Economic Policy Institute

Briefing Paper

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# THE GREAT AMERICAN TIME SQUEEZE

## TRENDS IN WORK AND LEISURE, 1969-1989

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### Introduction

**Americans** are starved for time. Since 1969, the annual hours of work of employed Americans have risen markedly -- by approximately 140 hours, or more than an additional three weeks. This increase includes both hours on the job and time spent working at home. As a result, leisure, or free time, has declined as well. Increasing numbers of people are finding themselves overworked, stressed out, and heavily taxed by the joint demands of work and family life.

This lack of leisure has begun to manifest itself in a dramatic shift in public attitudes toward time. For the first time since surveys on time-income tradeoffs have been taken, people are indicating strong desires to trade off income for time away from the job. A 1989 poll found nearly two-thirds expressing the desire to give up an average of 13 percent of their current paycheck for more free time. Eight of ten respondents indicated they would forego a faster career track for a slower one which would allow them more time to spend with their families.' A second survey found that 70 percent of those earning $30,000 a year or more would give up a day's pay each week for an extra day of free time. Surprisingly, even among those earning only $20,000 a year, 48 percent said they would do the same.[2] Yet even a decade ago, only a very small percentage of Americans preferred to give up income for time.

The causes of this dramatic shift in public opinion are not hard to find. The rise in working hours has been steady and cumulative. As we shall demonstrate in this paper, the growth of work hours and the decline of leisure have affected a wide spectrum of

Americans -- across income classes, occupations and industries, demographic groups, and genders. This decline of leisure contains a certain irony. Thirty years ago, it was widely believed that automation, productivity growth, and consumer satiation would bring liberation from work. Predictions were that by the 1980s, the workweek would have fallen to twenty hours. Experts worried about an upcoming "crisis of excess leisure time," and its attendant boredom and ennui. Instead, we have too little time, with its attendant social problems.

Our research reveals a number of striking findings. For example:

* Fully-employed Americans (those not unemployed -- i.e., seeking work but unable to find it -- or involuntarily underemployed -- i.e., working part-time because full-time work is unavailable), worked on average an additional 138 hours annually between 1969 and 1989. If we add in the rise in commuting time and the decline in paid time off, the *increase* is 158 *hours, or one additional month of work per year.* Since the decline in unpaid household-related work hours (for child care, shopping, repairs, etc.) did not match the increase in paid work, the rise in hours on the job has meant a significant loss of leisure.

* The rise in work time has been greatest for women. Fully-employed women have had a rise in market hours totalling 287 hours over the twenty-year period. This has been partially offset by a 126-hour decline in annual household hours, for a net gain of **161** hours. Among men, the rise in total hours has been 139.

* In a striking reversal of thirty years of progress, paid time off (vacations, holidays, sick leave, and personal days) fell roughly 15 percent in the 1980s. U.S. practices provide a sharp contrast to Western Europe, where workers enjoy four to six weeks of paid vacation each year. Even the meager two weeks enjoyed on average by American workers is now in jeopardy. As West Europeans gain free time, Americans are losing it.

* The percentage of the labor force which cannot get enough work has doubled. In 1969, 7.2 percent of the labor force was either unemployed or involuntarily underemployed. In 1989, that figure stood at 14.5 percent. At the same time that most Americans have seen their work schedules rise, a growing minority have been prevented from getting the working hours they want and need.

* The work explosion has been very hard on parents, as they find themselves with less and less time to spend with their children. Among workers with children, total hours have risen by 139 per year. Compared to 1969, today's young parents (ages 18-39) are putting in far more hours of work, 241 more per year by young mothers and 189 more per year by young fathers.

In the pages which follow, we document these claims. Unlike most studies, ours analyzes both paid market hours and hours of unpaid household work (e.g., home repair, child care, shopping, cleaning, and so on). The inclusion of household hours is necessary in order to avoid finding a spurious increase in market hours generated by shifts away from goods and services produced at home.[3] We have also calculated annual hours, rather than the more common weekly hours. The annual hours measure allows us to account for intra-year variations in labor force participation. We have corrected for business cycle effects, a correction which has not been made in any previous studies. The data sets we have used are the March Current Population Survey (CPS) for market hours and the University of Michigan Time-Use Studies for non-market hours. Detailed descriptions of our data and methodologies can be found in Appendix A. To our knowledge, ours are the only recent estimates from the CPS of total annual hours worked.

Our analysis begins in the next section with an examination of the changes in market hours of work between 1969 and 1989. In the third section we examine the changes in household work hours to see whether the increase in market hours identified in the second section was balanced by an equivalent decline in unpaid household work, leaving leisure-time intact. The fourth section focuses on the time-squeeze among employed parents. Finally, we examine the divergent trends in paid leave among advanced countries.

## The Growth of Market Hours

As can be seen from Table 1, market hours of work have risen over the period we are considering. In 1989, the average adult American was working 86 more hours annually than in 1969, with an increase of 65 hours since 1979. As we will show, this overall increase in market hours reflects both a rise in the proportion of the population employed and an increase in annual hours worked per employed person.

The increase in average hours worked conceals divergent patterns for men and women. As is well known, women have been increasing their hours of paid employment (a 276-hour increase from 1969 to 1989). Men, on the other hand, have on average reduced their market hours (139 hours between 1969 and 1989).

One reason for the rise in average hours worked is simply that a greater proportion of the adult population is in the labor force. As Table 2 shows, the percentage of the adult

**TABLE 1**
**Annual Hours of Market and Nonmarket Work for Adults**

| | 1969 | 1973 | 1979 | 1989 | Change 1969-89 |
|---|---|---|---|---|---|
| **Market Hours** | **1,204** | **1,203** | 1,225 | **1,290** | 86 |
| Men | 1,738 | 1,708 | 1,618 | 1,599 | -139 |
| Women | 735 | 761 | 875 | 1,011 | 276 |
| Non-Market Hours | 1,213 | 1,196 | 1,206 | 1,153 | -60 |
| Men | 686 | 701 | 860 | 847 | 161 |
| Women | 1,675 | 1,631 | 1,514 | 1,431 | -244 |

population in the labor force has risen in the last twenty years, from 68.5 to 71.6 percent. Women's labor force participation rose from 53.1 to 63.5 percent, while men's fell from 86.6 to 80.5 percent. However, because women participants work fewer hours in the market than men, equal changes in participation rates do not yield equal changes in market hours. The decline of men's market hours is largely the result of lower participation, given that among employed men weekly hours fell only slightly and weeks per year rose slightly. As a result, increasing numbers of men are working fewer hours. Among women, the opposite tendency is occurring, as participation rates rise and specialization in household work becomes less common.

**TABLE 2**
**Labor Force Participation Rates**
*(Percent of Population)*

| | 1969 | 1973 | 1979 | 1989 |
|---|---|---|---|---|
| Total | | | | |
| In labor force | 68.5% | 69.3% | 70.4% | 71.6% |
| Not in labor force | 31.5 | 30.7 | 29.6 | 28.4 |
| Men | | | | |
| In labor force | 86.6 | 85.9 | 82.4 | 80.5 |
| Not in labor force | 13.4 | 14.1 | 17.6 | 19.5 |
| Women | | | | |
| In labor force | 53.1 | 54.7 | 60.3 | 63.5 |
| Not in Labor force | 46.9 | 45.3 | 39.7 | 36.5 |

TABLE 3
**Annual** Hours, Labor Force Participants **Only**

| | 1969 | 1973 | 1979 | 1989 | Change 1969-89 |
|---|---|---|---|---|---|
| Market Hours | 1,751 | 1,737 | 1,731 | 1,804 | 53 |
| Men | 2,007 | 1,987 | 1,962 | 1,987 | -20 |
| Women | 1,385 | 1,392 | 1,451 | 1,593 | 208 |
| Non-Market Hours | 893 | 897 | 974 | 938 | 45 |
| Men | 628 | 637 | 756 | 725 | 97 |
| Women | 1,271 | 1,255 | 1,239 | 1,182 | -89 |

There has not only been an increase in labor force participation among all adults, there has also been a significant rise in the working time of those in the labor market. As Table 3 shows, market hours rose by fifty-three among labor force participants. Women's hours rose by 208; men's fell by twenty. The major reason that working hours of employed workers has risen is that there was a rise in weeks worked, rather than changes

TABLE 4
Weekly Hours

| | 1969 | 1973 | 1979 | 1989 |
|---|---|---|---|---|
| Market Hours | 27.0 | 27.0 | 27.3 | 27.9 |
| Men | 36.9 | 36.3 | 34.6 | 33.7 |
| Employed | 42.8 | 42.5 | 42.3 | 42.3 |
| Not Employed | 0 | 0 | 0 | 0 |
| Women | 18.3 | 18.8 | 20.8 | 22.6 |
| Employed | 35.2 | 35.1 | 35.3 | 36.1 |
| Not Employed | 0 | 0 | 0 | 0 |
| Non-Market Hours | 23.3 | 23.0 | 23.2 | 22.2 |
| Men | 13.2 | 13.5 | 16.5 | 16.3 |
| Employed | 12.0 | 12.2 | 14.5 | 13.8 |
| Not Employed | 20.3 | 21.0 | 25.9 | 25.9 |
| Women | 32.2 | 31.4 | 29.1 | 27.5 |
| Employed | 24.2 | 23.8 | 23.5 | 22.5 |
| Not Employed | 40.9 | 40.0 | 37.1 | 35.8 |

in weekly hours. On average, weekly hours have risen only slightly, from 27.0 to 27.9 (Table 4). Among employed men, weekly hours of market work were virtually unchanged (42.8 in 1969 and 42.3 in 1989) and among employed women they rose from 35.2 to 36.1. This result is consistent with previous findings of long term stasis in weekly hours since the late 1940s (Owen, 1989). In contrast, weeks worked have risen by 2.4 weeks a year (Table 5). Employed women are working 4.5 additional weeks per year (43.5 in 1989 up from 39.0 in 1969). Among employed men, the rise is far more modest (from 46.3 to 46.6).

