. Weighted data are used to calculate all figures.
[b]Workers with mixed work histories are those who move among jobs in the lower two tiers (good and less-skilled jobs).
[c]As there is not much difference in the distribution across occupational groups between men who work full-time and all men (because most men work full-time), the distribution for men who work full-time is not reported separately.
Source: Authors' calculations based on the Panel Study of Income Dynamics.

[17] One recent example is a 2000 case involving the U.S. Information Agency (Blau, Ferber, and Winkler 2002).

the male jobs of each tier, while 85 percent of women are found in the female jobs of each tier. These data show that workers do indeed tend to persist in specific career slots and that the slots differ for men and women.

Overall, 50 percent of men are in male sector jobs, while 42 percent are either in mixed elite jobs (4 percent) or move between the male and female sectors in the lower two tiers (38 percent). Few men are in female career occupations. Less than 8 percent of all men work in female sector jobs. Among men who work in the elite tier of managerial and professional jobs, 74 percent are in male jobs while only 14 percent are in female jobs (24.1/32.4 and 4.5/32.4). Among men who work in both good and less-skilled jobs, 89 percent are in male jobs and 11 percent are in female jobs. This is a remarkable amount of difference given how aggregated these occupational classifications are.

Less than 8 percent of all men work in female sector jobs. About 15 percent of women work in male sector jobs, earning less than the men do. Even in the elite tier, women average $51,085 in 'men's jobs,' while men in these jobs earn $74,877.

Table 7 also shows that women are not as concentrated in the female sector as men are in the male sector. Since women's jobs have traditionally paid less, women may very well be seeking to branch out from these jobs. Overall, less than half, 44 percent, of the full group of strongly attached women work in the female sectors, while nearly 15 percent work in male sector jobs (nearly double the proportion of men working in female sector jobs). In every tier, the proportion of women working in men's jobs is greater than the proportion of men working in women's jobs. In the top tier, about 63 percent (18.6/29.6) of women working in elite jobs are in female elite jobs and 27 percent (7.9/29.6) are in male elite jobs. In the middle tier of good jobs, women are more concentrated in the female occupations (86 percent) versus just 14 percent in male occupations (18.9/21.9 versus 3.0/21.9). Finally, in the bottom tier, most of the workers in these jobs rotate in and out, and fewer workers of either gender make a career of staying in one of these jobs. Just 63 percent (6.3/10.0) of women who work in career less-skilled jobs remain in female sector jobs for 12 of 15 years, and 37 percent (3.7/10.0) of women work persistently in male sector jobs in this tier.[18]

Table 8. Earnings and Hours Worked of Continuously Employed Women and Men by Career Occupational Groups, 1983-1998

Panel A: Earnings

	Male Sector			Female Sector			Mixed		
	Women		Men	Women		Men	Women		Men
Tier	**All**	**Full-Time**	**All[a]**	**All**	**Full-Time**	**All[a]**	**All**	**Full-Time**	**All[a]**
Elite Jobs	$47,574	$51,085	$74,877	$38,842	$48,371	$52,405	$40,089	$46,039	$71,413
Good Jobs	$40,412	$46,309	$50,305	$27,262	$30,777	$47,768	--	--	--
Less-Skilled Jobs	$22,729	$25,319	$35,627	$15,143	$24,022	$32,313	--	--	--
Mixed Work Histories[b]	--	--	--	--	--	--	$23,671	$29,625	$42,757
All Jobs	--	--	--	--	--	--	$29,507	$34,915	$52,510

Panel B: Hours Worked

	Male Sector			Female Sector			Mixed		
	Women		Men	Women		Men	Women		Men
Tier	**All**	**Full-Time**	**All[a]**	**All**	**Full-Time**	**All[a]**	**All**	**Full-Time**	**All[a]**
Elite Jobs	2,154	2,264	2,332	1,705	2,117	2,158	1,924	2,125	2,437
Good Jobs	2,247	2,469	2,221	1,860	1,989	2,156	--	--	--
Less-Skilled Jobs	1,871	2,018	2,199	1,670	2,279	2,016	--	--	--
Mixed Work Histories[b]	--	--	--	--	--	--	1,812	2,029	2,252
All Jobs	--	--	--	--	--	--	1,838	2,081	2,260

Note:[a]As there is not much difference in the distribution across occupational groups between men who work full-time and all men (because most men work full time), data are not reported separately for men who work full-time. The weighted population sizes can be found in Table 7, Note a.
[b]Workers with mixed work histories are those who move among jobs in the lower two tiers (good and low-skilled jobs).
Source: Authors' calculations based on the Panel Study of Income Dynamics.

[18] This analysis was complemented by a detailed accounting of occupations of all workers in all years. In each of the six gender-tier combinations, about three-quarters of the total occupation-years were held by a person of the appropriate gender. In other words, among the total years spent in male elite jobs, just under

Table 7 also shows the distribution of the much smaller group of strongly attached women who work persistently full-time (more than 1,750 hours in 12 of 15 years), the *super attached*. This subgroup of women workers is even less likely to work in female sector jobs. Only 37 percent of these women work in the female sectors, while 21 percent work in male jobs. About the same proportion (42 percent) either work in mixed elite jobs (3 percent) or have mixed work histories (39 percent) as is the case among all strongly attached women workers.

Table 8 shows average pay for women and men in each tier and gender sector. In general, regardless of the tier or sector, women earn substantially less than men, even considering only those women who work full-time. For example, in the elite tier, women who work full-time earn $51,085 per year on average in men's jobs, while all men in these jobs earn $74,877 per year. It is quite interesting to note that the relatively few men in female jobs, especially in the good and less-skilled job tiers, have average pay that is almost comparable to those of men in male career jobs in the same tier. For example, in the good jobs tier, men earn $47,768 annually in female sector jobs and $50,305 in male sector jobs, on average. Thus, these men seem able to find or create a few higher paying niches among job groups that most often have lower pay (women in the female sector of the good jobs tier earn only $30,777 annually on average, even for full-time work). As Panel B of Table 8 shows, the men in female jobs work substantially more hours on average than the full group of strongly attached women in female jobs, partially accounting for their higher earnings. Yet the men in these female jobs earn substantially more even than those women who work persistently full-time and have work hours comparable to men's.

Women who work in the middle tier of good 'female jobs' earn just slightly more than full-time women in less-skilled jobs even though they have substantially more education. Enabling more women to enter the middle tier of good 'male jobs' would raise women's wages significantly.

In contrast, in the top tier, men in the predominantly female education and public service jobs have earnings that are significantly less than their counterparts who are in business and managerial jobs. Men in female elite jobs earn only $52,405 on average compared with $74,877 for men in male elite jobs. The men in these female elite jobs (often called the intellectual and caring professions) have very high levels of education. Given that male elite jobs were probably open to these men, they may often have made their career choice on the basis of non-pecuniary reasons, and, like women, may suffer from the 'comparable worth' problem – the devaluation of these jobs because they are identified with women.

While men who work in the women's sectors of the bottom two tiers do nearly as well as men who work in the men's sectors of those tiers, women workers in the bottom two tiers do significantly better when they have the opportunity to get into male dominated jobs (earning almost 50 percent more than women in female jobs earn in these tiers). For example, in the good jobs tier, the full group of strongly attached women in male jobs earns $40,412 on average compared with $27,262 on average for women in female jobs. The subgroup of these women who work persistently full-time earn even more – $46,309 in the male good jobs, on average, earning only 8 percent less than the men in the male good jobs (who earn $50,305 on average). Thus, enabling more women to enter the middle tier of male good jobs would raise women's wages significantly.

In contrast, women in male jobs in the top tier earn only about one-fourth more on average than women in the top female jobs ($47,574 in top men's jobs vs. $38,842 in top women's jobs) and they earn substantially less (about one-third) than the men in top male jobs ($74,877). This result is surprising since the women who enter these jobs (e.g. law, medicine, high-level management) have the specialized education and skills that command higher pay. Either women's entry into high-paying managerial and professional jobs is relatively new and women haven't acquired the same level of experience as men, or women are in lower paying women's niches in these fields, and/or discrimination against women in pay and promotion is more severe than in the other two tiers.[19]

It also should be noted that women in male jobs work longer hours than women in female jobs in the same tier. In the top two tiers, this difference is particularly large, so that while women in male jobs may still work fewer hours than men in those jobs, the difference in hours is not nearly large enough to account for the difference in pay. The smaller group of full-time women workers works even more hours in these male jobs, yet they still have not reached earnings parity. Full-time women workers in male good jobs (earn-

three-quarters were held by men; among male good jobs, over three-quarters were held by men; and among female good jobs, over three-quarters were held by women. Looked at slightly differently, in each tier, 82 percent of employment by men was in the male jobs of that tier. As noted above, women were not as concentrated in the female jobs within each tier with the exception of the middle tier in which 79 percent of women's employment was in the female occupations. For women in the top tier, only 56 percent were in female jobs, and in less-skilled jobs 64 percent were in women's jobs.

[19] For this study sample, women in these traditionally men's professions are older, not younger, than their male counterparts, casting doubt on the often used explanation that there are simply fewer and less experienced women in the pipe line.

ing $46,309 on average) still earn only 91 percent of what their male counterparts earn even though they actually work slightly more hours (data not shown).

To consider differences in work hours further, let us examine the several columns in Tables 7 and 8 that present data for those continuously employed women workers who worked persistently full-time (those who worked at least 1,750 hours per year for 12 of the 15 years in the study). Only 53 percent of women with earnings in all 15 years work persistently full-time, and this super attached group differs significantly from other strongly attached women. In particular, their average work hours increase to nearly 2,100 hours per year. This is about 8 percent less than men's average work hours, yet women's average earnings still trailed men's by 36 percent.

Women in managerial and professional jobs have not yet made significant inroads into the highest-paid business jobs. Females with graduate degrees earn only slightly more than males with no college and only a high school diploma: $41,995 for women vs. $40,822 for men.

Table 7 presents the distribution of these full-time, persistent women workers across the gender-tiers and shows significant differences with the distribution of all continuously employed women workers.[20] Persistent full-time women are more likely to work in male jobs within each tier. Within the female sector, they are more likely to work in the middle tier of good jobs, much less likely to work in the lowest tier of less-skilled work, and somewhat less likely to work in the top tier (this latter result is somewhat surprising). The distribution of career occupational patterns differs the most among women in elite jobs. Only about one-quarter of women who are in female elite jobs work consistently full-time; by contrast, about two-thirds of those in male elite jobs meet this standard. Thus, among women who work full-time, more women work in male elite jobs (11.7 percent) than work in female elite jobs (9.4).

As Tables 8 and 9 show, the earnings levels for full-time women workers are higher than those for the full group of strongly attached women, but even full-time women still trail men in male elite jobs by 32 percent in earnings. Within the female elite jobs, women who work persistently full-time have more success in narrowing the wage gap with men in the same gender tier; these women earn only 16 percent less than their male counterparts.

