

Women's Employment and Women's Attitudes Toward Work

Charles Michalopoulos  
Department of Economics  
Virginia Polytechnic Institute and State University  
Blacksburg, VA 24061-0316

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## Abstract

One of the ongoing questions in economics is the large increase in the employment of American women in the last few decades. This paper the role of women's preferences toward work in explaining the growth in women's employment. Using attitudinal measures from the National Longitudinal Surveys of Labor Market Experience as proxies for preferences, the paper probes two issues. First, do changes in these attitudinal responses help predict changes in hours of work over time? If they do, then what factors help predict changes in the attitudinal responses? The results indicate that changes in attitudinal responses "explain" as much as one-third of the growth in hours worked within a cohort, and a substantial amount of the change in hours worked across cohorts. In addition, changes in work experience help explain changes in attitudinal responses, but account for only a small portion of the change.

## 1. Introduction

One of the ongoing questions in economics is the large increase in the employment of American women in the last few decades. The percentage of women working has moved steadily upward, more than tripling between 1890 to 1992, from 17.4 to nearly 60 percent.<sup>1</sup> While half of this change occurred prior to 1960, the other half occurred in only 20 years, from 1960 to 1980. A variety of explanations have been explored for the consistent increase: wages, spouse's income, fertility, and marriage rates. While women's wages have moved upward through the period, they have increased the least since 1960, when employment has increased the most. During the century fertility rose and then declined, average age at first marriage declined and then increased, and the ratio of women's wages to men's wages has stayed nearly constant. This paper examines another factor affecting labor supply, one not usually studied in the economics of labor supply: women's preferences toward work. Using attitudinal measures from the National Longitudinal Surveys of Labor Market Experience as proxies for preferences, the paper probes two issues. First, do changes in these attitudinal responses help predict changes in hours of work over time? If they do, then what factors help predict changes in the attitudinal responses?

Why should economists look beyond the usual economic factors -- wages and nonlabor income -- to explain the recent growth in women's employment? Mincer (1960) attributed 75 percent of the change between 1900 and 1950 to these two factors. Smith and Ward (1985) estimated that women's wages alone explain 60 percent of the growth in women's employment between 1950 and 1980. However, there seems to have been a change after 1960. Table 1 compares the average participation rate for women aged 20 to 64 to the average weekly earnings of full-time female workers and the ratio of women's earnings to men's earnings. It is clear why economists have focused on women's wages to explain women's employment.

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<sup>1</sup> For 1890, the labor force participation rate was taken from Smith and Ward (1985), Table 1. For 1992, the labor force participation rate was taken from the Economic Report of the President.

From 1890 to 1960, wages grew at about twice the rate of labor force participation. From 1960 to 1980, however, wages have increased only 11 percent while participation has increased 54 percent.

Looking at these trends, Goldin (1990) argues that the century can be broken down into three periods, and that the forces bringing women into the work force have changed between these periods. At the turn of the century, few married women worked. While a select few worked in professional occupations, the majority who did work did so to supplement the meager earnings of their spouses. Wages increased rapidly during the first few decades of the century. Goldin argues, however, that women's labor force participation increased slowly because it was socially stigmatizing for a non-professional married woman to work. As more women entered the labor force, the stigma of working gradually decreased and married women responded to rapidly increasing wages. In particular, when the demand for women's labor surged during World War II, women's employment also surged. Since 1960, however, the increase in women's employment has come primarily from young married women who have postponed child-bearing or had fewer children than in the past, despite a small increase in wage rates. In addition, historian Susan van Horn (1989) notes that prior to 1960 few women worked to develop careers. In contrast, since 1960 more women have chosen careers. Thus women have increasingly chosen to work for reasons other than income. Goldin concludes that demand-side explanations work well from 1940 to 1960, but that supply-side explanations are important after that period.