TABLE 5
Weeks Worked in Market per Year

| | 1969 | 1973 | 1979 | 1989 |
|---|---|---|---|---|
| Total | 29.5 | 29.6 | 30.5 | 31.9 |
| Men | 39.9 | 39.4 | 37.6 | 37.1 |
| Employed | 46.3 | 46.1 | 46.0 | 46.6 |
| Women | 20.3 | 21.0 | 24.1 | 27.2 |
| Employed | 39.0 | 39.4 | 40.8 | 43.5 |

It is believed that shifts in an economy's industrial and occupational composition affect average hours, on account of substantial differences in hours between sectors and occupations. However, we find that the rise in market hours occurred within occupations and industries. We tested for the effects of the changing industrial structure by calculating what would have happened, had the 1969 industrial structure remained unchanged. Surprisingly -- in view of the decline of manufacturing and the rise of services -- we found that the level of hours would have been no different, indicating that changes in industrial structure have had no net impact on average hours.4 We carried out a similar test to assess the effect of the changing age structure of the population on average hours. Again, we found no net impact, indicating that the changing age structure has not been the cause of the rise in market hours. The movement of the baby-boom cohort into the age category where hours are highest (25-44 years) has been just canceled out by the growth of the over-65 cohort, who have very low market hours.

The discussion so far has falsely assumed that there has not been growing underemployment in the labor market. However, the unemployment rate at business cycle peaks has risen, from 3.4 percent in 1969 to 5.3 percent in 1989.[5] It is important to

recognize growing unemployment and underemployment in order to distinguish between voluntary and involuntary changes in hours, which previous studies have not done. We find that persons subject to *involuntary* leisure have been a steadily growing percentage of the labor force. Moreover, when our analysis takes the rise of involuntary leisure into account, we find an even larger rise of market hours worked.

We have defined as "labor market constrained" those who fall into the following categories and report that additional work was desired but not available: did not work at all during the year, worked part-year/part-time, worked full-year/part-time, and worked part-year/full-time. (Part-year is defined as less than 50 weeks per year and part-time is less than 35 hours per week).[6] These are all situations where people have involuntary leisure.

At each business cycle peak in our sample, the percentage of the labor force which is constrained has risen dramatically from 7.2 percent in 1969 to 14.5 percent in 1989 (Table 6). Roughly two-thirds of those experiencing labor market constraints are part-year/full-time workers. The share of the labor force in this category rose substantially over this period. The shares in every other constraint category are smaller, but show large increases. (On the rise in involuntary part-time work, also see Tilly 1991.[7])

**TABLE 6**
**Percent of Labor Force Experiencing Labor Market Constraint**

| | 1969 | 1973 | 1979 | 1989 |
|---|---|---|---|---|
| In Labor Force, Constrained | 7.2% | 9.8% | 16.2% | 14% |
| No Work All Year | 0.4 | 0.7 | 0.8 | 0.6 |
| Part Year/Part-Time | 1.0 | 1.8 | 4.0 | 3.9 |
| Full Year/Part-Time | 0.2 | 0.3 | 0.9 | 1.3 |
| Part Year/Full-Time | 5.6 | 7.0 | 10.5 | 8.7 |
| In Labor Force, Unconstrained | 92.8 | 90.2 | 83.8 | 85.5 |
| Full Year/Full-Time | 59.0 | 58.8 | 57.4 | 61.6 |

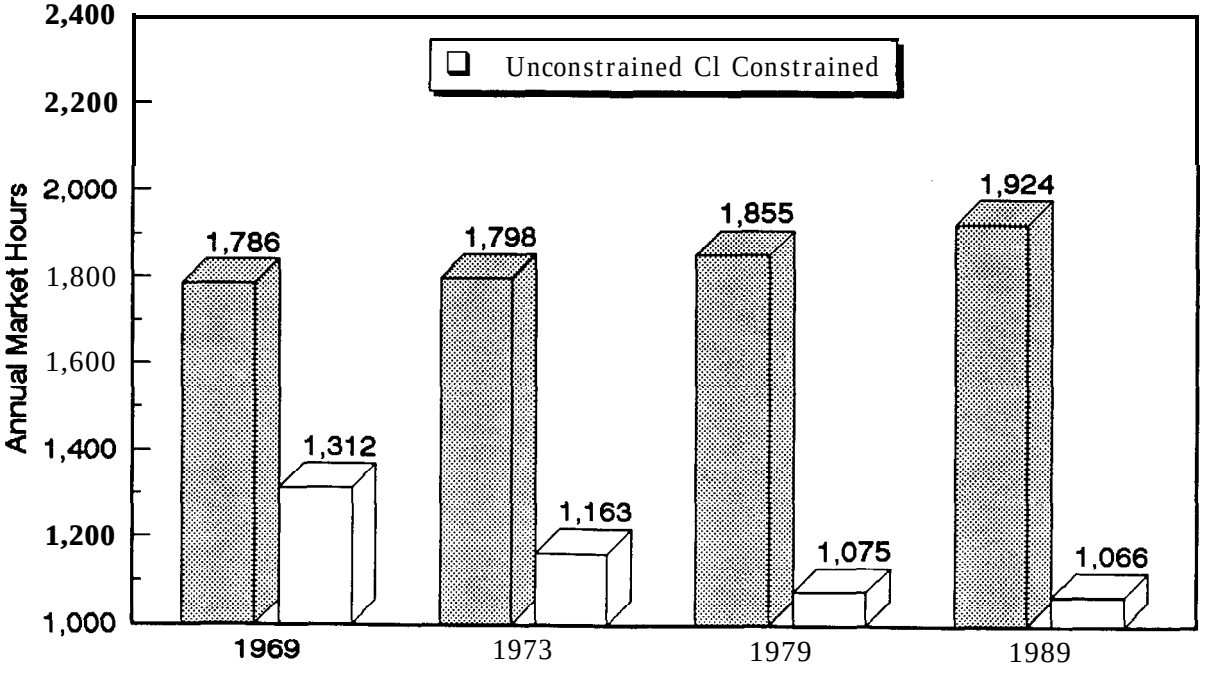
If we exclude the constrained portion of the labor force from our measures, the data reveal a much greater rise in work, and provide strong support for the time-squeeze hypothesis. *Among those persons who are fully employed, market hours* have *increased by 138*

**TABLE 7**
Annual Hours, Unconstrained Labor Force Only

| | 1969 | 1973 | 1979 | 1989 | Change 1969-89 |
|---|---|---|---|---|---|
| Market Hours | 1,786 | 1,798 | 1,855 | 1,924 | 138 |
| Men | 2,054 | 2,060 | 2,093 | 2,126 | 72 |
| Women | 1,406 | 1,436 | 1,558 | 1,693 | 287 |
| Non-Market Hours | 889 | 888 | 939 | 900 | 11 |
| Men | 621 | 626 | 727 | 688 | 67 |
| Women | 1,268 | 1,248 | 1,204 | 1,142 | -126 |

(Table 7 and Figure 1). Hours for constrained workers have fallen by 246 per year, revealing a growing gap between those who are able to secure market work and those who are not. We define as "unprovided hours," those which labor market participants indicate they would like to work, but during which they are unable to find employment. We find that the average "unprovided hours" per constrained labor force participant rose from 718 per year in 1969 to 803 in 1989. Projected onto the entire labor force, this implies an aggregate level in the economy of unprovided hours in 1989 of 14.6 billion, up from 4.2 billion in 1969.[8]

**Figure 1**
**Market Hours of Unconstrained and Constrained Labor Force, 1969-I 989**



Among the unconstrained, the breakdown for men and women shows lengthening market hours for both. Employed men are working seventy-two more hours per year. Employed women have added 287 hours. This is the equivalent of seven weeks of additional market work each year. The irrationality of this result is striking. At a time when majorities are articulating a desire for less demanding jobs (in terms of hours), a growing minority finds itself unable to secure enough hours. (See Schor, 1991, on recent polls concerning attitudes to working hours.)

As noted above, the upward trend has been most pronounced for women, whose additional work burden has mainly taken the form of working a greater fraction of the year. Women are now less likely to leave paid work during the summer recess in order to care for children; they take less time off around the birth of a child (see Mellor and Parks, 1988). The proportion of women who work full-time, year round, has risen steadily and substantially for twenty years. Women's pattern of labor force participation is getting to look more and more like men's.