The same trend is evident in the bottom tier, where significantly more of full-time working women have jobs in the male sector. Just 21 percent of women in female less-skilled jobs work persistently full-time, while 71 percent of those in male less-skilled jobs do (see Table 7). As shown in Table 8, the pay difference for women working full-time in the male and female jobs in this tier almost disappears, with average earnings at approximately $25,000 and $24,000 respectively (note that the full-time women work about 600 more hours annually than the full group of continuously employed women in the female less-skilled jobs). Nevertheless, despite these vastly higher work hours, the pay gap between these full-time women and their male counterparts remains large. All men in the less-skilled female jobs out earn even full-time women in this same job group by $8,000 annually, and in the 'male jobs' men's advantage is even greater at $10,000 annually (Table 8).

Table 9. Long-Term Earnings Ratios for Continuously Employed Women and Men by Career Occupational Groups, 1983-1998

	Earnings Ratios[a]					
Tier	**Male Sector**		**Female Sector**		**Mixed**	
	All	Full-Time[b]	All	Full-Time[b]	All	Full-Time[b]
Elite Jobs	64	68	74	84	56	74
Good Jobs	80	91	57	63	--	--
Less-Skilled Jobs	64	67	47	74	--	--
Mixed Work Histories[c]	--	--	--	--	55	67
All Jobs	--	--	--	--	60	69

Notes: [a]Earnings ratios are calculated as 100 x women's average annual earnings/men's average annual earnings (data from Table 7, Panel A). Weighted data are used to calculate all figures.
[b]The full-time earnings ratios are full-time women's average annual earnings compared with full-time men's average annual earnings.
[c]Workers with mixed work histories are those who move among jobs in the lower two tiers (good and less-skilled jobs).
Source: Authors' calculations based on the Panel Study of Income Dynamics.

In the middle tier of good jobs, a huge difference remains in the distribution of full-time women workers between those in female and male jobs (see Table 7). Women full-time workers are much more prevalent in female jobs than in male jobs (25 percent to 4 percent) and their earnings gains from persistently full-time work are relatively small. Thus, full-time working women who are clerical workers and medical technicians in the good female job sector earn just slightly more than full-time women in less-skilled jobs even though they have much

[20] Since nearly 90 percent of men without interruptions also met the criteria for persistent full-time employment, the numbers for men did not change very much and are not presented.

higher levels of education and skills. Yet, women who hold male jobs in the middle tier earn 50 percent more than their counterparts in female jobs. These data suggest that women's work in the middle tier suffers especially from the lack of comparable pay for comparable work.

Table 9 shows the earnings ratios for both groups of women, the persistent full-timers and the larger group of strongly attached women who are continuously employed, relative to men in each gender tier. Overall, women in female elite and male good jobs are closest in earnings to their male counterparts. For persistent full-time workers, women in the female elite jobs earn 84 percent of what men do, and in the male good jobs, women earn 91 percent of what men earn. In most of the other career tracks, these full-time women earn one-third less than men despite working nearly 2,100 hours per year.

Nearly one-third of full-time persistent women workers fails to meet the earnings standard most Americans consider minimally decent, $25,000 per year. Only 7 percent of male full-time workers earn so little. Men are simply not to be found among the ranks of persistent low earners.

Further analysis shows that only 3.4 percent of these women who work persistently full-time have average annual earnings below $15,000 (compared with the 17.4 percent of all continuously employed women workers shown in Table 5 and 45 percent for all women workers). Another 27.7 percent earn between $15,000 and $25,000 annually. Thus, 31 percent, nearly one-third, of full-time, persistent women workers fails to earn enough to meet the standard most Americans consider minimally decent.[21] In contrast, only 7.3 percent of male full-time workers have average annual earnings of less than $25,000 with very few (0.5 percent) averaging below $15,000 annually. Men who work persistently full-time are simply not to be found among the ranks of persistent low earners.

To sum up, the smallest gender gap in earnings occurs within male good jobs and female elite jobs. The pay in these jobs is often set by bureaucratic procedures, either by union contracts for male good jobs and/or by rule in government or non-profit settings. Included in the male good jobs category are the non-professional self-employed. The 3 percent of women workers with careers in this category have the highest average number of hours worked per year. Since most self-employed people fall into this middle tier, it is possible that self-employed women who put in long hours help to narrow the earnings gap in this category.

In contrast, the largest earnings differences between men and women occur in female good and female less-skilled jobs. As noted above, the relatively few men in these jobs find positions more in line with the pay scale in male jobs. Women apparently do not have as much access to these prized positions, and gender earnings gaps are large.

Overall, women in the top tier of managerial and professional jobs have not yet made significant inroads into the highest-paid business jobs (the 'glass ceiling effect'). In the bottom two tiers, however, those women who are able to break free from women's jobs are able to realize large earnings gains. Certain male/female comparisons are particularly striking:

- Men in male good jobs earn more than females in male elite jobs even though the women in the elite jobs are more educated and put in almost as many hours per year.

- Men in less-skilled jobs (both men's and women's sectors) earn considerably more than women in female good jobs even though the women in good jobs are more highly educated.

- Men in men's less-skilled jobs earn almost as much as women in female elite jobs even though these women are much more highly-educated; the unskilled men do, however, put in many more working hours.

Table A2 in Appendix 2 shows the career occupations, earnings, and work hours of women and men by level of education for each gender tier (there are 40 rows – eight occupational groups by five education levels).[22] Within each gender-tier, more education is associated with higher concentrations in higher tier jobs and more pay within the same career occupation group. Male earnings are consistently at much higher levels throughout. The table reveals some unusual comparisons (focusing only on job categories with a high concentration of male or female employees):

- Males who do not have a high school diploma earn more than females with a bachelor's degree: $36,021 to $35,338.

- Females with graduate degrees earn only slightly more than males with no college and only a high school diploma: $41,995 for women versus $40,822 for men.

[21] In a poll of 1,000 Americans conducted in April of 2000, 92 percent responded that a family needs to earn $25,000 or more to make ends meet (Lake, Snell, Perry & Associates, 2000).

[22] The data in Table A2 pertain to the full group of strongly attached women. Sample sizes are not large enough to restrict the analysis to persistently full-time workers. The eight groups are the six gender-tier groups and the two groups consisting of workers with mixed work histories.

- There are only two job categories in which women average more than $50,000 (male elite jobs for those with a bachelor's degree, $52,985; or with graduate degrees, $60,762). In contrast, there are several job categories in which men average more than $50,000: all men, even those without bachelors' degrees, in male elite jobs, and men with at least some college in good jobs.

- Of male high school dropouts, 15 percent are in male good jobs and have average earnings just under $50,000 annually; this figure is higher than any career track for women even with some college; the only women who earn more than this level have bachelors and graduate degrees and work in male elite jobs.

- Men average more than $40,000 in virtually all the educational subgroups of all the gender tiers. The exception is the group of men without any postsecondary education in less-skilled jobs. In comparison, even women with graduate degrees in female elite jobs do not surpass $40,000. Only highly educated women in male elite jobs and a few women in male good jobs have earnings above this level.

While the analysis above shows that some of the earnings differences observed between women and men may arise partly from women's lower average work hours, it also shows that hours differences alone do not account for all or even most of the earnings differences observed between strongly attached men and women workers.

CHAPTER 5
New Measures of the Gender Earnings Gap

The existence of two separate (and unequal) labor markets for men and women is supported by a variety of social norms, institutional prejudices, and perverse internal logic. Many of these practices begin to take shape as boys and girls progress through their schooling (AAUW 1998). Shu and Marini (1998) show that, even in high school, girls on average have different expectations from boys and take somewhat different courses (though girls get better grades and have better attendance). Among those who go to college, female students tend to major in different fields than male students, although less so than in earlier years (Blau, Ferber, and Winkler 2002). Not surprisingly, research has shown that field of study has a strong effect on future earnings and that women-intensive majors have lower future earnings, yet even these differences are not enough to account for the large gender earnings differences observed (Weinberger 1998). Even among workers who seem most alike, large earnings differences arise. In a well-known study of Michigan Law School graduates, women earned almost as much as men five years after graduation but trailed substantially when they met for their 15th reunion (Wood, Corcoran, and Courant 1993).

The preponderance of the evidence suggests that discrimination has not been eliminated, norms and institutional arrangements continue to reduce women's earnings, and women's low earnings contribute to family poverty reducing the overall well-being of women and their children.

Gender differentiation in the labor market is self reproducing. When nurses are mostly women and construction workers are mostly male, more young women say they want to be nurses than want to be construction workers (Reskin and Hartmann 1986: 75-80). And worse yet, when women do express interest in nontraditional jobs, they are often not encouraged to pursue them by guidance counselors and others who believe they will be unlikely to succeed (Negrey et al. 2002). Then, too, by the time women are starting families, it often 'makes economic sense' for the woman, typically the lower paid partner, to forego work and earnings to take care of the children especially given the lack of suitable alternative care arrangements. Similarly, employers may believe it makes 'some economic sense' to pay women less because they are more likely to leave and less likely to work as hard while at work. The term 'some' is added here because the practice of discounting women's economic contributions is rooted in social prejudices and discrimination as much as economics. There is, in fact, no evidence that women do not put in as much effort as men on the job (Bielby and Bielby 1988) and, as Bergmann (1986) points out, men are much more likely than women to be involved in disruptive work behaviors such as fighting, drinking, or stealing on the job. A recent study of Wal-Mart's personnel practices shows that despite women's better performance evaluations and longer job tenure, they are less likely to be promoted than men (Drogin 2003). Another study shows that pay rates of jobs fall when more minorities and women enter the jobs even though their content (tasks and skills required) has not changed (Baron and Newman 1989).

In the 1970s, women wore buttons protesting their low earnings – "59 cents" – the amount of money women earned for every dollar that men earned. As women have made gains in the labor market, the reported gap has narrowed and the level of concern has declined. But the preponderance of the evidence suggests that discrimination has not been eliminated, that norms and institutional arrangements continue to reduce women's earnings, and that women's low earnings contribute to family poverty and reduce the overall well-being of women and their children (Hartmann et al. 1999).

How should we measure the gender gap? By focusing just on those with the strongest labor force attachment or just on hourly earnings in a single week or year, one is tacitly accepting the constraints of current gender relationships. All of the women who make the constrained 'choice' to work part-time or to take time off for family care are excluded from the comparisons. Therefore, in this study we calculate the gap in earnings in a variety of ways from the most inclusive measure to the most restrictive. All present a long-term perspective on the wage gap since they measure earnings differences accumulated and averaged across the 15 years of the study. Economists agree that permanent income (excluding unusual or transitory dips or gains) is the best measure of economic well-being; this 15-year average is a good approximation of permanent income.

As can be seen in Table 10, Panel A, the size of the gender gap in earnings ranges from 62 percent when all workers are included (those with at least one year of non-zero earnings) to 36 percent when the comparison is restricted to persistent full-time workers. The gender gap can be calculated as:

- *62 percent* – based on the annual average earnings of all the men and women in the sample, and including their zero-earnings years in the average;

- *57 percent* – based on the annual earnings of everyone in the sample, but excluding their zero-earnings years;

- *44 percent* – based on the annual earnings of those women and men with at least some earnings every year (continuous workers or the *strongly attached*); and as

- *36 percent* – based on the annual earnings of women and men with no labor force interruptions who also worked persistently full-time, full-year (at least 1,750 hours in 12 of 15 years, *the super attached*).

The size of the gender gap in earnings ranges from 62 percent when all workers are included (those with at least one year of non-zero earnings) to 36 percent when the comparison is restricted to persistent full-time workers.