Schor (1991), Bergmann (1985), Levy (1986), and Kniesner (1993) all argue that women's labor *supply* has increased. In particular, Schor, Bergmann, and Levy argue that at least part of this change stems from changes in preferences. Bergmann agrees with Mincer and Smith and Ward that increases in wages -- labor demand -- provided the initial impetus for women to work. But, she argues, the increase in employment before 1960 caused changes in

ideology -- preferences toward work -- that have extended the employment growth through a period of stagnant wages.<sup>2</sup> According to Schor, consumption standards have changed over time. While a worker can earn as much as he or she did 20 years ago, families demand larger television sets, cleaner houses, and generally higher standards of living. Levy notes that men's wages have remained stagnant since the early 1970's, and that this might bring more married women into the workplace. But women's wages have increased only slightly since then. If both have stagnated, this should promote the status quo, or constant labor force participation rates over time. Therefore, Levy agrees with Schor that changing standards of living provide an explanation for the changes in women's labor supply. Finally, Kniesner (1993), while disagreeing with the reliance on changing consumption standards, agrees that some unexplained supply-side factors must have influenced women's employment.

This paper examines the connection between women's attitudes about work and employment from 1972 to 1988. Two issues are examined. The first issue is whether attitudinal measures help predict women's employment and hours of work at a point in time. That is, if a woman says that it is acceptable for women to work, is she more likely to work herself, and does she work more hours than women who state the opposite opinion? The second issue is what explains changes in attitudinal responses. If attitudinal responses change in response to economic phenomena such as work experience, this has implications for the effects of economic policy on long-run behavior. For example, empirical evidence indicates that attempts to encourage welfare recipients to work will have small effects. However, if small initial changes have later effects on preferences, then the long-term changes might be quite a bit larger.

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<sup>2</sup> To quote Bergmann (page 61): "The rise in the real wage has faltered since the 1970s. By the 1970s, however, the trends in the social forces favoring women's independence -- in education, ideology, and in consumption norms -- had gathered momentum. Whatever their origin in economic forces, these social trends now have a life of their own."

To examine these issues, data were taken from two cohorts of the National Longitudinal Survey of Labor Market Experience (NLS). Respondents to the NLS were asked a series of questions regarding the circumstances under which it is appropriate for women to work, and the possible non-economic costs and benefits of women working. If these attitudinal measures are a good proxy for preferences, then they can be used to examine a number of issues.

The primary findings of this paper can be summarized in two parts. First, changes in attitudinal responses are significantly related to changes in hours worked. Women who strongly agree with women working are more likely to work than those who merely agree. Women who agree, in turn, are more likely to work than those who disagree. Furthermore, among working women, those who express stronger pro-work sentiments work more than other women. The estimates imply that changing attitudinal responses "explain" as much as one-third of the growth in hours worked within a cohort, and a substantial amount of the change in hours worked across cohorts. Second, changes in work experience also help explain changes in attitudinal responses, after controlling for age and economic factors. Given her prior responses, a woman who worked more in the previous year is more likely to agree with women working in the current year. However, work experience explains only a small portion of changing attitudes.

## **2. Description of Data and Attitudinal Information**

The NLS consists of five panels covering the period 1967 to the present. For this study, data were taken from two panels: Young Women and Youth.<sup>3</sup> The Young Women

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<sup>3</sup> A third panel, the NLS of Mature Women, might also be relevant for this study. This panel contains information on women aged 30 to 44 years old in 1967. Since I am interested in the development of these

cohort contains 5159 women who were between 14 and 24 years of age in 1967. These women were surveyed every year or every other year between 1968 and the present, with 1988 as the last year used in the analysis. The Youth cohort began in 1979, when it included 5744 and women between the ages of 14 and 21.<sup>4</sup> The most recent year for which data were used is 1987.

### Employment and Wage Trends in the National Longitudinal Surveys

Before we can assess the ability of attitudinal responses to explain changes in employment, it would be helpful to have an idea how much employment has changed. For women in the two cohorts, Table 2 presents the percentage of women who were employed at some time in the previous year, annual hours worked by working women, and average hourly wages. Means are presented for five year age groups so that changes over time are not due to the aging of the cohorts.<sup>5</sup>

Since 1960, employment has increased primarily among married women, especially married women with children.<sup>6</sup> In the NLS, this implies that employment should have increased by a greater amount among older women. This pattern is reflected in the first panel of Table 2, which shows employment rates by age group and year. In 1973, the employment

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attitudinal responses, younger women, with less work experience, are likely to provide more fruitful information for this study.

<sup>4</sup> The Youth cohort also contained about 5000 men in 1979.

<sup>5</sup> Two samples were collected for the NLSY. The first sample was designed to represent the United States population of young women at the beginning of the panel. The second was designed to oversample women from poor families. In order to investigate differences by race, both subsamples are included in the analysis. To obtain nationally representative results, I conducted all analyses using sample weights provided with the data sets.