Adiustments to Market Hours: Vacations, Holidavs, Sick Leave, and Commuting

The CPS data on which our analysis is based include paid time off in its definition of work time.' It is possible, however, that increases or decreases in paid leave might have occurred and bias our results. To determine whether the rise in paid hours reflects more paid leave or more working hours we estimated changes in paid leave. To calculate the change in paid time off we used unpublished Bureau of Labor Statistics data on the ratio of paid hours relative to hours worked (BLS, undated). Unfortunately, these data are only available for manufacturing before 1981. Therefore, we have used manufacturing sector data for 1969 to 1981 and all-economy data thereafter.

Surprisingly, these data show no net increase in paid time off between 1969 and 1989. Moreover, a 3.4 day *increase* in paid time off between 1969 and 1981 was followed by a 3.7 *decline* between 1981 and 1989, leaving a net decline in paid time off of 0.3 days (or roughly 2.5 hours per year). (See Appendix D for methods of calculation.) This suggests that our prior analysis overstated the rise in working hours in the 1970s but understated the rise in working hours in the 1980s.

Commuting time has also risen, further increasing total "work" time. The length of the average daily trip to and from work remained steady between 1969 and 1975, but rose thereafter. The average commuting time for employed workers rose from 181 hours per

year in 1975 to 204 hours in 1985, an increase of 23 hours." Combining trends in paid time off and commuting, it appears that we have understated the upward trend in market hours over the last two decades by about 25.5 hours per employed person.

## The Decline of Household Hours

We now turn our attention to trends in household hours, the time spent doing child care, shopping, cooking, laundry, making repairs, and doing other household maintenance activities (see Appendix B for a listing of activities considered household work in this study). Even though hours of market work have risen, there may not be a loss of leisure time if unpaid household hours have fallen commensurately.

In fact, as market hours have risen, average annual household hours have fallen. The decline in household hours, however, has not been as large as the rise of market hours (see Tables 1, 3, and 7). This means there has been a loss of leisure time, especially among people in the unconstrained workforce.

This result is based on predictions from models which estimate household hours (for men and women separately) on the basis of demographic, economic, and social factors, such as age, race, marital status, number of children and their ages, and income level. The equations we estimated can be found in Appendix A." As expected, the determination of men and women's household hours differs markedly. The major factors influencing women's hours of household work are market hours, number of children, marital status, age, and whether a woman is a full-time housewife.

The relative contributions of these demographic and economic factors to weekly hours of non-market work is shown in Table 8. For women in 1975-76, marriage raised hours of household work by 3.7 hours per week; the presence of one child under age three added an additional 13.3 hours. An additional forty hours of market work reduced household hours by 17.8. For men, the effect of demographic and economic factors is smaller, and the major influence on non-market hours is the level of market hours worked -- each forty hours of market work reduced household hours by 11.7. In contrast to the results for women, the presence of a young child in the home added only two hours per week.

We find that household hours have declined in the last twenty years -- the average American's domestic input fell from 1,213 to 1,153 per year (Table 1 and Figure 2).

Table 8
Effect of Selected Independent Variables on Weekly Non-market Hours
(Hours)

| | WOMEN | | MEN | |
|---|---|---|---|---|
| | 1975-76 | 1980-81 | 1975-76 | 1980-81 |
| | (1) | (2) | (3) | (4) |
| Constant Term" | | | | |
| (white, single, 25-44 yr. old) | 27.7 | 32.2 | 14.6 | 21.1 |
| Spouse Present: | 3.7 | 4.2 | 0.7 | 3.5 |
| Children Under 3 Years Old: | | | | |
| One | 13.3 | 7.7 | 3.5 | 2.7 |
| Two | 18.8 | 10.9 | 4.9 | 3.8 |
| Children Aged 3-18: | | | | |
| One | 3.9 | 3.8 | 2.0 | 1.8 |
| Two | 5.5 | 5.3 | 2.8 | 2.5 |
| Three | 6.7 | 6.5 | 3.4 | 3.1 |
| Labor Market Status: | | | | |
| Housewife | 3.8 | 1.8 | | |
| 20 Hours/wk in Market | -8.9 | -9.1 | -5.9 | -6.7 |
| 40 Hours/wk in Market | -17.8 | -18.3 | -11.7 | -13.5 |
| Household Head (or spouse of): | 3.7 | 3.6 | 5.7 | 5.7 |
| Secondary Family Head (or spouse of): | 5.4 | 5.3 | | |
| Family Income: (1975 $'s)/(1980$'s) | | | | |
| $10,000 | 0.6 | -0.8 | 1.0 | -0.8 |
| $20,000 | 1.2 | -1.6 | 2.1 | -1.5 |
| $30,000 | 1.8 | -2.4 | 3.1 | -2.3 |
| Age (relative to 25-44 yr. olds): | | | | |
| 18-24 | -3.8 | -3.6 | -1.6 | -0.3 |
| 45-64 | 2.7 | 1.8 | 1.5 | 1.3 |
| 65+ | -0.9 | -5.7 | -0.4 | -2.4 |

Source: Regression equations reported in Appendix A.

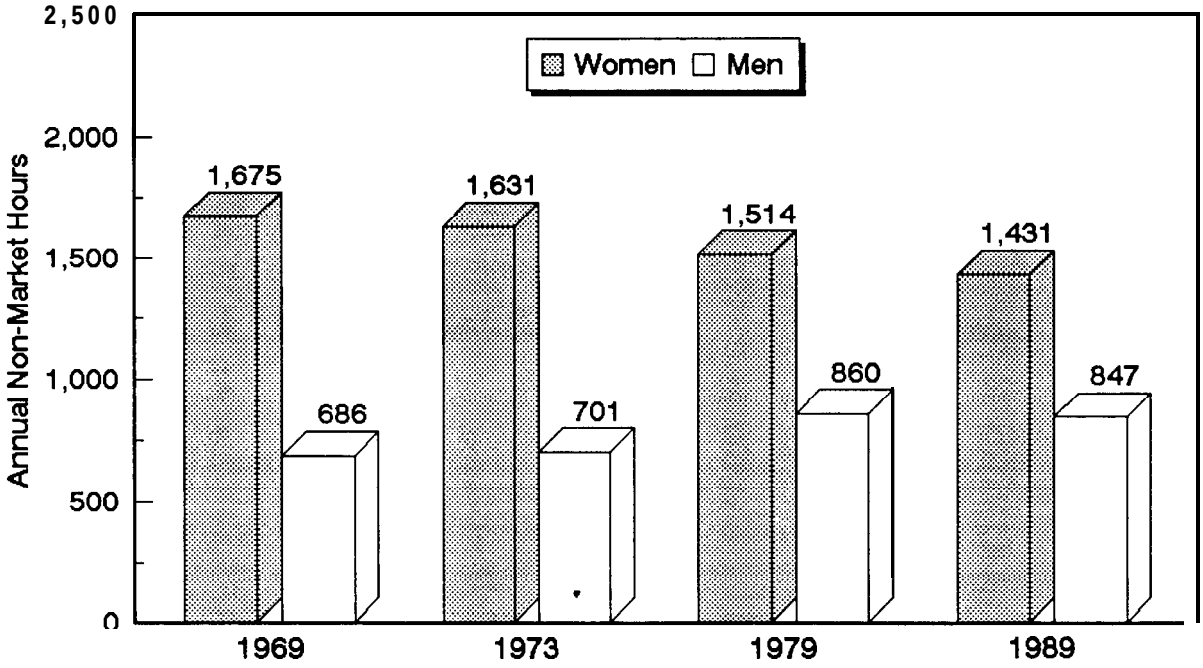
[a] How to Read this Table: In 1975-76, a white, single, 25-44 year old woman on average would spend 27.7 hours each week in non-market work. If this woman were married, hours would rise by 3.7 to a total of 31.4. If she also had one child under 3 years of age, non-market work would rise by an additional 13.3 hours per week.

Although men's non-market hours have risen by 161, this rise has not offset a 244 hour decline for women. These changes stem from two sources: shifts in the effects of the demographic and economic factors (in Table 8, compare column 1 with column 2, or column 3 with column 4), and changes in the demographic and economic make-up of the population.

After assessing the significance of these two types of changes we find that for women, most of the decline in non-market hours is attributable to a rise in paid hours and concomitant decline in the number of housewives.'* The cause of the rise in non-market

hours for men is not due to the demographic and economic fators we examined,[13] but may be attributable to women spending less time in the home and other social or cultural factors. Changes in the labor market have played some role -- the decline in market hours accounts for a quarter of the rise in men's non-market hours.

**Figure 2**
**Average Non-Market Hours of Population, 1969-1989**




Thus, as women have left the home, men are entering it, doing on average an additional 161 hours of work a year. As a consequence, the ratio of all men's household labor to women's rose from 41 to 59 percent. This increase has been driven by the exit of men from the labor force, because men who are out of the labor force do far more household work than their counterparts who are in it. This trend has also reduced domestic hours for the subset of Americans who are at home full-time (i.e., out of the labor force). This is because men without paying jobs do much less domestic work than women without paying jobs. (The average difference is about 800 hours.)