Any of these comparisons can be further adjusted to account for differences in hours worked. Even among persistent full-time workers, men generally work more hours in the labor market than women. For example, for the middle two comparisons, the hours-adjusted gender gap is:

- *35 percent,* adjusted for hours worked across all earnings years for all women and men with at least one non-zero earnings year; or

- *28 percent*, adjusted for hours worked for only those workers with earnings in every year of the 15-year study.

Panel B of Table 10 presents the same information another way, showing how much of the largest gap of 62.1 percent can be accounted for by the difference in the number of years women and men spend out of the labor force (and the resulting earnings penalties when working) and by the differences in hours worked when working. An unexplained gap of 28 percent remains in our study.

Although the gender gap is generally computed as how much less women earn than men, one could just as easily calculate the comparison as how much more men earn than women. The same difference is used, but the basis of the comparison is shifted from the earnings of men to the much lower figure of the earnings of women, and thus the gap is even larger. The four comparisons in Table 10, Panel A, could be presented as follows:

Table 10. Measures and Sources of the Long-Term Earnings Gap, 1983-1998

Panel A: Alternative Measures of the Long-Term Earnings Gap

Population in Comparison (Aged 26-59)	Average Annual Earnings		Earnings Ratio[a]	Earnings Gap[b]	Gap Adjusted for Hours Worked[c]
	Women	Men			
All workers with at least one year with earnings, counting zero-earnings years	$18,239	$48,178	37.9	62.1	35
All workers with at least one year with earnings, excluding zero-earnings years	$21,363	$49,068	43.5	56.5	35
All workers with earnings in every year	$29,507	$52,510	56.2	43.8	28
All workers with earnings every year and full-time work (1,750 hours or more) in 12 of 15 years	$34,915	$54,188	64.4	35.6	28

Panel B: Sources of the Long-Term Earnings Gap

Gap Between Earnings of Women and Men	Earnings Gap[b]
Gap in the earnings of all women and men across 15 year period	62.1
Due to differences in the number of years out of the labor force	18.3
Due to differences in hours worked when working	15.8
Remaining Unexplained Gap	28.0

Notes: [a] The earnings ratio is calculated as 100 x women's average annual earnings/men's average annual earnings.
[b] The earnings gap = 100.0 - the earnings ratio.
[c] The wage gap is adjusted to represent what the gap would be if women and men in the comparison had the same number of hours per year with earnings.
Source: Authors' calculations based on the Panel Study of Income Dynamics.

- Men earn *164 percent* more on average than women, across all years in the 15-year study, including years out of the labor force.

- Men earn *130 percent* more per working year than women on average when comparing all prime age women and men with at least one year of work.

- Even among workers who are employed in all 15 years, men earn *78 percent* more per year than women on average.

- Comparing only women and men who worked full-time in at least 12 out of 15 years and had some earnings in every year, men earned *70 percent* more per year than women on average.

One disadvantage of averaging across all 15 years of the study period is that such an average hides any progress that might have been made during that time. We have already seen (in Chapter 3) that women in the 1983-1998 period work more years and have higher earnings relative to men than women did in the first 15 years of the PSID, 1968-1982. In the earlier period, the gap was 71 percent for those with at least one year of earnings (excluding zero-earnings years) compared with 56 percent in the more recent period. For those who work every year, it was 55 percent in the earlier period compared with 44 percent in the more recent period.

To see how much change occurred during the 1983-1998 period, we determine which workers had earnings increases or decreases and compute an average annual growth rate in earnings for each worker (with at least two years of reported earnings). Tracking average earnings over time as workers progress through their careers generally shows increases as workers gain seniority and more skills. As with any average, however, it is composed of a great variety of individual experiences and group experiences as well. Because of their different places in the labor market (women in services and men in manufacturing, for example), women's and men's earnings growth often differ. And because of changing economic conditions over time (boom and bust cycles, for example), different birth cohorts generally have different economic experiences. To simplify presentation of all these individual earnings histories, the results are divided into four groups: *declines* are defined as a computed yearly change of negative 0.5 percent per year or worse; *no change* is defined as the range within plus or minus 0.5 percent change per year; *small gains* are defined as 0.5 to 2.5 percent growth per year; and *gains* are defined as 2.5 percent per year growth or greater.

The results, shown in Table 11, are disaggregated by gender and age of the worker at the beginning of the study period. Among men only 58 percent were gainers over these years; 16 percent had steady earnings while 26 percent had higher earnings at the beginning of these years than at the end. Indeed, the average gain for all men of 1.5 percent per year (not shown in this table) hides the fact that many men treaded water or lost ground. Younger men generally did better than older men, but even a third of young workers (aged between 26 and 31 years when the study began) did not have positive earnings trajectories. For women, the share of gainers was much higher (73 percent). Only about one in five (19 percent) had declining earnings paths. Just as for men, younger women did better than older women (78 percent with increases for the youngest cohort vs. 56 percent for the oldest cohort).

Table 11. Earnings Growth for Continuously Employed Women and Men by Age, 1983-1998

	Percent Distribution Across Earnings Paths					
	Decreases or Negligible			Increases		
	Subtotal	Decreases	No Change	Subtotal	Small Increases	Increases >2.5%/year
Women (weighted population = 16.3 million)						
All	28	19	9	73	26	47
26 - 31 years[a]	21	18	3	78	22	56
32 - 38 years[a]	28	15	13	71	28	43
39 - 45 years[a]	44	34	10	56	0	56
Men (weighted population = 28.1 million)						
All	42	26	16	58	28	30
26 - 31 years[a]	33	23	10	67	27	40
32 - 38 years[a]	40	24	16	60	29	31
39 - 45 years[a]	59	35	24	41	30	11

Note:[a]Age is respondent's age in 1983. Weighted data are used to calculate all figures.
Source: Authors' calculations based on the Panel Study of Income Dynamics.

These differing earnings trajectories for the men and women in this study are consistent with what we know from cross sectional data observed each year. During the 1980s and up through the mid 1990s, women's earnings rose relative to men's, and the earnings gap narrowed. Indeed in much of the 1980s men's earnings stagnated as the manufacturing sector struggled. Women's earnings rose both because they were in a better place in the labor market than men and because they increased their education and accumulated more years of experience as they worked more hours. Barriers against them also may have eroded somewhat as civil rights laws con-

tinued to have effect and customs and expectations continued to change. While the generally narrowing pay gap is encouraging, it is important to keep two caveats in mind: first, women started out at such a low level it was relatively easy for them to move up; and, second, women with work interruptions likely had to start over at a reduced level and then experienced large earnings gains.

CHAPTER 6
Marriage, Children, Earnings, and Family Income

As we have seen, women earn substantially less than men on average. They also work fewer hours and earn less per hour than men. It is natural to ask how much of women's lower work hours and earnings can be associated with their marital status and the presence of children, since it is widely acknowledged that women remain the primary caregivers of children. And because many women spend much of their adult lives in families with men earners, women's own earnings are not the only important measure of their economic well-being.

Average annual family income is $71,455 for women who were always married but just $41,070 for those who were rarely married; only 5 percent of the always married had long-term low family incomes while 35 precent of the rarely married did.

For many women, their husbands' earnings may be equally or even more important. In this chapter, differences between men and women in family income are shown to be much smaller than own-earnings differences. This pattern suggests that there is a joint husband-wife decision about working time and family care.[23] Another way to put this is that for married women, their husbands' earnings somewhat insulate them from the effects of their own low earnings. Low family incomes occur primarily in two situations – where the husbands are low earners or have years out of the labor force and where women are single parents. In this chapter we explore the relationships between hours of work, personal earnings, family incomes, marital status, and presence of children in the household across the 15 years in the study period.

One must remember that across 15 years, individuals change their marital status and children arrive or leave their parents' home. Over this time stretch, about one in seven adults in the study never had children in their household while 30 percent of females and 24 percent of males have children present in all 15 years. Nearly 50 percent of the study adults were married in all 15 years, and of this group about 40 percent have children present in all these years. By contrast, only 7 percent of males and 13 percent of females were never married over these years. And finally, just 12 percent of males but 32 percent of females had at least one year in which they were a single parent.

In terms of computing family incomes, an adjustment is made to account for the number of people in the household. It is generally accepted that the same amount of money goes further if there are only one or two people to support rather than four or five people. This factor is recognized in computing the number of people in poverty since the income thresholds set by the federal government vary according to the number of people in the household. All the data reported here have been adjusted to reflect a family size of three.[24]

In 1999, the official poverty threshold for a family of three was just $13,300.[25] Many researchers feel that this does not represent a realistic evaluation of the costs of food, housing, and other essentials, and surveys find that the vast majority of people say that a three-person family requires significantly more than the poverty threshold to make ends meet (Bernstein et al. 2000, Lake, Snell, Perry, and Associates 2000, Kuriansky and Brooks 2003). We use the commonly cited figure of $25,000 for a three person family as an indicator of having low income and compute how often adult earners have family income below this level.[26]

In order to simplify presentation, from the many interactions that could be studied, we select three dimensions of interest: length of marriage, years with children present, and years of single parent status. We define levels of persistence for each of these dimensions. In order to present the most meaningful differences, the break points are different for each dimension.[27]

[23] This decision is not necessarily one in which women and men have equal power. It may be best to think of one spouse's behavior as contingent upon the other's. Early economic models, based on Becker (1974, 1981), use a unitary, altruistic model of household decision-making, where decisions are decided in an unexamined 'black box.' More recent research, including Blumstein and Schwartz (1983), Lazear and Michael (1988), England and Kilbourne (1990), Lundberg and Pollack (1996), and Agarwal (1997) challenge the unitary decision making model and have explored the factors, such as money and position, that shape household decisions.

[24] The procedure used here is based on a constant elasticity approach: Adjusted family income = inflation adjusted family income*(square root of 3)/(square root of the number of people in the family). This adjustment is similar but not quite identical to the setting of the poverty line. It is possible for a worker in this study to have personal earnings that are higher than adjusted family income; this occurs because personal earnings are not adjusted for family size while family incomes are. A single person's income is inflated to reflect a higher standard of living due to the absence of children, while a large family's income is deflated to reflect the lower standard of living it has because of the above-average number of children. Earners in large families have lower adjusted family incomes than equal earners in smaller families.

[25] In 2002, the official poverty threshold for a family of three was $14,494 (U.S. Census Bureau 2003a).

[26] It should be noted that many government programs (e.g., subsidized school lunches) also recognize that the official poverty line is quite low and allow families to make up to 185 percent of the poverty line to qualify (approximately equal to our $25,000 level).

[27] The full distributions are available from the authors.

- For years married: always (15 years), mostly (9-14 years), some (3-8 years), and rarely (0-2 years).

- For years with children: mostly (10-15 years), some (3-9 years), and rarely (0-2 years).

- For years as a single parent: often (5 or more years), some (1-4 years), and never (0 years).

We find the following patterns:

- The more years that children are present the more women have: fewer years in the paid labor force, more years with low working hours, and lower annual earnings when working.

- Women (and men) who are married more years have higher average family incomes across 15 years than those who are married fewer years.

- Women (but not men) who are married fewer years are likely to work more and have higher earnings.

- Women who are single parents for much of the 15 years in the study have much lower family incomes.

- Men and women with more years out of the labor force have lower family incomes.

- Among women who are continuously employed, marriage and children make less difference in personal earnings.