<sup>6</sup> See Hofferth and Phillips (1987) for a description of the increase in employment rates for married women with young children.

rate of 18 to 20 year old women was 26 points higher than for 31 to 35 year old women. By 1987, this gap had closed to about two percentage points. While the employment rate increased by 3.7 percent for the youngest age group, it increased by 28.5 percent for women between 31 and 35 years old.

Goldin (1988) and Smith and Ward (1985) argue that increases in women's work experience are due primarily to increases in the number of employed women rather than increased hours by employed women. If this is true, then hours worked by working women should not have increased over time. The second panel of Table 2 indicates that among working women in the NLS, annual hours worked did increase over time for each age group. Between 1973 and 1987, this change ranges from 330 hours per year for women 26 to 30 years old to 453 hours for women 31 to 35 years old.

Can contemporaneous growth in wages explain the growth in employment over this time period? The last panel in Table 2 presents trends in mean wages, in 1967 dollars. For women under 30, mean real wages decreased between 1973 and 1987. These numbers reinforce the finding of Levy (1986) that average earnings stagnated after 1973 and the finding of Bergmann (1986) that weekly earnings for women stagnated after 1973.

### Attitudinal Information in the National Longitudinal Surveys

For this study, the primary advantage of the NLS is a series of questions designed to reveal respondents' attitudes towards women working. In these questions, women were asked whether they strongly agree, agree, disagree, or strongly disagree about several statements regarding the appropriateness and effects of wives working. In this analysis, four statements were used: 1) "A woman's place is in the home, not in the office or shop." 2) "The employment of wives leads to juvenile delinquency." 3) "A wife who carries out her full



family responsibilities doesn't have time for outside employment." 4) "A working wife feels more useful than one who doesn't." These four questions were chosen because they were asked in both cohorts and were asked on more occasions than other attitudinal measures.<sup>7</sup>

Table 3 presents the distribution by year of responses for the four attitudinal measures. Although the questions might sound silly to modern ears, responses to these questions have changed considerably over time. For example, in 1972, only about 12 percent of women strongly disagreed that a woman's place is in the home. By 1987, that percentage had climbed to almost 54 percent. From 1972 to 1987, the percentage of women strongly disagreeing that a wife does not have time for outside employment increased from about 8 percent to about 33 percent. During the same period, the percentage strongly disagreeing that working contributes to juvenile delinquency increased from 14 to 25 percent while there was no discernible trend in whether women believed that working women feel more useful.

Simply reading across the columns of Table 3 confounds changes over time for individuals with changes across cohorts. To get a rough idea of the change across cohorts, compare responses from 1972 (when the Young Women were 18-28 years old) to responses from 1982 (when the Youth were 17-24 years old). This comparison indicates that there has been a substantial change across cohorts. The percentage either disagreeing or strongly disagreeing that a woman's place is in the home increased from under 65 percent in 1972 to nearly 90 percent in 1982. Similarly, the percentage disagreeing or strongly disagreeing that a wife does not have time for outside employment increased from just over 70 percent in 1972 to

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<sup>7</sup> Another statement, "Employment of both parents is needed to keep up with the high cost of living," was asked in the same years as the questions which I use. I have excluded it because it seems more likely than the other statements to elicit reactions to the state of the economy rather than women's preferences. In yet another set of attitudinal questions, women were asked if it was definitely all right, probably all right, probably not all right, or definitely not all right for a wife to work under three conditions: (1) "if it is absolutely necessary to make ends meet"; (2) "if she wants to work and her husband agrees"; (3) "if she wants to work, even if her husband does not particularly like the idea." These questions were asked in the Young Women and Mature Women cohorts in 1968, 1972, 1978, and 1983 but were not asked of women in the Youth Cohort. Therefore, these questions were not used in this study.

nearly 84 percent in 1982 while the percentage disagreeing or strongly disagreeing that employment of wives leads to juvenile delinquency increased from about 73 percent in 1972 to about 83 percent in 1982. Finally, the percentage agreeing or strongly agreeing that a working wife feels more useful increased from under 50 percent in 1972 to more than 60 percent in 1982.

### **3. Previous studies using NLS attitudinal measures**

Several studies in sociology have investigated the relationship between employment and attitudinal variables in the NLS. These papers explored the same two basic issues of the current paper -- whether responses at a point in time are correlated with employment decisions at that time, and whether work experience are correlated with changes in responses.