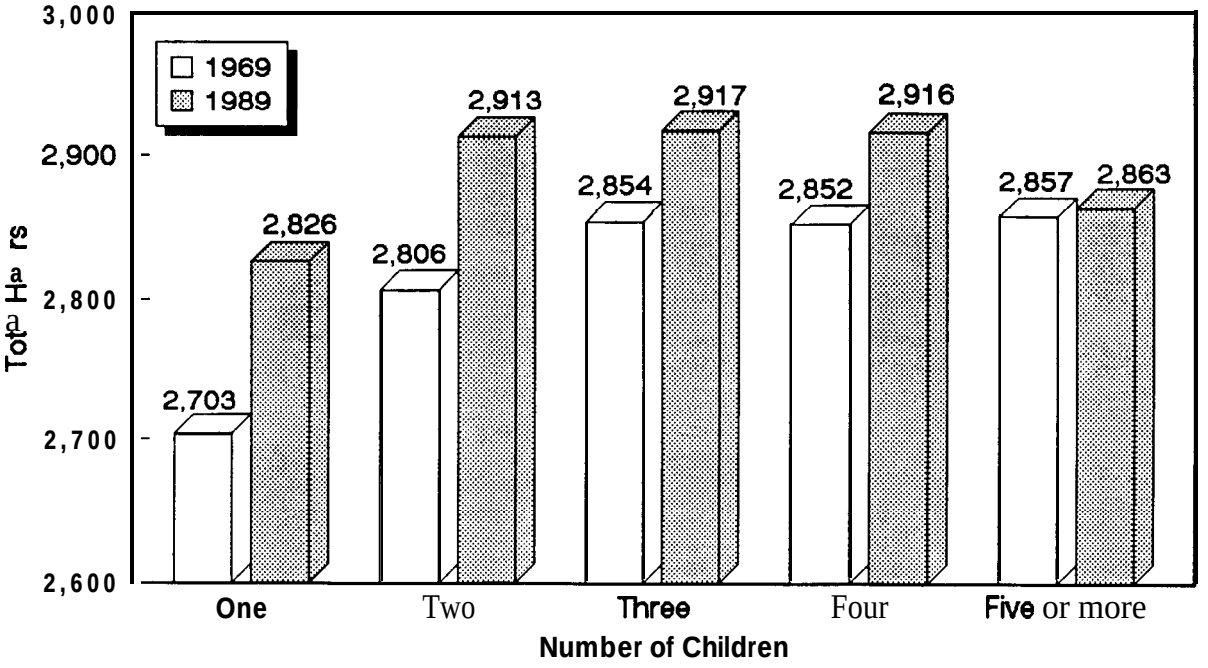
While shifts in the gender composition of the labor force have been the largest factor in the decline of household labor, falling rates of marriage and childbearing have

also played a major role. The percentage of the population which is not married (i.e., has no spouse present) has risen from 31.4 to 40.6 percent. At the same time, people are having far fewer children. The percentage of the population with no children has risen from 57.7 to 67.3 percent. The percentage with two or more children has fallen from 28.7 to 19.0 percent. For women, these shifts account for 25 percent of the reduction in household work. For men, these factors have reduced the rise in household hours by 20 percent.

### Working ... With Children

Since the mid 1970s, stagnant real wages have sent a larger share of women with children into the labor force than ever before. This addition to family income has come at the cost, however, of leisure time for parents. While parents have typically had longer work hours than non-parents, between 1969 and 1989 the gap widened considerably between the number of hours worked by parents with one or two children, and those of non-parents. As shown in Figure 3, the total hours worked by parents with one or two children at home rose by 123 and 107, respectively, per year. This compares to a ninety-one hour increase in total hours worked by non-parents. The increase in total hours

**Figure 3**
**Average Total Hours of Work by Number of Own Children in Family, 1969 and 1989**



worked is somewhat lower for those with three or more children at home. This is because the extent to which women work outside the home diminishes as the size of a family grows. And when women enter the labor force under today's market conditions, the family work burden rapidly rises.

While concerns about "time-squeeze" have often been associated with working mothers only, our calculations show that total hours worked have risen for working men and women alike who have children under age eighteen living at home. Between 1969 and 1989, the work burden of employed parents rose considerably (in this section we will only consider those not constrained in the labor market). Employed, unconstrained mothers are working a total of 165 more hours per year, while employed, unconstrained fathers are putting in an additional 142 hours (see Table 9).

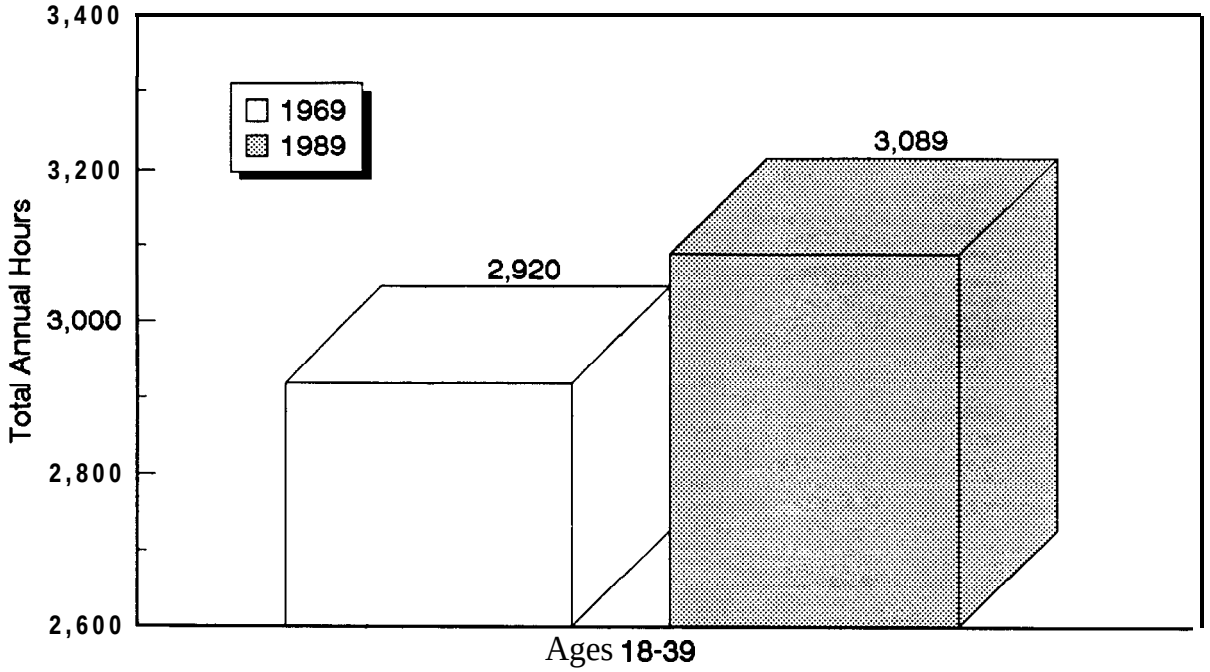
TABLE 9
Hours Worked by Employed **Parents**
**Unconstrained in the Labor Market**
**by Gender, 1969 and 1989**

| | Market Hours | | | Non-Market Hours | | | Total Hours | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1969 | *1989* | *Change* | *2969* | *1989* | *Change* | *1969* | *1989* | *Change* |
| **All** Parents | 1,916 | 1,988 | **72** | **1,034** | **1,101** | **67** | **2,950** | **3,089** | **139** |
| Mothers | 1,281 | 1,627 | 346 | 1,583 | **1,402** | -181 | **2,864** | **3,029** | **165** |
| Fathers | 2,316 | 2,330 | **14** | **688** | **816** | **128** | **3,004** | **3,146** | **142** |

During the late 1970s and the 1980s, wages of young people faltered more than those of older workers. Thus, one might expect the effect of market conditions on hours worked to be more pronounced among these recent labor market entrants. This is, in fact, the case. Young working parents have experienced a considerable increase in total hours worked (Figure 4). Employed parents aged 18-39 were working 169 more hours per year in 1989 than in 1969; for mothers in this group, the additional work comes to 241 hours per year, while these fathers are working an additional 189 hours per year.

These changes in work patterns have taken place coincident with the rapid alteration of marriage and family patterns. Marriage rates have fallen dramatically in the last twenty years and, as is well known, the single working parent is more prevalent than ever. The work burden is increasing most rapidly among members of this growing group.

**Figure 4**
**Average Total Hours for Employed, Unconstrained Young Parents, 1969 and 1989**




Total hours worked by single employed parents, aged 18-39, rose by 222 between 1969 and 1989. This increase is nearly half again as large as that shouldered by their married counterparts. In the face of stagnating wages, parents needing to support one or more children on the wages of one adult are being more "time-squeezed" than those who can rely on two incomes.

The changes in the total hours of working parents are rooted in the patterns of change in market and non-market hours discussed earlier in this paper. As women's hours of paid employment rise, the hours they work at home decline less than proportionately. Among employed mothers (who are unconstrained in the labor market), hours of paid work per year have risen over 25 percent from 1,281 to 1,627 (an increase of 346 hours), while their hours of unpaid household work have dropped by only 181 per year (see Table 9). At the same time, the amount of household work done by men has risen. Among employed fathers, this increase in unpaid work amounts to an additional 128 hours per year, while the hours spent in paid employment have remained virtually unchanged.