- Despite the prevalence of households in which working wives earn less than their husbands, a substantial share of wives earn more than their husbands over the 15 years of the study.

Years of Marriage

Table 12 shows the relationship between marital status, family income, personal earnings, and working time.[28] For women, persistence in marriage affects their economic well-being dramatically. Average annual family income is $71,455 for those who were always married but just $41,070 for those who were rarely married. This difference is also evident in the share of working adults averaging below our cutoff for long-term low income: 5 percent for the always-married versus 35 percent for the rarely-married.

This higher standard of living for married women is attained even though they work in the labor market much less. Always-married women have just over 5 years of working full-time, full-year (at least 1,750 hours annually); by contrast rarely-married women have more than 8 years of high yearly hours. Always-married women have more years out of the labor force and average just 1,161 hours in years when they are working. By contrast, the comparable annual work hours figure for rarely-married women is 1,546. Not sur-

Table 12. Marital Status, Family Income, Earnings, and Working Time for Women and Men, 1983-1998

Marital Status[a]	Share (percent)[b]	Average Annual Family Income[c]	Percent with Income[c] <$25,000	Average Annual Personal Earnings[d]	Average Annual Hours Worked[d]	No. of Years Not Working	No. of Years Working Less than 1,250 Hours	No. of Years Working 1,750 Hours or More
Women (weighted population = 33.9 million)								
All (Aged 26-59)	100	$61,319	14	$21,560	1,331	3.1	3.0	6.5
Always	50	$71,455	5	$19,372	1,161	3.6	3.7	5.3
Mostly	19	$60,624	14	$21,864	1,411	2.5	3.1	7.0
Some	14	$51,118	19	$24,594	1,567	2.8	2.1	8.0
Rarely	17	$41,070	35	$25,009	1,546	2.7	1.8	8.3
Men (weighted population = 32.7 million)								
All (Aged 26-59)	100	$67,075	8	$45,952	2,120	0.9	0.8	12.3
Always	56	$68,201	5	$48,906	2,184	0.5	0.6	13.0
Mostly	25	$72,583	5	$47,513	2,203	0.6	0.8	12.5
Some	14	$60,221	15	$38,722	1,909	2.5	1.2	10.4
Rarely	6	$55,811	26	$32,550	1,796	2.2	1.7	9.6

Notes: [a]'Always' refers to 15 years married; 'mostly' refers to 9-14 years; 'some' refers to 3-8 years; and 'rarely' refers to 0-2 years.
[b]May not sum exactly to 100 due to rounding.
[c]Family income has been adjusted to reflect family size.
[d]Zero-earnings years not included; ie. annual averages for personal earnings and hours worked are calculated only for years when work is reported. Weighted data are used to calculate all figures.
Source: Authors' calculations based on the Panel Study of Income Dynamics.

[28] Personal earnings have been top coded at $200,000 to reduce the effect of very high earnings on average earnings, and family income has been top coded at $200,000, for a family size of three, to reduce the effect of very high family incomes on average family income.

prisingly, the individual annual earnings figure for always-married women is $19,372 versus $25,009 for rarely-married women (see Table 12). This difference is entirely the result of differences in hours worked since average hourly earnings are about the same for all women independent of their 15-year marital histories.

Table 12 also shows that being married at least nine years is an important factor for men as well. The always- and mostly-married men earn approximately the same amount working about the same number of hours per year. The average family income for men married 9-14 years is slightly higher than for those married all 15 years because men married 9-14 years have some years in smaller households. In contrast, for men who are sometimes or rarely married, personal earnings are much lower and they spend many more years out of the labor force, work fewer hours per year, and earn lower hourly wages when working.[29]

Among men, the rarely married have the least work effort and the lowest earnings, while among women, the rarely married have the highest earnings and the second highest work effort.

Comparing men and women reveals that their average annual adjusted family incomes across 15 years were only slightly different, $67,075 for men versus $61,319 for women, despite men earning more than twice as much as women. These figures confirm the view that women make labor force decisions contingent on their partners' activities. Since women's earnings are so much lower than their male counterparts, they likely often reduce their time in the paid labor force to provide family care. Thus, women's low labor market earnings reinforce the gendered division of labor at home.

For the 31 percent of women who are married less than 9 of 15 years, this arrangement fails and they have a much lower living standard than women who are more consistently married.[30] Overall women are much more likely than men, 14 versus 8 percent, to average below $25,000 per year in family income. For women who are married two years or less, 35 percent experience annual family income below $25,000 on average (versus 26 percent of men).

Interestingly, rarely married men look pretty similar to rarely married women in terms of their years out of the labor market, years with low work hours, and personal earnings. Among men, however, the rarely married have the least work effort and the lowest earnings, while among women, the rarely married have the highest earnings and the second highest work effort.[31]

Years With Children

Tabulations for personal earnings, family income, and working time by years with children also reveal a number of interesting patterns for men and women (Table 13, Panel A). For women, slightly more than half had children present for at least 10 of 15 years. These women had the lowest individual earnings ($19,093) in the years when they worked. Women who had children present 2 years or less earned nearly $9,000 more per working year on average. Compared with women who rarely had children, women who mostly have children present across 15 years spend more years out of the paid labor market, work fewer hours, and earn less per hour. Both women's adjusted family incomes and their own earnings rise as years with children fall. Not only do women's higher earnings contribute to higher family income, but that income stretches further as the number of years children are present falls.[32]

Men, by contrast, have exactly the opposite pattern: those with children present for 10 or more years have the highest individual earnings. Their adjusted family incomes also rise as years with children fall, but not as much as in the case for women. Men with children mostly present also tend to put in the most working hours to achieve their higher individual earnings.[33] Lower adjusted family incomes for this group stem from both wives' lower work hours and earnings and the larger number of children – more mouths to feed.

Men who rarely had children in their households were also much less likely to be married. Consequently, their lower

[29] These differences were not the result of the relative youth of men with fewer married years, as always-married men were only slightly older than men who were married only some of the time or rarely. It is not clear whether men with less intense work effort are less attractive as marriage partners or if the lack of financial responsibility for a wife and children lead men to work less.

[30] These data are based on all prime-age men and women across the 15 study years. We also developed data for men and women who were in the labor force for all 15 years. With this restriction, the effect of years married drops significantly. Among women, average family income is $77,500 for the always-married and $53,400 for the rarely-married; the difference in personal earnings is just 10 percent – $27,400 for the always married and $30,700 for the rarely-married. Among men, there is no significant effect of the different lengths of marriage on family income, while the earnings level of the always-married male is $52,301 versus a rarely-married level of $40,560, again reflecting a smaller impact of marriage for the continuously employed.

[31] Selection likely plays a large role here. It is likely that women who spend less time in marriage have chosen to devote more time to their work careers, while men who spend less time in marriage may be those less willing, or able, to support a family (for men, those devoted to careers likely include having a family in their definition of success, something that is apparently more difficult for successful women to do). Powell (1993) finds that a majority of women managers are not married and have no children; Galinsky et al. (2003) find that women executives are more likely to have delayed marriage and having children than have other women or men.

[32] Tables 12 and 13 provide an interesting contrast. For women, the more years married, the lower their own earnings but the higher their family income due to higher male earnings. Additional years with children, however, lower both own earnings and family income. The many women who raise children outside marriage lack the income boost provided by male earnings.

[33] They also were a bit younger than men with children present less often which may be a reason why their hourly wage rates were not yet at a higher level.

Table 13. Presence of Children, Family Income, Earnings, and Working Time for Women and Men, 1983-1998

Panel A: The Effect of the Presence of Children on Women and Men's Family Income, Earnings, and Working Time

Presence of Children[a]	Shares (percent)[b]	Average Annual Family Income[c]	Percent with Income[c] <$25,000	Average Annual Personal Earnings[d]	Average Annual Hours Worked[d]	No. of Years Not Working	No. of Years Working Less than 1,250 Hours	No. of Years Working 1,750 Hours or More
Women								
All (Aged 26-59)	100	$61,319	14	$21,560	1,331	3.1	3.0	6.5
Mostly	53	$54,378	16	$19,093	1,215	3.3	3.6	5.8
Some	30	$63,302	15	$21,635	1,345	3.6	2.5	6.6
Rarely	17	$76,982	7	$28,016	1,619	1.9	2.2	8.2
Men								
All (Aged 26-59)	100	$67,075	8	$45,952	2,120	0.9	0.8	12.3
Mostly	45	$61,701	6	$48,351	2,202	0.5	0.6	13.0
Some	27	$71,390	8	$46,112	2,101	1.1	0.9	12.0
Rarely	28	$73,920	11	$39,562	1,941	1.6	1.3	10.8

Panel B: The Effect of the Presence of Children on Women Who Worked All 15 Years

Presence of Children[a]	Percent of Women Who Worked 15 Yrs.	Average Annual Family Income[c]	Average Annual Personal Earnings[d]	Average Annual Hours Worked[d]	No. of Years Working Less than 1,250 Hours
Women Who Worked 15 Years					
All (Aged 26-59)	47	$70,675	$29,097	1,811	2.2
Mostly	41	$60,782	$27,731	1,776	2.5
Some	45	$76,121	$29,018	1,823	2.0
Rarely	67	$81,492	$31,395	1,854	2.0

Notes: [a]'Mostly' refers to 10-15 years with children; 'some' refers to 3-9 years; and 'rarely' refers to 0-2 years.
[b]May not sum exactly to 100 due to rounding.
[c]Family income has been adjusted to reflect family size.
[d]Zero-earnings years not included; ie. annual averages for personal earnings and hours worked are calculated only for years when work is reported. Weighted data are used to calculate all figures. Weighted population sizes for Panel A can be found in Table 12; for Panel B in Table 11.
Source: Authors' calculations based on the Panel Study of Income Dynamics.

personal earnings had to support many fewer people. They tend to work less and have more years out of the labor force or more years with fewer than 1,250 hours worked. As with years of marriage, women and men who rarely had children present had more similar labor market experiences than their counterparts with children more often present. Women with the fewest years with children work and earn the most among all women, while men with the fewest years with children work and earn the least among all men.

Just as with marriage (see n.30), the presence of children affects women's earnings less for the group of women who work in all 15 years in the study period (see Table 13, Panel B). Family incomes are also higher overall for this group of strongly attached women workers, partly because of their own higher earnings and partly because they have fewer years with children overall. For these continuously employed women, earnings and work hours vary little across the number of years with children (12 percent for earnings and 4 percent for work hours versus 32 percent for earnings and 25 percent for work hours for all women workers in Panel A).

Being a single parent has a profound impact on the 17 percent of women who have at least five years in this state: on average their family incomes are almost exactly one-half of the level of women who have no years being a single parent.

Years as a Single Parent

Table 14 presents data on the earnings, income, and work experience of single parents. Single parent status is more common among women (32 percent) than among men (12 percent). As expected being a single parent has a profound impact on the 17 percent of women who have at least five years in this state: on average their family incomes are almost exactly one-half of the level of women who have no years being a single parent. Being a single mother increases the likelihood of spending at least some years with family incomes below $25,000. While 38 percent of women who were often single parents had average family incomes below this level, 80 percent had at least one year of low family income (data not shown). For women who were sometimes a single parent, 17 percent averaged below $25,000 in family income per year and 63 percent had at least one year of low family income.