Macke, Hudis, and Larrick (1978) examined both questions using a sample of married women from the Young Women cohort. They assigned a number between 1 and 4 for responses to the four attitudinal questions shown in Table 3 and added the results to get an index that ranged from 4 to 16. Using least squares, Macke *et al.* found that this index helps predict employment for white women, but not for black women. They also found that the index at one survey date helped predict the future index for white women and that the number of years worked in the years between surveys helped predict the future index for both white and black women.

Statham and Rhoton (1983) performed a similar analysis using several related attitudinal questions. These questions asked whether it was all right for a woman to work if it were necessary to make ends meet, if her husband approved, and if her husband disapproved. Statham and Rhoton used weeks worked per year as their measure of employment. The study appears to have used no exogenous variables other than attitudinal responses to explain weeks

worked. The results were agree with those of Macke *et al.* Attitudinal responses are significantly correlated with employment, attitudinal responses are correlated over time, and employment helps predict future attitudinal responses.

Using the same attitudinal questions as Statham and Rhoton, Spitze and Waite (1980) found no evidence for either effect. The sample differed in several ways from the other two studies. First, Spitze and Waite used Young Women who were in school in 1968 but out of school in 1972. Second, Spitze and Waite used a binary variable indicating whether a woman worked at any time during the year. A second study by Spitze and Waite (1981) focused on married women, whether or not they were in school, and did find that work experience helped predict changes in attitudinal responses.

While three of these four studies found evidence that attitudinal responses are important for explaining employment, the choice of sample appears to be correlated with the results. The three studies which used married women found significant correlation between attitudinal responses and employment and between employment and changes in attitudinal responses. In contrast, the study which used young women who were still in school in 1967 found no such effects. One possible explanation is that college-age women who prefer work are still in school, accumulating human capital in anticipation of working later in life. This would explain the lack of correlation between attitudinal responses and employment at a point in time. A second explanation is that the questions ask primarily about actions of married women. Therefore, the responses of married women might be more accurate measures of preferences than the responses of single women. A third explanation is that married women have less economic need to work, so that their actions more accurately reflect their preferences, rather than budget constraints. This coincides with Macke *et al.*'s finding that black women's responses are unrelated to their decisions, since black women are more likely to be in poverty and more likely to be single mothers.

Since Spitz and Waite find no link between attitudinal responses and employment for women in school, I exclude women who are under 18, the group most likely to be in school. However, I do not distinguish explicitly between women in and out of school, nor do I distinguish between married and single women. Since education and marriage are decisions, excluding single women or students might mask the effects of changing preferences. Instead, the results of the analysis that follows can be thought of as reduced form in nature. The effect of attitudinal responses on employment and the effect of employment on changes in attitudinal responses includes the effects of and on marriage and school attendance.

#### **4. Do Changes in Attitudinal Responses Help Explain Changes in Hours Worked?**

##### Cross-tabulations

The use of attitudinal responses has been criticized on several grounds. First, social psychologists have questioned whether they reflect true underlying preferences or beliefs. In an oft-cited study, LaPiere (1934) found little relationship between hotel managers' stated attitudinal responses and their treatment toward Chinese guests. LaPiere concluded that even the most carefully worded attitudinal question obtains a "symbolic response to a symbolic question" and should not be expected to be consistent with actions.<sup>8</sup> Economists have criticized attitudinal responses on different grounds. If attitudinal responses are related to actions, it may be because economic and demographic factors have not been adequately accounted for. This section examines the relationship between attitudinal responses and employment when no other factors are controlled for. If there is no relationship, then

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<sup>8</sup> More recent work has found that attitudinal responses are reflected in actions if the questions are closely related to the action. Attitudinal responses are also related to actions if the questions are asked close to the time that actions are observed. Hill (1981) contains an excellent summary of the evidence regarding actions and attitudinal responses.

LaPiere's objection may be true and there would be no reason to address the economists' objection.

Table 4 presents a first look at the relationship between attitudinal responses and employment between 1972 and 1988. The table shows how women with different attitudinal responses vary on three measures of employment: average hours of work in the week prior to being surveyed, the percentage of women who worked during that week, and average hours worked by working women.

In Table 4, attitudinal responses are arranged so that the top category represents the strongest agreement with women working and the bottom category represents the strongest disagreement. If attitudinal responses are measures of preferences, then work effort should decrease moving from the top category through the bottom category.