Comparison with Western **Europe**

In recent years the pattern of working hours in the United States presents a sharp contrast with the pattern of working hours in Western Europe. Although the United States emerged from the Second World War with considerably lower hours than Western Europe, Americans' working hours are now substantially above those of Europeans. The major difference is that vacation time has increased in Europe, while in the United States, a modest rise in vacation time between the 1950s and 1980 is in the process of being eroded. Unfortunately, there are no comprehensive, internationally consistent and up-to-date data which would allow us to compare all-economy annual hours between the two regions.[14] The best measure of annual market hours exists for manufacturing only.

According to the Bureau of Labor Statistics measures of annual hours worked in manufacturing, the United States has considerably higher hours than most industrialized countries (see Table 10). In France, Germany, and Denmark manufacturing hours are just over 80 percent of U.S. hours. Closest to the United States are Canada and the United Kingdom (96 percent and 95 percent respectively). And of course Japan has significantly higher hours (110 percent of U.S. levels).

**TABLE 10**
**Hours Worked per Employee in Manufacturing, International Comparisons**

| | 1970 | 1979 | 1989 |
|---|---|---|---|
| **Belgium** | **1,870** | **1,638** | **1,572** |
| **Canada** | **1,918** | **1,859** | **1,887"** |
| **Denmark** | **1,829** | **1,639** | **1,595** |
| **France** | **1,872** | **1,712** | **1,610** |
| **Germany** | **1,889** | **1,717** | **1,603** |
| Italy[b] | **1,905** | **1,738** | **1,858** |
| Japan | **2,269** | **2,159** | **2,155** |
| Netherlands[c] | **1,893** | **1,669** | **1,592** |
| **Norway** | **1,794** | **1,572** | **1,614** |
| **Sweden** | **1,744** | **1,513** | **1,539** |
| **U.K.** | 1,939[d] | **1,886** | **1,856** |
| **U.S.** | **1,913** | **1,907** | **1,951** |

**Notes:** [a] **1988**
[b] **Based on full-time job equivalents**
[c] **Based on man-years**
[d] 1971

**Source: Bureau of Labor Statistics, Office of Productivity and Technology, "Underlying data for indexes of output per hour,** hourly compensation, and unit labor costs in manufacturing, twelve industrial countries, 1950-1989," May 1991.

The manufacturing data are revealing because they incorporate vacation and paid leave, and in those respects provide us with a more complete picture than exists for all-economy measures. However, they are limited in two ways. They underestimate hours worked on a per capita basis if manufacturing employees are multiple jobholders (either within or outside manufacturing). This problem is likely to be most serious in countries with large underground economies. Second, the manufacturing sector may not be representative of the entire economy. In the last decade in Europe, low demand for manufactures may have reduced manufacturing hours considerably more than in other sectors. Therefore, we turn to all-economy measures. Lacking comprehensive information on annual market hours, we will explore three components only -- weekly hours, vacations, and participation rates.

TABLE 11
Weekly Hours (all **economy, unless otherwise noted)**

| | 1950 | 1960 | 1970 | 1980 | 1986 |
|---|---|---|---|---|---|
| West Germany weekly hours | n.a. | 44.6 | 41.5 | 40.1 | 39.6[g] |
| West Germany weekly hours in industry | 47.8 | 44.3[b] | 42.8' | 40.5' | 40.4 |
| France weekly hours, survey data | n.a. | n.a. | 44.7 | 40.5 | 39.2 |
| France weekly hours, establishment data | 45.0 | 45.7 | 44.7 | 40.5 | 39.68 |
| United Kingdom, full-time manual workers, men | n.a. | n.a. | 46.5[d] | 44.0[f] | |
| United Kingdom, full-time manual workers, women | n.a. | n.a. | 38.1[d] | 37.4' | |
| United Kingdom, full-time manual workers, all | | | | | 42.7 |
| United States, survey data, all industries | 41.7 | 40.5 | 39.0 | 38.5 | 39.1 |
| United States, full-time workers, nonagricultural industries | n.a. | n.a. | 42.7 | 42.5 | 43.8[h] |

Notes: [a] 1953 [b] 1963 [c] 1973 [d] 1969 [e] 1983 [f] 1979 [g] 1985 [h] April, 1986

Source: West Germany and France, Owen (1989); United Kingdom, *Employment* Gazette; United States, *Employment and Earnings* and unpublished BLS data.

There is no high-quality source of weekly hours which provides comprehensive data on an internationally consistent basis. We have therefore confined our estimates to the three largest European countries (France, West Germany, and the United Kingdom). The general picture (see Table 11) is that Europe has reached rough parity with the United States, following a record of significantly higher hours in the 1950s and 1960s.

**TABLE 12**
**Vacations and Paid Holidays in Selected Countries**
*(in number of days)*

| | Various Years | 1986 |
|---|---|---|
| France | n.a. | 39-40[a] |
| West Germany | 25.3 (1960) | 42.7 |
| United States | 17.0 (1968)<br>16.1 (1989) | 19.5[b] |

**Notes:** [a] This estimate from Owen (1989) assumes a six-day workweek. Legal minimum vacation in France is five weeks, plus nine to ten paid holidays.
[b] Estimates are for an average of metropolitan production and office workers.
[c] Authors' estimates. Includes all forms of paid time off. See Appendix D.

Sources: France and West Germany, Owen (1989); United States 1968 figure, Hedges and Taylor (1980); United States 1986 figure, Buckley (1989); United States 1989 figure, from unpublished BLS data on hours worked relative to hours paid.

The major difference between the United States and Europe is vacation time. Our estimate for paid time off in the United States in 1989 is 16.1 days per year. Paid time off in Europe is considerably longer (see Tables 12 and 13). Most European countries now give paid vacations of at least five weeks. In France, Denmark, Finland, and Sweden the legal minimum is five weeks, with average vacation time ranging between five and eight weeks. Paid holidays are also slightly higher in most European countries than in the United States.

The final comparison we make is between rates of labor force activity. Table 14 presents information on the employment rate, labor force participation, and part-time work as a percentage of total employment, broken down by gender. Both the labor force participation rate and the employment rate indicate that the United States has a larger portion of its population in the paid labor force than do many European countries. To some extent this difference is offset by the higher rate of part-time work in the United States (as compared to Germany, France, and Italy).

TABLE 13
Paid Vacation in European Countries

| Country | By Law | By Agreement |
|---|---|---|
| Austria | 5 weeks | cf.law |
| Belgium | 4 weeks | 5 weeks |
| Denmark | -- | 5 weeks |
| Spain | 30 civil days | 4% to 5 weeks |
| Finland | 5 weeks | 5 to 6 weeks |
| France | 5 weeks | 5 to 6 weeks |
| Great Britain | _ | 4 to 6 weeks |
| Greece | 4 weeks | cf. law |
| Ireland | 3 weeks | +/- 4 weeks |
| Iceland | **4 weeks, 4** days | cf. law |
| Italy | -- | 4 to 6 weeks |
| Luxembourg | 5 weeks | 25 to 30 days |
| Malta | 4 weeks | cf. law |
| Norway | 4 weeks, 1 day | cf. law |
| Netherlands | 4 weeks | 4 to 5 weeks |
| Portugal | 30 civil days | 4½ to 5 weeks |
| FRG | 3 weeks | 5.5 to 6 weeks |
| Sweden | 5 weeks | 5 to 8 weeks |
| Switzerland | 4 weeks | 4 to 5 weeks |

Source: European Trade Union Institute, Collective *Bargaining in* **Western** *Europe in 7988 and Prospects fur 1989,* (EuroInt), 1988/89, **Table XI,** p. **62.**

The pieces of evidence we have available do not permit us to calculate total annual hours for European countries. However, they do point to the conclusion that European countries are providing more leisure for their citizens than does the United States. The United States ranks higher on all measures of working hours, with the exception of having more part-time work. But it is unlikely that the higher incidence of part-time work (some of which is involuntary) is sufficient to offset less paid time off and higher participation. This conclusion is strengthened if we consider that hours of housework are greater for women working part-time. Finally, we might note that Japan is the only major industrialized country with longer hours than the United States, primarily on account of days worked per year. There is now considerable pressure in Japan to reduce work time, as it is has become a source of social and economic problems."