The work history of single mothers reflects their need to juggle the competing pulls of being the prime breadwinner and of having to carry all of the family responsibilities themselves. From the data shown, the variation in earnings, work hours per year of work, and years

Table 14. Single Parenthood, Family Income, Earnings, and Working Time for Women and Men, 1983-1998								
Number of Years As a Single Parent[a]	Share (percent)[b]	Average Annual Family Income[c]	Percent with Income[c] <$25,000	Average Annual Personal Earnings[d]	Average Annual Hours Worked[d]	No. of Years Not Working	No. of Years Working Less than 1,250 Hours	No. of Years Working 1,750 Hours or More
Women								
All (Aged 26-59)	100	$61,319	14	$21,560	1,331	3.1	3.0	6.5
Never	68	$70,150	7	$21,980	1,292	3.2	3.2	6.1
Some	15	$50,897	17	$20,632	1,476	2.8	2.6	7.6
Often	17	$35,760	38	$20,721	1,358	3.2	2.6	7.2
Men								
All (Aged 26-59)	100	$67,075	8	$45,952	2,120	0.9	0.8	12.3
Never	88	$67,766	7	$46,535	2,133	0.9	0.8	12.4
Some	10	$64,164	10	$42,567	2,083	1.2	1.1	11.8
Often	2	$53,120	22	$38,115	1,798	1.5	2.1	9.9

Notes: [a]'Never' refers to 0 years as a single parent; 'some' refers to 1-4 years; 'often' refers to 5 or more years.
[b]May not sum exactly to 100 due to rounding.
[c]Family income has been adjusted to reflect family size.
[d]Zero-earnings years not included; ie. annual averages for personal earnings and hours worked are calculated only for years when work is reported. Weighted data are used to calculate all figures. Weighted population sizes can be found in Table 12.
Source: Authors' calculations based on the Panel Study of Income Dynamics.

out of the labor force is surprisingly small across the number of years in single parent status.

Fewer men were single parents overall and very few (2 percent) were often a single parent. Men with the most years of single parent status worked the least hours among all men, had the most years out of the labor force, and had the lowest earnings and family income. Nevertheless, on all these work effort and earnings/income variables, single fathers fare much better than single mothers. It is likely that single fathers have older children who limit their working time less, and also that their higher earnings enable them to find more reliable child care, which in turn facilitates their higher work effort.

Personal Earnings and Family Incomes for Women and Men

Table 15 shows the relationship between personal earnings and family incomes for workers who have no years out of the labor force across the 15 years in the study. Even for this group of committed workers, only 9 percent of women average more than $50,000 in earnings per year on average, while 45 percent average $25,000 or less. Among men, only 11 percent average less than $25,000 per year, and 42 percent earn more than $50,000 annually on average. For both women and men, $25,000-$49,999 is the most common earnings range, with nearly half in that category, but for women that range is effectively the top, while for men it is the bottom. There is a more direct relationship between personal earnings and family income for men than women, most likely because men are more often the larger earner in the marriage. Thus, the relatively few men with earnings below $25,000 were in families with average adjusted incomes below $40,000. In contrast, women with these low earnings were in households that averaged approximately $50,000 in adjusted family income. Of the 1 percent of men with average earnings below $15,000 annually, 40 percent had average family incomes below $25,000, while for the 18 percent of women with such low earnings, only 16 percent had family incomes below $25,000.

Table 15 also shows once again the relationship between years of marriage and personal earnings. For men, personal earnings rise with years of marriage; for women, they fall – the higher the personal earnings the lower the years of marriage, except among the highest earning women. Women who average more than $75,000 across the 15 years in the study have an average marriage duration of 12.4 years, higher than the average of 10.2 years for all continuously employed women in the study.

Another way to look at the same type of data is to sort the adults first by their family income levels (rather than their personal earnings levels as in Table 15). Table 16 starts with family income in the furthest left column and tracks the labor market performance of women and men, but for the full study population of all workers (not only continuous workers as in Table 15). As Table 16 shows, personal earnings rise substantially with household incomes for both women and men, but for women they do not vary as much across household income levels as men's earnings do. Women's earnings range from $9,000 per year at low family income up to $34,000 per year at high family income, while men's personal earnings range from $15,000 per year to $70,000 per year. At all family income levels at $37,500 or above,

Table 15. Personal Earnings and Family Income for Continuously Employed Women and Men, 1983-1998

Personal Earnings	Share (percent)[a]	Average Annual Family Income[b]	Percent with Income[b] <$25,000	Percent with Income[b] $25,000-$49,999	Percent Ever Experiencing Income[b] <$25,000	Average Years Married
Women (weighted population = 16.3 million)						
All (Aged 26-59)	100	$70,675	4	28	30	10.2
<$15,000	18	$49,052	16	40	56	12.2
$15,000-24,999	27	$52,306	3	56	55	9.5
$25,000-49,999	45	$79,838	0	11	9	9.9
$50,000-75,000	8	$120,286	0	0	4	9.1
>$75,000	1	$142,526	0	0	14	12.4
Men (weighted population = 28.1 million)						
All (Aged 26-59)	100	$73,435	2	25	22	12.6
<$15,000	1	$29,586	40	53	93	9.4
$15,000-24,999	10	$37,339	14	71	65	11.4
$25,000-49,999	46	$58,486	1	35	27	12.5
$50,000-75,000	28	$85,035	0	0	8	12.7
>$75,000	14	$129,117	0	0	1	13.7

Notes:[a]May not sum exactly to 100 due to rounding.
[b]Family income is adjusted to reflect family size. Weighted data are used to calculate all figures.
Source: Authors' calculations based on the Panel Study of Income Dynamics.

Table 16. Family Income by Personal Earnings and Hours Worked for Women and Men, 1983-1998

Family Income[a]	Average Personal Earnings[b]	Average Hours Worked[b]	No. of Years Not Working	No. of Years Working Less than 1,250 Hours	No. of Years Working 1,750 Hours or More	No. of Years Married
Women (weighted population = 33.9 million)						
All (Aged 26-59)	$21,560	1,331	3.1	3.0	6.5	10.5
<$25,000	$9,182	867	7.0	3.1	3.5	6.0
$25,000-37,499	$13,520	1,241	3.5	3.2	5.8	9.2
$37,500-49,999	$16,989	1,416	2.3	3.1	7.4	10.2
$50,000-75,000	$21,328	1,393	2.6	3.0	6.9	11.6
>$75,000	$34,012	1,487	2.2	2.9	7.4	12.6
Men (weighted population = 32.7 million)						
All (Aged 26-59)	$45,952	2,120	0.9	0.8	12.3	12.0
<$25,000	$15,543	1,430	5.1	2.5	6.2	8.0
$25,000-37,499	$23,734	1,925	1.8	1.4	10.5	12.0
$37,500-49,999	$32,146	2,104	0.4	0.7	12.7	12.1
$50,000-75,000	$42,566	2,153	0.5	0.8	12.6	12.5
>$75,000	$70,441	2,328	0.2	0.3	13.7	12.4

Notes:[a]Family income is adjusted to reflect family size.
[b]Zero-earnings years not included (I.e. annual averages for personal earnings and hours worked are calculated only for years when work is reported). Weighted data are used to calculate all figures.
Source: Authors' calculations based on the Panel Study of Income Dynamics.

men earn twice as much as women on average. For women in these higher-income households, variation in hours worked, years not working, or years of high or low working hours is small, whereas for men higher household incomes are generally associated with greater work effort.

Yet for both men and women personal earnings and household incomes rise faster than do hours worked.[34] This pattern indicates the prevalence of associative mating: more highly-educated and higher paid women marry men with more education and higher pay. Total family work hours do increase with higher household income, but only slightly while total earnings increase much faster.

Table 16 again shows that years of marriage are associated for women with higher household incomes. Among prime-age working women, as household incomes increase the prevalence of marriage increases. For men, however, there is little difference in years married except for the few men in households with incomes below $25,000, who have substantially fewer married years.

Table 17 shows the relationship between years out of the labor market, average family incomes, and low family incomes. Average family income seems to be more responsive to

[34] For women with no years out of the labor force, the average hours worked hardly varies at all with household income (between 1,764 and 1,866 hours) while earnings vary widely. Women with household incomes below $25,000 have personal earnings of $12,434 while women in the highest household income category (greater than $75,000) work just 100 extra hours per year but average $40,413 in earnings (more than three times as much).

Table 17. Long-Term Family Income and Prevalence of Low Income by Labor Force Persistence for Women and Men, 1983-1998

Number of Years Out of Labor Force	Share (percent)	Average Annual Family Income[a]	Percent with Income[a] <$25,000
Females (weighted population = 33.9 million)			
All (Aged 26-59)	100.0	$62,984	11
None	48.5	$70,675	4
1	10.2	$59,682	9
2 or 3	11.8	$60,342	12
4 or more	29.5	$54,112	23
Males (weighted population = 32.7 million)			
All (Aged 26-59)	100.0	$69,319	6
None	84.0	$73,435	3
1	7.5	$58,240	10
2 or 3	4.8	$49,954	16
4 or more	3.7	$33,446	49

Note: [a]Family income is adjusted to reflect family size. Weighted data are used to calculate all figures.
Source: Authors' calculations based on the Panel Study of Income Dynamics.

years out of the labor force for men than for women. Comparing workers who have no years out of the labor force with workers who have four or more years out of the labor force, we see that women's family income falls by 23 percent, while men's family income falls by 54 percent. This supports our previous assertion that because women are often not the primary earner, family income is less dependent on women's earnings than on men's.

Wives Who Earn More Than Their Husbands

While much of the data presented in this chapter confirm that men are generally higher earners and contribute more to family income than women do, there are some wives who do out earn their husbands across the 15 years of the study. Table 18 again shows the study group of men and women who work continuously over all 15 years. In addition, the comparison of wives' to husbands' earnings is restricted to those who are married all 15 years. Of this group (about one-third of the total study sample), 15 percent of wives earn more than their husbands on average across 15 years. For the approximately 8 percent of continuously working and continuously married women who earn $50,000 per year or more, nearly half earn more than their husbands on average across the 15 years of the study. And of the approximately 12 percent of continuously working and married husbands who earn less than $25,000 per year, about half have wives who earn more than they do.

The 15 percent of women who earn more than their husbands do not necessarily earn very much more; many of them are 'dual earners' rather than 'primary' earners. Of the 15 percent, about 4 percent earn less than 10 percent more than their husbands. Eleven percent earn at least 10 percent more, while only half of those (about 5 percent) earn 25 percent or more than their husbands do (data not shown).

In terms of hourly wages, 24 percent of continuously working and continuously married wives earn more than their husbands on average across the 15 years in the study (data not shown). As we saw in Chapter 3, the group of women who works in all 15 years earns more than the group who does not; thus, we are considering higher earning wives in this comparison. Since only 15 percent out earn their husbands during the average year, many of the wives with higher hourly wages are working less than their husbands on average.[35]

While 15 percent of wives earn more in terms of average annual earnings than their husbands across the 15 years,

Table 18. Wives Who Earn More Than Their Husbands, 1983-1998 (Continuously Employed and Married Women and Men)

	Share (percent)[a]	Percent of Wives Who Earn More Than Their Husbands
Wives' Earnings		
All (Aged 26-59)	100.0	15
Less than $15,000	23.0	0
$15,000 - $24,999	26.0	11
$25,000 - $49,999	43.0	19
$50,000 - $75,000	6.3	46
$75,000 and up	1.5	45
Husbands' Earnings		
All (Aged 26-59)	100.0	15
Less than $15,000	0.6	82
$15,000 - $24,999	11.0	40
$25,000 - $49,999	52.0	15
$50,000 - $75,000	27.0	3
$75,000 and up	10.0	6

Note: [a]May not sum exactly to 100 due to rounding.
Source: Authors' calculations based on the Panel Study of Income Dynamics.

[35] Maximizing joint income would generally suggest that the higher earning partner would specialize in wage work while the lower earning one would specialize in family care and home work; for approximately half of the wives who earn more than their husbands per hour this does not happen across the 15 year study.

even more have an occasional year when they do so. Forty-one percent have at least one year with higher earnings than their husbands', while 8 percent out earn their husbands in most years. Half (51 percent) never have a year with higher annual earnings than their husbands. Two-thirds of continuously working and continuously married women never earn more than 25 percent more than their husbands, but that means about one-third have one or more years when they do out earn their husbands by at least 25 percent (data not shown).

In terms of hourly wages, while 24 percent averaged more per hour than their husbands across the 15 years of the study, 70 percent of continuously working, continuously married women had at least one year when their hourly wages averaged more than their husbands'. For wives with college or graduate degrees, more than 85 percent had at least one year when they out earned their husbands in terms of hourly wages (data not shown).[36]

While 15 percent of wives earn more in terms of average annual earnings than their husbands across the 15 years, even more have an occasional year when they do so. Forty-one percent have at least one year with higher earnings than their husbands', while 8 percent out earn their husbands in most years.

[36] These figures were recalculated by presence of children with little change in the results, most likely because continuously working women are among the most committed women, and marriage and children affect them less. Relaxing the requirement of continuous work to working for at least eight years also had little effect on the results.

CHAPTER 7
Policy Implications

While experts disagree about the significance that should be attributed to the remaining differences found in women's and men's work experiences in and out of the labor market, we argue in this report that they are significant for many reasons.

- First, the gender gap in earnings has a major influence on families' life choices and poverty rates, on older women's retirement security, and on single mothers' ability to provide for their children's care and education. More and more women, both single mothers and married women, are contributing to their family's income through their paid work. Nearly all families with women earners or would-be earners would have a higher standard of living if women's wages and lifetime earnings were higher.

- Second, there is ample evidence that women's low earnings are not primarily the result of their preferences for low-wage work. Rather women face discrimination in the labor market and in pre-labor market preparation as well. The degree of sex segregation in the labor market is striking and women's jobs at all educational levels pay less than men's jobs at the same level. Women's access to the better paying jobs and occupations is still constrained. Women deserve equal opportunity in the labor market.

- Third, while many women spend more time on family care than many men, the choices women and men make in allocating their time between work and family are heavily constrained. The lack of societal provisions for family care such as subsidized child and elder care means that most families have to fend for themselves. Women's lower earnings, of course, make it more practical for the family to sacrifice the woman's rather than the man's earnings and, given the loss of the woman's earnings, the man often works even more hours.

- Thus, a kind of perverse internal logic perpetuates a system with a rigid division of labor both in the workplace and in the home. Employers may feel justified in discriminating against women workers if they think they will be less devoted to their jobs because of family responsibilities. They may structure jobs as part-time and dead-end for this reason and many women may accept them because they cannot find better-paying jobs. Labor market discrimination means lower earnings for women; women's low earnings mean women spend more time in family care; women's commitments to family care contribute to discrimination against them. Single mothers especially suffer as they must attempt to support their families on women's lower wage levels.

- Finally, such a system surely fails to use human talent productively. How much total output is lost to society because the skills of women are not developed and put to work in the most productive way? To what extent are economic resources misallocated because of the constraints noted above? To what extent are both men and women denied the opportunity to allocate their time between home and work as they would most prefer?

In assessing the likelihood of future changes in women's working time and earnings, several trends favor continued gains in women's economic achievement. Despite the self-reinforcing nature of the gendered division of labor described above, the arrangement is also somewhat unstable. Women and men are spending more of their lives outside marriage. Women are demanding more independence and greater economic security throughout their lifetimes, whether married or single. Both men and women tend to believe women are underpaid and should be paid fairly for their work. And men are participating more in family care.

On the education front, women are now closing the graduate school gap with men. Women have begun to outnumber men in law and medical schools and have increased their numbers substantially in business schools (Conlin 2003). Yet, since women now outnumber men as graduates of four-year colleges, it seems likely that overall the rate at which women increase their years of education relative to men will slow.

Anti-discrimination and equal opportunity laws continue to open many jobs to women, and women are even beginning to break into the major corporate CEO ranks (six of the Fortune 500 companies are now headed by women; Jones 2003) and Congressional and statewide elective offices (13.6 percent of the U.S. Congress is now female and women hold six governors' seats; CAWP 2003a and CAWP 2003b). While women's rate of achieving such highly visible leadership spots as these seems slow, and lags behind that in other countries (Inter-Parliamentary Union 2003), nevertheless progress is being made.

Then, too, women may have an advantage in their location in the economy. As the economy continues its transition from agriculture and manufacturing to a new service economy based in offices, men lose their 'natural' physical advantages. Moreover, given women's increasing education relative to men, women stand to gain relative to men in this new economy where education is increasingly important (Richer et al. 2003). Manufacturing jobs, which are disproportionately held by men, were particularly hard hit in both the 1991 and 2001 recessions and much of the job loss is expected to be permanent. As equal opportunity laws and

women's improved educational preparation have opened up new types of jobs to women, some of the traditional female professions have experienced labor shortages and can no longer attract the same quality of worker they once could when women had fewer opportunities elsewhere. These factors may lead to wage growth in some of these traditionally female jobs, like teaching and nursing, though the data presented in this study show that women's professions still pay much less than men's. In other traditionally female jobs, like secretaries and receptionists, computers and telecommunications are reducing demand but are contributing to increases in demand for other jobs like customer service representatives and telemarketers. These new jobs, although denigrated by some, actually pay about the same as clerical workers have generally earned. Overall, there are many reasons why women's economic gains are likely to continue, but there are also reasons for concern.

As this study demonstrates, the pay gap remains quite large and is bigger than many people think. Women still retain primary responsibility for family care in many families, making it difficult for women workers to compete equally with their male counterparts. Ideological attacks on women's equality also seem to be growing (or in any case not abating). Every few years, the media reassert that working moms may be hurting their children and wearing themselves out under the strain of the double burden.[37] In late 2002, Allison Pearson's *I Don't Know How She Does It: The Life of Kate Reddy, Working Mother* (Anchor Books) provided an example of this trend. And in late 2003 Lisa Belkin in "The Opt-Out Revolution" (*New York Times Magazine*, October 26) argued that highly educated and high earning women (with high earning husbands) are increasingly stepping off the fast track voluntarily, without presenting much evidence to support an actual increase. Her article also seemed to down play the evidence she had collected in her interviews of this small, select group, showing that several of the women dropped out only because their employers would not offer more family friendly work schedules. The cultural war over the demands of childrearing and work represents a real dilemma that society must face. The critics of working mothers and the champions of at-home mothers, however, tacitly assume that it is primarily the responsibility of women alone to solve the problem.

The genie is out of the bottle. Women, even those with young children, are working for significant portions of their lives. And, despite the economic slowdown and the continuing critique of women's increased employment, women continue to devote more and more hours to work and fewer to family care. They don't appear to be changing their minds and going back home.[38] While many married women are partially insulated from the effects of their own lower earnings by living with higher earning men, overall women are acting to reduce their economic dependence on husbands and to protect themselves from the vulnerabilities of divorce. Women are choosing the path to greater independence, arranging childcare, balancing their work and care giving tasks as best they can, and trying to get their partners to put in their fair share of housework and care giving.[39] Women are spending less of their adult lives in marriage, marrying later, and having fewer children. One-third of prime age working women have at least one year as a single parent. Women's needs for equal earnings are increasing as they spend less time living with men.

Women are choosing the path to greater independence, working more hours for pay, balancing their work and care giving tasks as best they can, and trying to get their partners to put in their fair share of housework and care giving.

The current system also places a burden on American men, who have the longest work hours in the advanced industrialized world, and the least leisure. The relative lack of infrastructure to support working parents in the United States (subsidized childcare, paid family leave) means that families are left to cope on their own. Most do so by increasing male work hours, enabling women to work less and spend more time on family care in the short run, but increasing women's economic vulnerability in the long run.

And to the extent that women's unequal pay contributes to poverty, it places a strain on our social safety net. The cumulative effect of years of lower earnings for women raises the cost to our welfare system, and reduces tax revenues.

Can the system change to become more conducive to women's equality? Certainly nothing is fixed in the long run, but many barriers remain in the United States. If women in the United States hope to improve their economic standing

[37] Interestingly, research shows that mothers today, despite spending much more time working for pay, spend about as much time directly interacting with their children as mothers a generation ago (Bianchi 2000).

[38] While data show a small drop from 1998-2002 in the labor force participation of mothers with infants (children less than one year of age), at approximately the same time the economic recession and slow recovery reduced labor force participation generally. The long-run trend in the labor force participation of mothers has been one of considerable increase. For mothers of infants, for example, the proportion in the labor force increased from 31 percent in 1976 to 55 percent in 1995, roughly the same as the 2002 figure of 54.6 percent (U.S. Census Bureau 2003b: Figure 2).

[39] In an overview of changes in women's well-being, Blau (1998) shows that housework time decreased for almost everyone between 1978 and 1988. Married men were the only group to increase their housework time, indicating that married women were having some success in getting household tasks reallocated.

and achieve greater economic parity with male workers, there must be a systematic change in both practices and policies with regard to work and family life. Among the policy strategies that are needed are the following:

- Strengthening equal employment opportunity (EEO) enforcement, by increasing federal support for government oversight agencies, both the Equal Employment Opportunity Commission (EEOC) and the Office for Federal Contract Compliance Programs (OFCCP). Complaints could be resolved more quickly with more resources, and, if more cases were resolved in the plaintiffs' favor, due to stronger and more timely enforcement efforts, employers would have larger incentives to improve their employment practices. The OFCCP could target federal contractors in egregious industries (e.g. construction) to encourage them to adhere to their affirmative action plans, much like mining and banking were targeted in the 1970s. One promising approach might be to audit many large employers regularly for discrimination, much the way large federal contractors have their financial transactions continually monitored by on-site auditors. Women's greater entry into predominately male jobs in the middle tier— in fire fighting, police work, or skilled trades—would be especially important in raising women's wages since women's jobs in this tier are particularly underpaid relative to men's jobs.

- Opening up educational and job training opportunities. Unfortunately there are still too many women who have been discouraged from pursuing higher education and/or job training for occupations that are not traditionally held by women. Jobs in the skilled trades and in the computer industry, for example, frequently require pre-job preparation that women are less likely to have access to. Programs that help women get to the starting gate with equal skills will benefit women tremendously.