**TABLE 14**
**Labor Force Statistics, Industrialized Countries, 1985**
*(Percent)*

| Country | *1985 Employment* Rates | | | **1985** *Participation Rates* | | | *Part-Time (as Percent of Employment)* | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | Female | Male | Total | Female | Male | Total | Female | Male |
| **Switzerland** | **70.7** | **52.7** | **88.6** | **71.4** | **53.2** | **89.4** | n.a. | | n.a |
| **Norway** | **75.4** | **66.3** | **84.2** | **77.3** | **68.3** | **86.1** | 30.0 | 5;:;. | 11.7 |
| Japan | **70.6** | **55.7** | **85.5** | **72.5** | **57.2** | **87.8** | **10.5** | **21.1** | **4.8** |
| **Sweden** | **79.7** | **75.9** | **83.4** | **82.0** | **78.2** | **85.8** | **25.4** | **46.2** | **7.3** |
| **Austria** | **63.0** | **48.8** | **77.7** | **65.8** | **50.6** | **81.5** | **8.3** | **19.8** | **1.5** |
| **New Zealand** | **62.2** | **44.1** | **80.2** | **65.0** | **47.6** | **82.0** | **14.6** | **28.3** | **5.2** |
| **Finland** | **72.7** | **70.3** | **75.1** | **76.4** | **73.5** | **79.3** | **8.3** | **12.5** | **4.5** |
| **U.S.** | **67.5** | **58.9** | **76.3** | 72.7 | **63.6** | **82.0** | 14.4 | **23.3** | **7.6** |
| **Denmark** | **74.2** | **68.4** | **79.9** | **80.1** | **74.5** | **85.5** | **23.7** | **44.7** | **6.6** |
| **Australia** | **64.0** | **49.9** | **77.8** | **69.8** | **54.7** | **84.5** | **17.2** | **35.9** | **6.1** |
| **Germany** | **58.5** | **45.6** | **71.5** | **63.9** | **50.4** | **77.4** | **12.6** | **30.0** | **1.7** |
| **Italy** | **52.2** | **34.2** | **71.7** | **58.1** | **40.8** | **76.4** | **4.6** | **9.4** | **2.4** |
| **France** | **57.5** | **47.9** | **67.2** | **64.2** | **54.9** | **73.5** | **9.7** | **20.1** | **2.6** |
| **Canada** | **65.5** | **55.6** | **75.4** | **73.2** | **62.3** | **84.1** | **15.4** | **26.2** | **7.6** |
| **U.K.** | **64.8** | **54.7** | **74.9** | **73.4** | **60.0** | **86.7** | **19.1** | **42.4** | **3.3** |
| **Belgium** | **54.4** | 42.1 | **66.6** | **62.0** | **50.4** | **73.5** | **8.1** | **19.7** | **2.0** |
| **Netherlands** | **51.2** | 36.2 | **65.9** | **58.9** | **41.2** | **76.1** | **21.2** | **50.3** | **6.9** |
| **Ireland** | **49.9** | 31.7 | **67.5** | **60.6** | **36.6** | **84.1** | **6.7** | **15.7** | **2.7** |
| **Spain** | **42.5** | 25.0 | **60.1** | **54.6** | **33.6** | **75.7** | **n.a.** | **n.a.** | n.a. |

**Source: Rowthom and Glyn** (1989).

## Conclusion

Our research finds that Americans are indeed "squeezed" for time.[16] Despite skepticism from some academics (Burtless 1990; Juster and Stafford 1991; Robinson 1989), the opinion polls and media attention have focused on a serious problem: Americans *are* finding themselves with progressively less leisure. Compared with twenty years ago, those Americans who have jobs (and are not experiencing "involuntary leisure") work an additional 149 hours a year, calculated as the sum of changes in market and household hours (see Table 15). This is nearly an extra month of work each year. The increase is smaller for the general population, averaging twenty-seven hours a year.

Despite the common belief that time squeeze is a problem only for working mothers, both men and women have experienced declining leisure. Our research also shows that although parents are the most pressed for time -- their work burden exceeds that of non-parents by 6 to 700 hours a year -- both parents and those without children are working longer hours (see Figure 3). Nevertheless, the time-squeeze would have been far more severe had Americans not reduced their rates of marriage and childbearing so

TABLE 15
Total Annual Hours
Population and Unconstrained Labor Force

| | 1969 | 1973 | 1979 | 1989 | Change 1969-89 |
|---|---|---|---|---|---|
| Population | 2,417 | 2,399 | 2,431 | 2,444 | 26 |
| Men | 2,424 | 2,409 | 2,478 | 2,446 | 22 |
| Women | 2,410 | 2,392 | 2,389 | 2,441 | 31 |
| Unconstrained Labor Force | 2,675 | 2,686 | 2,794 | 2,824 | 149 |
| Men | 2,675 | 2,686 | 2,820 | 2,814 | 139 |
| Women | 2,674 | 2,584 | 2,762 | 2,835 | 161 |

significantly during the last twenty years. While the causes of the former may be obscure, there is little question that women's labor market advances have discouraged childbearing (Smith and Ward 1985).

Time-squeeze has been caused by a number of factors. For women, the rise in market hours has not been fully offset by a decline in household work -- in part because men have not compensated them by working sufficiently more at home. Among men, the surprising result is that those with jobs have actually experienced a rise in hours. We have argued elsewhere that employers exhibit a bias against declines in market hours, because firms find long hours to be profit-maximizing. We suspect this is an important part of why men's hours have not fallen more (Schor, 1988, 1992).

February, 1992

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***The*** authors are grateful to the Economic Policy Institute and Harvard Institute for Economic Research for financial assistance. They would also like to thank Sam Bowles, Frederick Leete-Guy, Larry Mishel, John P. Robinson, participants in seminars at Harvard, MIT, and the University of Massachusetts at Amherst, and two anonymous referees. Researchers at the Bureau of Labor Statistics provided assistance. Errors are authors' alone.

NOTES

1. Robert Half International. "Family Time is More Important Than Rapid Career Advancement: Survey Shows Both Men and Women Support Parent Tracking." Press release. San Francisco, June 28, 1989.

2. Hilton Hotels Survey, conducted by John P. Robinson, University of Maryland. Reported in Carol Hymowitz. "Trading Fat Paychecks for Free Time." *Wall Street Journal,* August 5, 1991, p. B1.

3. Of course, there is still some debate about whether unpaid household production should be counted as work. The most controversial of our activities in this regard is childcare. In our view, these activities are work, despite their omission from the National Accounts. Home production (including childcare) yields valued goods and services, that are necessary to the functioning and reproduction of society. There are clear market substitutes for nearly all home production, as the growth of the service sector in recent years makes clear. There are numerous complexities and ambiguities in the measurement of any employment (Sen, 1975), and women's work should not be singled out. As economists are finally starting to recognize, the failure to include these activities in economic statistics is sexist. (Folbre, 1991; Eisner, 1988; Waring, 1988).

4. It is not possible to hold the detailed occupational structure constant on account of changes in occupational codes after 1980. However, at a highly aggregated level, we found that hours rose within occupations.

5. For an explanation of the rise of unemployment in the 1970s and 1980s, see Stephen Marglin and Juliet Schor, 1990.

6. These categories are defined by the CPS as follows:

(1) *No Work All Year* -- those who worked no weeks during the year and reported that it was because they could not find work. This includes both those who actively looked and those who did not look (so-called discouraged workers).

(2) *Constrained Part-Year/Part-Time* -- those who worked part-year/part-time and did so either because they could not find full-time work or because they could not find work for a portion of the year (or both).

(3) *Constrained Full-Year/Part-Time* -- those who worked year-round but less than thirty-five hours/week and reported that this was because they could not find full-time work.

(4) *Constrained Part-Year/Full-Time* -- those who had full-time jobs for only a portion of the year and reported that it was because they could not find work for the remaining weeks of the year.

7. One labor market constraint we have been unable to take account of is "involuntary" retirement. Among older workers, the fraction of involuntary retirees appears to be much higher than BLS estimates assume. A 1989 survey by the Commonwealth Fund found that among the non-working population of men aged 55-64 and women aged 50-59, 43 percent report that they would prefer to be working (Commonwealth Fund 1990).

8. Constrained labor market participants give information to the CPS on the schedules they would prefer to be working. We attributed average hours to each constrained participant based on the schedules of unconstrained workers in the same occupation and industry (or, where not available, in that race, age, and gender group). In the case of discouraged workers, we did not include those weeks where they were not officially looking for work or on layoff. Thus, these estimates are conservative.

9. The CPS does have information on how many workers are on vacation or holiday during the survey week. But the survey week occurs in March, a month during which both vacations and holidays are underrepresented.

10. The 1975 and 1985 estimates are calculated from Robinson (1986, Table 3, p. 36), as weighted averages of employed men and women only. Data for earlier years are from Department of Commerce (1963); and Current Population Reports (1976 and 1980).

11. Although specifications vary, these results are comparable to those found by others who have analyzed the same data (Fuchs, 1986; Manchester and Stapleton, 1991).

12. If mean non-market hours in the two periods are expressed as:

$$H_t = b_t X_t$$
$$H_{t+n} = b_{t+n} X_{t+n}$$

Where H is mean non-market hours worked, X is a vector of means of exogenous variables, and b is vector of estimated coefficients, then it can be shown that:

$$H_{t+n} - H_t = (b_{t+n} - b_t) * X_t + (X_{t+n} - X_t) * b_t + (b_{t+n} - b_t) * (X_{t+n} - X_t) ,$$

Where the first component is the change in coefficients (evaluated at the old means), the second is the change in variable means (evaluated at the old coefficients) and the third is the interaction of the two (see Oaxaca, 1973, for a more in-depth discussion of this point). The detailed results are not presented here but are available from the authors.

13. This result derives partly from the small size of the coefficients in the men's equations -- when the responsiveness of coefficients is low, a large change in the mean of a variable will have little effect on the dependent variable.

14. There are time-use data for a number of countries, however, these are not up to date. (See Szalai, 1972; Juster and Stafford, 1991).

15. These include a reduction in average productivity caused by excessive hours as well as "karoshi," or death by overwork. The obstacles to hours reduction in Japan remain formidable, especially in small firms. (See Takahashi, 1990).