- Developing new EEO remedies to address unequal pay for jobs of comparable worth (the tendency for jobs done disproportionately by women to pay less than jobs that require similar skill, effort, and responsibility but are traditionally held by men). Employers could be required to show that comparable jobs are paid fairly, using tools such as job evaluation systems that measure job content on many dimensions. Both men and women in jobs that are underpaid because they are done predominantly by women would stand to gain from comparable worth implementation.

- Improving workers' bargaining power in the workplace, such as through encouraging increased unionization in unorganized sectors and raising the minimum wage, especially since women are over-represented among the non-unionized and low-wage work force. Living wage campaigns and efforts to tie the federal or state minimum wages to cost of living increases all raise public awareness about the importance of setting a reasonable wage floor. A reasonable wage floor disproportionately benefits women workers and the children they support.

- Creating more good part-time jobs that provide decent pay, benefits, and promotion opportunities. A less than optimal equilibrium may have formed in the labor market where many good jobs require more than 40 hours of work per week. This prevents workers from entering such jobs if they want to work fewer hours, and employers miss the opportunity to learn whether part-time workers in these jobs can contribute equally (on a per hour basis). Career part-time jobs could be fostered by public sector employers and, if successful, private sector employers could be encouraged to follow suit. Single parents would also be especially helped by the greater availability of part-time jobs with good hourly pay and benefits since their family care responsibilities generally limit their hours to less than full-time.

- Making work places 'family friendly'—including flexible hours, parental and other family care leave (including paid leave), and paid sick leave. Too often it is the lowest-paid workers who have the least access to these benefits since they are not legally required of most employers. Yet if such leaves were made more available and if they were used equally by both sexes, new workplace norms would be developed that recognize that all workers, male or female, have responsibilities to others that sometimes take them away from their jobs. Such paid leave programs could be provided through social insurance schemes, such as the recent expansion of the Temporary Disability Insurance system in California to include paid leave for family care. More wide spread use of leaves should, over time, reduce the earnings penalties observed for time out of the labor market.

- Providing more high quality, affordable childcare, through subsidized childcare centers at workplaces and in the community, and more public subsidies for higher education as well. Since well-reared and well-educated children are an asset to the whole society it makes no economic sense that most parents shoulder the financial responsibility for children's care and education alone. This arrangement disadvantages single mothers particularly since they have only one wage, and a lower one at that, with which to provide for their children.

- Encouraging men to be full participants in family care. Such sharing can be encouraged by government requirements for both parents to share available parental leave (as is done in the Nordic countries) and by utilizing the bully pulpit to educate employers and the public about the positive benefits

of encouraging men to exercise options for flexible work arrangements when available and spend more time with children and less time working. A full-scale public education campaign against the double-standard in parenting, in which mothers seem to be expected to meet a higher standard of care than fathers, is needed.

- Reducing income tax rates on secondary earners, most often women, and reducing the 'marriage penalty' for dual earner couples. Higher tax rates for married couples are found up and down the income scale and they generally depress the work effort of the lower earning member of the couple.

- Improving access to non-custodial fathers' incomes or otherwise raising incomes in single mother families. Since single mothers and their children suffer disproportunately from poverty and near-poverty, even when the mother works (as the mothers in this study do), additional measures are needed to improve their income and support their work effort. In addition to paid leave and other family-friendly benefits, benefits such as subsidized housing or child care should be extended further up the income scale. Child support should be increased and income and property settlements at divorce should be more generous to the custodial parent. A strong safety net and work supports are necessary for low-income parents to maintain their employment and enable them to gain from long-term, steady employment.

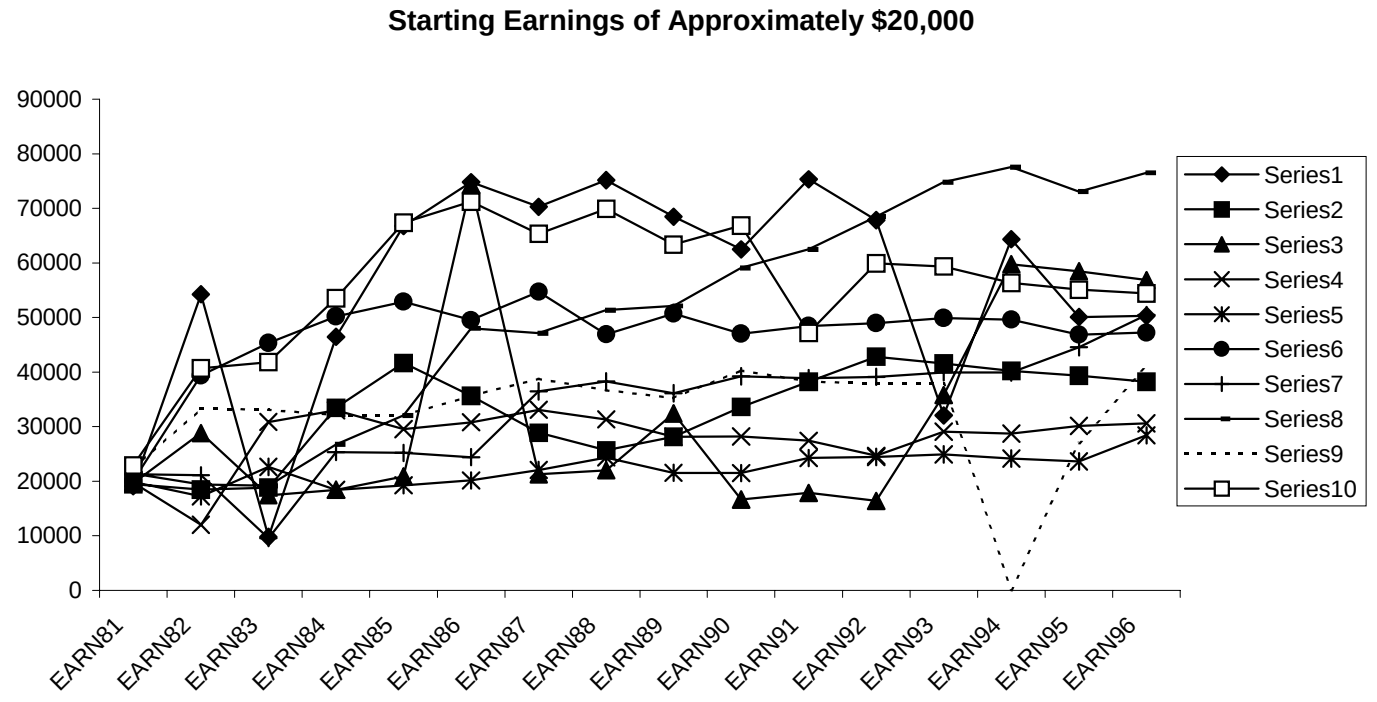
- Democratizing the 'old boy' network**.** Since many positions in the economy depend on strong social interactions, these seemingly non-work relationships have economic consequences. The refusal of the Augusta National Golf Club to admit women in the spring of 2003 is one example of a principal location where the 'old boy' network remains intact. More surprising, perhaps, is the failure of male corporate leaders to resign from the club quickly once its exclusive membership policies became generally known. Federal EEO regulations and tax laws could be strengthened to clarify that employer support of such networks is discriminatory and not allowable as a business related tax deduction.

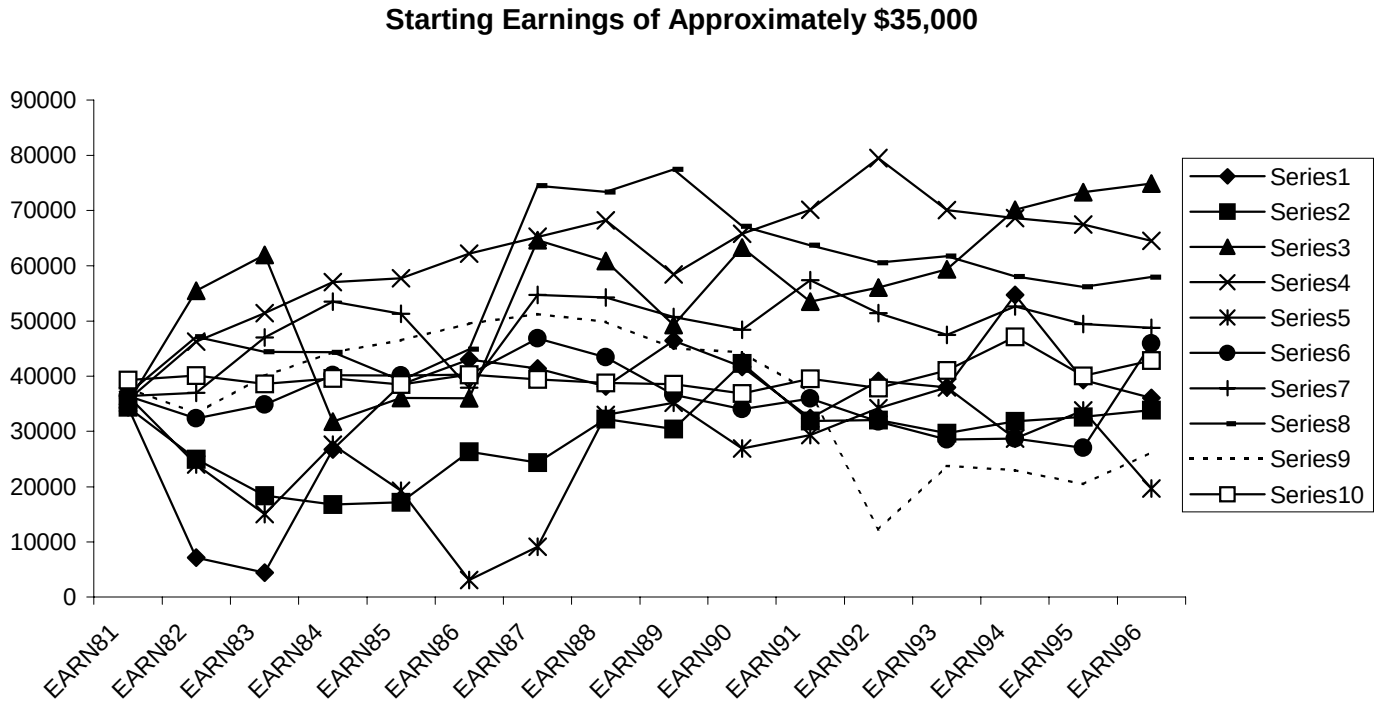
- Reducing working time norm**s.** As long work hours increasingly become the standard, women can be more easily excluded because they are less likely to be able to meet this requirement. Most European countries manage to both provide more public support for parenting and have lower working hours on average. Reducing work hour norms, perhaps through eliminating or setting a cap on mandatory overtime, increasing the required premium paid for overtime work, or reducing the standard work week to 35 hours could spread the work and jobs more equitably across all members of society, increase gender equality in family care time, and increase the time available for leisure and civic engagement.

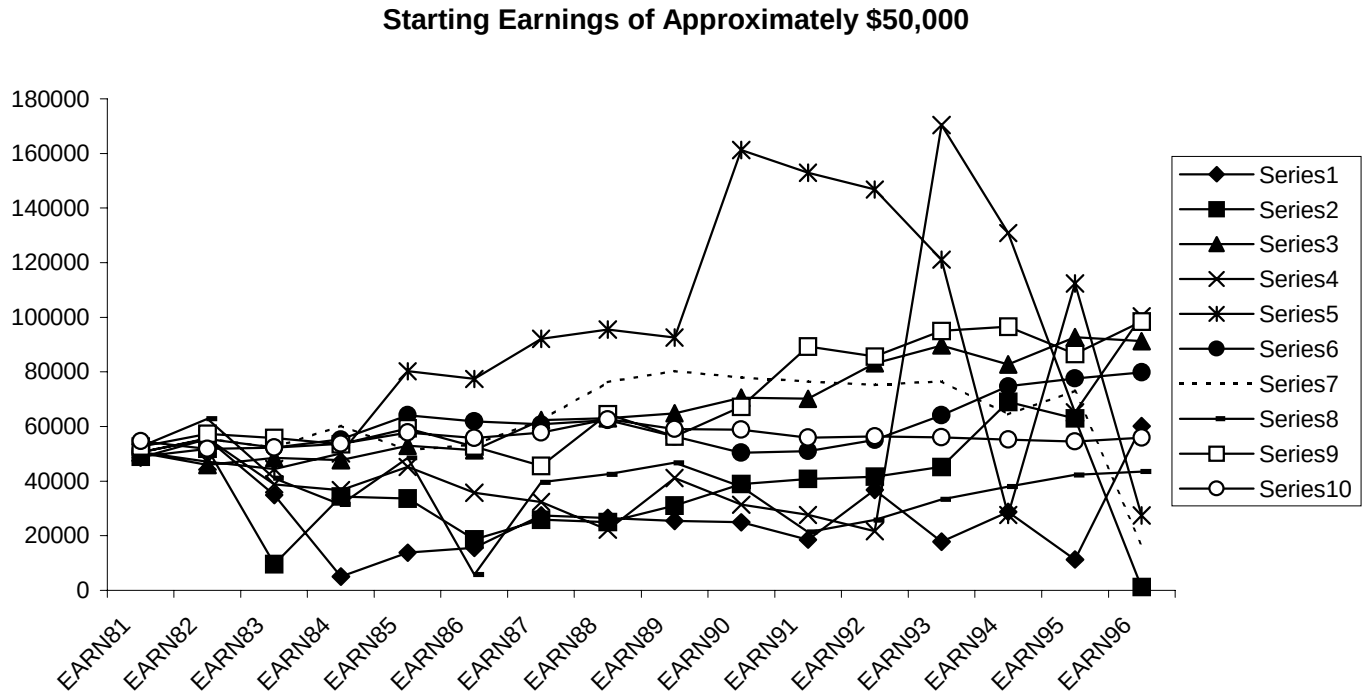
Achieving equality in the work place will likely require several more decades. The important thing is to keep the momentum going and prevent backsliding toward the reestablishment of the feminine mystique or 1950s family values. Instead, we must continue the progress our society has been making toward equal opportunity and fair compensation for women in the labor market and the more equitable sharing of family care between women and men.

APPENDIX 1
Illustrations of Selected Earnings Histories

Figure A1. Fifteen-Year Earnings Paths for Selected Male Workers







Source: Authors' calculations from the Panel Study on Income Dynamics.

APPENDIX 2
Occupational Categories and Earnings by Education and Gender-Tier

The official government statistics on occupations are quite detailed with more than 500 separate 'three digit' categories (there is another 9-digit breakdown with more than 10,000 occupations, and even this level can be considered highly aggregated since it is used to describe the jobs available to the 147 million member U.S. workforce). For many analyses, users need even larger categories. The Census Bureau groups these detailed occupations into larger 'two-digit' and 'one-digit' categories that include mostly, but not entirely, similar groups of occupations. In particular, the Cenus Bureau often groups lower level employees with higher level employees in the same functional category.
For example cashiers and sales clerks are grouped with highly paid manufacturing representatives, securities dealers, and real estate sales agents in an overall sales category. Police are grouped with security guards although their average levels of education are much higher.

In order to look at career paths and distinguish lateral from upward movements, it is necessary to combine occupations into more homogeneous groups. One common method for doing this uses the Census Bureau's 'two-digit' categories and adjusts them slightly to group those occupations that are in the same functional area but also are at about the same hierarchical level.

In previous work by Stephen Rose (Rose and Carnevale 1998), this reallocation was done by first defining 21 detailed occupations roughly equivalent to the Census Bureau's 'two-digit' level and then grouping them into eight larger clusters of similar occupations (roughly equivalent to the Census Bureau's 'one-digit' occupations). In this work hierarchical level was measured by the amount of education and training job incumbents typically have; the result was eight occupational clusters that require similar years of education and training and also tend to have similar pay.

For this study, the eight clusters were further combined into three grand tiers of elite, good, and less-skilled jobs. This procedure helps us simplify the analysis of workers' careers across 15 years. To highlight the salience of sex segregation in the labor market, the 21 occupations, now assigned to three grand tiers, were separated into those that are held by a majority of females and those that are held by a majority of males. Of the 21 occupations, most

Table A1. Detailed Occupations by Three-Tier Schema and Male and Female Sectors

Tier 1 – ELITE JOBS
Male Elite Jobs
Business Managers (without retail or sales supervisors, etc.)
Lawyers and Judges
Medical Doctors and other Health Diagnostic Professionals
Accountants and other Business Professionals
Sales Representatives, Stock Brokers, Insurance, and Real Estate Agents
Engineers, Architects, Pilots, Chemists, and other Degreed Professionals
Female Elite Jobs
Nurses, Physical Therapists, and other Health Professionals
College and K-12 Teachers
Musicians, Actors, Writers, Clergy, and others in the Arts
Tier 2 – GOOD JOBS
Male Good Jobs
Retail Managers and Supervisors and non-Professional Self-Employed
Blue-Collar Supervisors and Related Self-Employed
Craft and Skilled Blue-Collar Workers
Farm Owners and Managers
Fire Fighters and Police
Female Good Jobs
Clerical and Administrative Support Workers
Health and Science Technicians
Tier 3 – LESS-SKILLED JOBS
Male Less-Skilled Jobs
Factory Operators and other Blue-Collar Workers
Laborers and Helpers
Farm Workers
Female Less-Skilled Jobs
Sales Clerks
Personal, Janitorial, and Food Service Workers

Source: Further analysis by authors of occupational categories in Rose and Carnevale 1998.

are 65 percent or more one sex or the other; a few closer to 50 percent were simply assigned with their majority group in their appropriate tier.

The result is six gender-tiers, as shown in Table A1. Each of the three tiers is separated into its male and female sectors. The 21 occupations are also shown arranged in their six gender-tier groups.

As this study shows, each of the six gender-tiers is surprisingly dominated by either males or females. At least seventy-five percent of the incumbents in each gender-tier are of one sex (data not shown in table). The six gender-tiers are used to determine how many continuously employed workers (those with earnings in all 15 years in the study) are persistently employed (at least 12 of 15 years) in occupations within these groupings.

About three-fifths of the study sample do work in one of the six gender-tiers persistently. About two-fifths move among jobs in the male and female sectors. This larger group of those with mixed work histories is divided into two subsets, one group who moves within elite occupations, and the other who move among male and female occupations in the two lower tiers. These groups with mixed histories are also included in tables describing the career histories of workers in the study.

Table A2 displays the six gender-tiers and the mixed work groups by the actual educational level of the continuously employed men and women in the study. Their actual level can differ from the level of educational attainment most common to the job incumbents in a given tier. For example, although most workers in elite jobs have at least bachelors degrees, some have less. Some factory workers may have college educations, and so on. Thus, under each educational attainment level, all the six gender-tier occupational groups are shown, along with the two groups of workers with mixed work histories. Table A2 also shows how male and female workers in the study are distributed among the occupational groups and their average annual earnings across the 15-year study period.

Table A2: Occupational Histories by Educational Level for Continuously-Employed Workers[a], 1983-1998				
Educational Level and Gender-Tier	All Men		All Women	
	Share within Educational Level (Percent)	Average Annual Earnings[b]	Share within Educational Level (Percent)	Average Annual Earnings[b]
High School Dropout (all)	100	$36,021	100	$19,314
Male Elite Jobs	2	$59,020	5	$21,510
Female Elite Jobs	n/a	n/a	n/a	n/a
Mixed Elite Jobs	n/a	n/a	n/a	n/a
Male Good Jobs	15	$49,663	3	$30,607
Female Good Jobs	n/a	n/a	4	$24,449
Male Less-Skilled Jobs	36	$28,554	16	$23,273
Female Less-Skilled Jobs	4	$17,047	34	$15,719
Mixed Work (Tiers 2 and 3)	43	$37,715	38	$19,210
High School Diploma (all)	100	$40,822	100	$23,535
Male Elite Jobs	8	$74,149	4	$36,785
Female Elite Jobs	n/a	n/a	2	$52,101
Mixed Elite Jobs	n/a	n/a	0	n/a
Male Good Jobs	23	$42,822	3	$36,205
Female Good Jobs	1	$42,999	27	$25,336
Male Less-Skilled Jobs	19	$35,497	6	$19,005
Female Less-Skilled Jobs	3	$33,425	7	$16,832
Mixed Work (Tiers 2 and 3)	47	$36,998	52	$21,380
Some College (all)	100	$45,535	100	$29,240
Male Elite Jobs	14	$56,761	8	$43,101
Female Elite Jobs	1	$42,675	11	$38,863
Mixed Elite Jobs	1	$43,702	2	$37,294
Male Good Jobs	25	$50,246	5	$43,067
Female Good Jobs	3	$41,094	29	$27,589
Male Less-Skilled Jobs	5	$50,006	0	$19,544
Female Less-Skilled Jobs	1	$58,019	3	$9,554
Mixed Work (Tiers 2 and 3)	49	$39,613	41	$24,695
Bachelor's Degree (all)	100	$61,015	100	$35,338
Male Elite Jobs	43	$72,832	13	$52,985
Female Elite Jobs	6	$42,500	39	$36,353
Mixed Elite Jobs	5	$58,964	3	$38,667
Male Good Jobs	7	$53,317	4	$44,228
Female Good Jobs	4	$56,242	10	$36,381
Male Less-Skilled Jobs	1	$49,158	2	$45,062
Female Less-Skilled Jobs	n/a	n/a	2	$11,387
Mixed Work (Tiers 2 and 3)	35	$52,354	28	$24,097
Graduate Degree (all)	100	$76,558	100	$41,995
Male Elite Jobs	50	$83,784	11	$60,762
Female Elite Jobs	16	$57,521	57	$39,492
Mixed Elite Jobs	13	$81,170	13	$40,934
Male Good Jobs	6	$88,740	0	n/a
Female Good Jobs	1	$43,617	2	$41,580
Male Less-Skilled Jobs	n/a	n/a	n/a	n/a
Female Less-Skilled Jobs	n/a	n/a	n/a	n/a
Mixed Work (Tiers 2 and 3)	14	$64,766	17	$38,546

Notes:[a]Workers have earnings in all 15 years of the study period and work at least 12 of 15 years in one of six gender-tier groups or have mixed work histories, either in elite jobs or in the lower two tiers, shown as 'Mixed Work (Tiers 2 and 3)'. Data are for workers aged 26-59.
[b]Annual earnings are averaged across all working years and presented in 1999 dollars. Weighted data are used to calculate all figures.
Source: Authors' calculations from the Panel Study of Income Dynamics.

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