16. See Hochschild's, 1989, revealing treatment of dual-earner families, as well as the discussion in Schor, 1991.

# APPENDIX A
# DATA AND METHODOLOGY

Existing estimates of working hours tend to be partial in a number of respects. Most consider only weekly hours, ignoring weeks worked, which have been a more important source of variation in work time in recent decades (Juster and Stafford 1985, 1991; Owen 1969, 1989). Smith (1983) and Greis (1984) do calculate annual hours. However, Smith's calculations span only 1977 to 1981, and Greis uses establishment data, which is downward biased due to the growth of the informal sector and multiple jobholding. (See Greis 1984, Owen 1989, and Appendix C below on differences between the household and establishment series.)

A second problem is that estimates of hours worked typically focus on market hours, and exclude the household sector altogether. (Owen 1969, 1989; Greis 1984; Smith 1983) The literature on time allocation does includes both types of work (Juster and Stafford 1985; Walker and Woods 1976; Robinson 1986). However, the time-use surveys are small and not all are nationally-representative samples. Furthermore, the most commonly used surveys -- the 1975-76 and 1980-81 University of Michigan Time-Use Studies -- took place during major national recessions. A 1985 time-use study from the University of Maryland was not available at the time of this writing. (Comparison of the time-use results with our own is made in Appendix C.) Only Fuchs (1986) has combined time-use data with what is -- in our view -- more accurate CPS data. His estimates stop at 1979, however, before much of the purported rise in hours occurred.

In this paper, we provide calculations for both annual market and household hours for 1969, 1973, 1979, and 1989. All years are business cycle peaks (or in the case of 1989, the closest available year). Data for calculating annual market hours is taken from the March CPS Supplements for 1970, 1974, 1980, and 1990. Our CPS sample includes the adult, civilian, noninstitutional population (age 18+). Estimates of household hours are derived by applying information from the Michigan Time-Use Studies to the CPS. The methodology used in constructing both sets of estimates is described below.

## I. Estimating Market Hours

Annual market hours were computed as 'hours worked last week' multiplied by 'number of weeks worked last year.' It would have been preferable to use 'usual weekly hours'. However, this variable is not available before 1979. The 'actual hours last week measure has two problems. First, last week may not be a representative week. Second, the weekly hours variable refers to a week during March of the survey year, but the weeks worked variable refers to the previous year. This is especially problematic when a person's occupation, industry, or labor force status changes. In these cases, we have estimated weekly hours, as explained below.'

The CPS definition of market hours includes all hours spent working, as well as any paid leave from work (paid holidays, vacation time, sick leave etc.). Therefore, we have calculated separate estimates of paid leave, which we discuss below.

Specifically market hours are estimated as HOURSLW*WEEKLY, where HOURSLW is actual hours worked during a week in March of year t+1 (t=1969, 1973, 1979, 1989), and WEEKLY is number of weeks worked during year t. However, an estimate of hours per week is used instead of HOURSLW in the following cases:

(1) If a person's l-digit occupation or industry changed between year t and March in year t+1.

(2) If a person's full-time/part-time status changed between year t and March in year t+1.

(3) If WEEKLY > 0 but HOURSLW =O.

(4) If HOURSLW < 35 but it is indicated that this is not a usual schedule and the person usually works full-time.

In these cases, hours per week is estimated as the average for persons of the same part-time/full-time status in the same industry and occupation, if industry and occupation are available. If industry and occupation are not available for year t, as in the case of someone who had positive weeks looking for work, but no job, then hours per week are taken as the average of persons of the same age, race and gender.

## II. Estimating Non-Market Hours

The methodology for estimating annual household, or non-market hours is a two-step procedure, following Fuchs (1986). The first step involves the Michigan Time-Use Studies, in which participants keep diaries of all daily activities. The diary method is considered to be the most accurate measure of daily time-use information. (See Robinson 1985). Estimates of weekly hours of non-market work are constructed from the diaries, based on time spent in activities such as child care, cleaning, cooking, shopping for family needs, house and garden care. (For a complete list of activities included, see Appendix B). Restricting non-market activities to only childcare, cleaning, and cooking does not substantively alter our results.*

Used independently, the Michigan data are unsatisfactory for a number of reasons. First, the sample overrepresents a number of categories (those with children, heads of households, and whites) who tend to work above average hours at home and in the market. The major Michigan surveys are also biased because they were collected during two national recessions. In addition, the data are weekly, rather than annual, and the sample size is inadequate to pick up the growth of weeks worked per year. Therefore, we have used the Michigan data to estimate a model of the determination of weekly non-market hours, from which the resulting coefficients are used to predict non-market hours for each person in the CPS. Weekly non-market hours are multiplied by 52 to arrive at annual non-market hours.

At the time of this writing, we had three time-use surveys available to us -- 1965, 1975-76, and 1980-N. The 1965 study was eliminated because it contains important sample

restrictions, which have been shown to markedly bias its calculations of working time (see Robinson 1980 and Appendix C). Regression coefficients from the 1975-76 survey were used to predict non-market hours for 1969 and 1973, and coefficients from the 1980-81 study were used for 1979 and 1989.

For the years before 1975 and after 1981, this procedure is effective in capturing any changes over time which are driven by the variables identified by our model. However, it cannot pick up any exogenous shifts in the constant term which occurred before 1975 or after 1981. These might include the effects of non-demographic or noneconomic factors, such as attitudes toward the gender division of labor. Unfortunately, there is no way to avoid this problem, given current data limitations. For this reason, we have more confidence in the precision of the estimates of market hours than those for non-market hours.

Models of non-market hours were estimated from the Michigan Time Use Studies. Separate regressions for men and women were used to predict non-market hours. These regressions included all variables that have been theoretically identified as well as those which previous research has found to be significant determinants of non-market hours (see Fuchs, 1986; Manchester and Stapleton, 1991; Hartmann, 1976; Walker and Woods, 1976). These variables are age, number of children, number of market hours worked, marital status, and housewife status. Number of children is specified as a square root in order to capture the economies of scale present in childrearing? In addition, we tested a number of other variables that we hypothesized might affect hours, or that might be serving as proxies for theoretically identified variables and retained those that improved the standard error of the equation. Race, household head, and sub-family head status[4] were retained on this basis; education, residency in an Standard Metropolitan Statistical Area (SMSA), presence of children under eighteen other than one's own, total number of family members, size of dwelling, interaction terms for single and working parents, and number of large household appliances were rejected (see Szalai, 1972, p. 125 for evidence that household appliances do not reduce hours worked in the household). Variables that were shown to affect non-market hours but could not be used because they were not available on the CPS were type of dwelling, homeownership, and size of lot.

These equations were estimated with Ordinary Least Squares regression techniques for both the 1975-76 and the 1980-81 Michigan Time Use Studies.[5] The 1975-76 study was nationally representative of individuals aged eighteen and over. The 1980-81 study interviewed only a subset of these same individuals, including only those who were household heads or their spouses. In order to eliminate any spurious coefficient changes due to sample selection bias, the equations were estimated for only those individuals who were included in both samples. This restricted sample is limited to those over age twenty-three, household heads and their spouses and underrepresents racial minorities. To adequately include the effects of youth, race and household head status, coefficients for these variables were estimated for the entire 1975-76 sample and then added to the restricted sample equations. Interaction terms for these variables were tested on the full

sample and those which were found to be statistically significant were retained. The constant terms for the restricted sample equations were adjusted for the addition of these other coefficients.[6] These equations are shown in the table below.

NOTES

1. For 1979 and 1989, we have also calculated annual hours using the 'usual weekly hours' variable. These calculations were also able to account for intra-year schedule variation between part-time and full-time work. The two methods generate systematic differences in the level of hours, however the trends over time are virtually identical. The difference in levels is in part due to the time frame (last week vs. last year), but also because actual hours tend to be higher than usual hours, probably because respondents do not include overtime hours in usual hours.

2. Some readers may be troubled by the inclusion of garden care due to its dual nature as both work and hobby. Garden care is of little practical relevance, as it represents a very small amount of weekly time-use.

3. Manchester and Stapleton (1991) capture economies of scale by including both dummy variables for the presence of children and the actual number of children. We found that when number of children was modelled as a square root the equation consistently outperformed specifications using either dummy variables or number of children.

4. Note that for the purposes of this paper household head refers to the person in whose name the housing unit is owned or rented or the spouse thereof. Census terminology generally restricts this definition to the former.

5. Fuchs (1986) and Manchester and Stapleton (1991) also use OLS. To account for the possibility that market and non-market hours are simultaneously determined by the wage, we used a Two-stage Least Squares (2SLS) procedure which took the wage (or imputed wage, in the case of non-employed persons) as exogenous. The results were comparable, indicating the lack of a significant simultaneity bias.

6. While this procedure is not ideal, it is the only way to use all currently available information. We also estimated the non-market hours for all years using only the equation estimated on the full 1975-76 sample; this procedure yields virtually identical results for women, but yields a somewhat lower estimate of men's non-market hours in the 1980s. This is due to a sharp rise in the constant term in the men's equations between the two time-use studies. From a 1985 survey Robinson (1986, 1988) found a similar rise in men's non-market hours between 1975 and 1985. Thus, not using the 1980-81 data would result in a serious underestimate of men's non-market hours in the 1980s.

Non-Market Hours Equations'
OLS Estimation
Dependent Variable is Non-Market Hours Per Week
*(Standard Errors in Parentheses)*

| | MEN | | WOMEN | |
|---|---|---|---|---|
| | 1975-76 | 1980-81 | 1975-76 | 1980-81 |
| CONSTANT | 14.6 | 21.1 | 27.8 | 32.2 |
| AGE 18-24 | -1.6 | -0.29 | -3.8 | -3.6 |
| | (2.6) | (2.0) | (3.4) | (2.3) |
| AGE 45-64 | 1.5 | 1.3 | 2.7 | 1.8 |
| | (1.8) | (1.9) | (2.3) | (2.4) |
| AGE 65+ | -0.42 | -2.4 | -0.94 | -5.7' |
| | (2.9) | (3.0) | (3.2) | (3.1) |
| SQRT[b](# OF KIDS<3) | 3.5' | 2.7 | 13.3" | 7.T |
| | (1.9) | (2.5) | (3.0) | (9.3) |
| SQRT[b](# OF KIDS>=3) | 2.0' | 1.8 | 3.9" | 3.8"' |
| | (1.0) | (1.2) | (1.4) | (1.6) |
| MARKET HOURS | -0.29** | -0.34" | -0.44" | -0.46" |
| | (0.05) | (0.05) | (0.06) | (0.06) |
| MARITAL STATUS | 0.72 | 3.5' | 3.7' | 4.2" |
| | (1.8) | (2.1) | (1.9) | (2.1) |
| HOUSEWIFE | | | 3.8* | 1.8 |
| | | | (2.1) | (2.1) |
| HEAD OF HOUSEHOLD | 5.7' | 5.7 | 3.6 | 3.6 |
| (or spouse of) | (2.5) | (2.5) | (2.5) | (2.5) |

| | MEN | | WOMEN | |
|---|---|---|---|---|
| | 1975-76 | 1980-81 | 1975-76 | 1980-81 |
| HEAD OF SUBFAMILY | | | 5.3 | 5.3 |
| (or spouse of) | | | (5.6) | (5.6) |
| FAMILY INCOME | 0.0001 | -0.0001' | 0.0001 | -0.0001 |
| | (0.0001) | (0.00004) | (0.0001) | (0.0001) |
| BLACK | 2.7 | *2.7* | -1.9 | -1.9 |
| | (3.1) | (3.1) | (3.2) | (3.2) |
| OTHER RACE | 3.4 | *3.4* | -1.9 | -1.9 |
| | (2.7) | *(2.7)* | (3.7) | *(3.7)* |
| BLACK*SQRT[b](KIDS<3) | | | -13.3" | -13.3** |
| | | | (5.7) | *(5.7)* |
| BLACK*SQRT[b](KIDS>3) | -6.1" | -6.1" | -3.6 | *-3.6* |
| | (2.7) | (2.7) | (3.0) | *(3.0)* |
| AGE 18-24*SQRT[b](KIDS<3) | | | -7.8" | *-7.8"* |
| | | | (4.0) | (4.0) |
| BLACK*AGE 18-24 | -7.1 | -7.1 | | |
| | (5.9) | (5.9) | | |
| adjusted $R^2$ | 0.22 | 0.27 | *0.49* | *0.39* |

* significant at the 0.10 level ** significant at the 0.05 level

[a] The 1970 CPS does not include race categories that matched those available in the time-use studies or the later CPS's. Thus, the coefficients used for the 1970 CPS were calculated leaving out the 'other race' variable.

[b] square root

## APPENDIX B
## ACTIVITIES INCLUDED IN ESTIMATED NON-MARKET HOURS

**Indoor Household Activities**

Meal Preparation
Meal Cleanup
Laundry and Clothes Care
Indoor Cleaning and Chores
Repairs and Maintenance
Care of Houseplants

**Outdoor Household Activities**

Gardening
Outdoor Cleaning and Chores
Repairs and Maintenance
Home Improvements

**Child Care**

General Child Care
Help with Homework
Helping/Teaching Children
Reading To/Conversations With Children
Playing With Children
Medical Care for Children
Babysitting (unpaid)
Travel Related to Child Care

**Obtaining Goods and Services**

Shopping
Apartment/House Hunting
Obtaining Services (except Personal Care)
Travel While Obtaining Goods and Services

**Miscellaneous Household**

Pet Care
Car Care and Maintenance
Household Paperwork
Care of Other Friends or Relatives

## APPENDIXC
## COMPARISON OF DATA SOURCES ON HOURS

### A. Time-Use Surveys

Researchers involved with the Michigan and Maryland time-use surveys have reported that their data shows a rise of leisure time, and a decline in working hours. (Robinson, 1986; Juster and Stafford, 1991) There are numerous differences between the methodologies of the time-use surveys and our own, so that a clear comparison is difficult to make. However, a closer look at the claims of these researchers shows that their conclusion is unfounded. They report a large rise in leisure time between 1965 and either 1975 or 1981. We believe this is a statistical artifact due to differences between the 1965 and later samples. The 1965 time-use sample includes only members of urban households where the household head is employed and excludes individuals over age sixty-five, whereas the 1981 sample includes household heads and spouses, regardless of employment status, and was undertaken during the country's most severe postwar recession. In their comparison of hours between 1965 and 1981, Juster and Stafford (1991) have eliminated non-urban households and those aged 65 and over from the 1981 data. However, they have not corrected for the fact that in the 1965 sample all household heads were employed. This is especially important because 1981 was a recession year. Furthermore, the downturn in economic activity causes a spurious downward trend in market hours even among employed workers, because their hours tend to fall during recessions. Furthermore, there are other grounds for believing the 1965 survey is an unreliable indicator. Robinson has found that of a fifty-seven minute per day decline in housework by women between 1965 and 197576, over 60 percent was spurious, due to the restrictions in the 1965 sample. (See Robinson, 1980, Table 2, p. 62.) For these reasons, we find the claim that leisure time has risen unconvincing.

Time-use researchers have argued that because the CPS does not register the decline in hours worked found in their data, it is less reliable (Stafford and Duncan, 1985). We are skeptical of this conclusion, for the reasons we have given above. However, it should be noted that part of the difference is due to the fact that Stafford and Duncan have excluded on-the-job training, coffee breaks, and a variety of other on-the-job activities from their measure of work hours, while these are included in the CPS. In addition, the Michigan studies measure weekly hours only and their sample sizes are too small to accurately reflect the substantial rise in weeks worked per year found in the CPS.

### B. Market Hours as Measured by Establishment Surveys

An alternative source of data to the CPS is from business establishments. It is generally thought that the CPS may be prone to more biases due to inaccurate recall from respondents. However, the establishment data also have drawbacks, the most serious of which is their omission of informal and underground employment. Because there has been a substantial upward trend in these forms of work, use of establishment data imparts a downward bias over time. For this reason, we did not rely on establishment data for this study. Another drawback to the payroll series from establishments is that employees with two jobs are double-counted, so that any average hours figures, such as average weekly hours, understate the average hours worked per employee.

## APPENDIX D
## CALCULATIONS OFTRENDSINPAIDTIMEOFF

We have used BLS data on the ratio of hours at work to hours paid for production and nonsupervisory workers. Paid hours include holidays, vacations, sick, and personal leave. We converted these figures to a per day basis by the following formula [1-HW/HP] x DW where HW=hours worked, HP=hours paid and DW=days worked, assumed to be 260 per year. For manufacturing, this yielded 1969=20.0 days, 1981=23.4 days. For the nonagricultural economy, the results were 1981=19.8 days, 1989=16.1 days. Data are available for the manufacturing sector for 1969 through 1989, and for the nonagricultural economy for 1981 through 1989. While the levels of paid time off are higher in manufacturing, both series show a decline in the 1980s.

We checked these results using available estimates of the major forms of paid time off — vacations, holidays, and sick leave between 1979 and 1987. The BLS calculates that in 1968 paid vacation and holidays totalled seventeen days per year. (Hedges and Taylor 1980) In 198386, the BLS estimate is 19.5 days per year, or an increase of 2.5 days (Buckley 1989). We have calculated sick leave from the CPS (the variable is only available for full-time workers). Total hours lost to illness for full-time workers fell between 1969 and 1987, from fifty-eight per year to forty-one, a decline of seventeen hours, or roughly two days. (Notably, between 1969 and 1979 there was little change; all of the decline happened after 1979.) Combining vacation, holiday, and sick leave yields a net rise of 0.4 days per year (or three hours) in paid time off between 1969 and 1987. Given the roughness of these estimates, and the fact that the BLS calculations miss the decline in paid time off after 1986, the two methods provide remarkably comparable results.

The decline in HP/HW during the 1980s may appear surprising, given a previous thirty-year upward trend. The change has been due both to the high degree of labor force mobility during the 1980s, and well as less generous provisions on the part of employers. Industrial restructuring, an influx of new workers, and more "casualization" of labor relations have reduced the duration of employment, thereby reducing vacation allotments. The growth of occupations which have the shortest durations of employment, such as service jobs, and those in retail and wholesale trade, have also reduced average tenure (see Carey 1988).

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