Consider the top panel of the table, which shows hours worked in the week prior to the survey. For all four attitudinal measures, women in the top category work significantly more hours than women in category 2;<sup>9</sup> women in category 2 also work significantly more hours than those in category 3. For example, women in the top category for "a woman's place is in the home" worked 25.6 hours per week, while those in the second category worked 21.3 hours and those in the third category worked 15.5 hours. For each attitudinal measure, women in Category 4 work about two-thirds as much as those in Category 1.

If attitudinal responses are related to hours of work, they may be related to employment, to hours chosen by working women, or to both. The second and third panels of the table present the percentage of women who worked in the week prior to the survey and the average hours worked by working women. As in the first panel, women in Category 4 are

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<sup>9</sup> In determining statistical significance, the panel nature of the data was ignored. That is, each response in each year was considered independent of every other response in every year, even though most women were included in more than one year.

about two-thirds as likely to be working as those in Category 1. For example, for the statement, "A woman's place is in the home," the percentage employed drops from nearly 70 percent in Category 1 to about 59 percent in Category 2 and 46 percent in Categories 3 and 4. In contrast, the third panel shows that among working women, women in Category 4 work only 5 to 10 percent fewer hours than those in Category 1. Thus, attitudinal responses are more closely linked to employment rates than to hours worked by working women.

### Fixed-Effects Regression

While the results in Table 4 suggest that attitudinal responses are related to employment, they have several flaws. First, they do not control for economic factors, so that attitudinal responses might simply be reflecting economic circumstances or changes in employment behavior might be stemming solely from changes in labor demand. Second, the results in Table 4 ignore the panel aspects of the NLS. If attitudinal responses change with age and employment changes with age, then the results in Table 4 might simply reflect the effects of age. Finally, if attitudinal responses are to help explain changes in employment over time, then changes in responses should be related to changes in employment.

This section presents the results of a fixed-effects regression which attempts to disentangle these various effects. The model is summarized by the following equations.

$$h_{it} = \alpha_i + Z_{it}\beta + \varepsilon_{it} \quad (1a)$$

$$\alpha_i = X_i\eta + u_i \quad (1b)$$

$$C(\varepsilon_{it}, \varepsilon_{js}) = \begin{cases} 0 & \text{if } i \neq j \\ \sigma_{st} & \text{if } i = j \end{cases}$$

In words, hours worked are determined by a person-specific component ( $\alpha_i$ ), other time-varying characteristics ( $Z_{it}$ ), unspecified macroeconomic factors ( $\varepsilon_{it}$ ), and a random term, which is independent across individuals but might be correlated over time for one individual. The person-specific component is related to individual factors ( $X_i$ ), such as race and family

background, that do not vary over time and a random component that is independent across individuals.

The key time-varying explanatory factors ( $Z_{it}$ ) in the first stage are attitudinal responses and economic factors. To determine the contribution of an attitudinal response, three binary variables were created. The first binary variable equals one if a response was in category 2, 3, or 4; a second equals one if a responses was in category 3 or 4; and the third equals one if a response was in category 4. Thus, to determine the mean hours worked for a woman who gives a category 1 response, coefficients on all three binary variables can be ignored. On the other hand, to determine the mean hours worked for a woman who gives a category 4 response, coefficients on all three binary variables must be added together. To allow the effects of attitudinal responses to vary across women, these attitudinal measures were also interacted with the woman's nonlabor income and age.

Economic factors were captured using a predicted wage rate and nonlabor income. To predict wages, a fixed-effects regression related changes in wages to age alone.<sup>10</sup> Results of this regression are presented in the appendix. Nonlabor income included spouse's wage and salary income, spouse's business and farm income, spouse's unemployment compensation, and other non-means-tested income for the household. To avoid the endogeneity of means-tested transfers, these were excluded from the calculation of nonlabor income.

The first page of Table 5 presents the coefficients represented by  $\beta$  in equation (1a).<sup>11</sup> These results confirm the crosstabulations of Table 4. Women in Categories 1 and 2 work

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<sup>10</sup> Alternative specifications of the wage regression were tried, but did not change the results presented in this section. These alternative specifications allowed wages to change with the local unemployment rate and with location.

<sup>11</sup> In addition to the four specifications shown in Table 5, an unreported regression included attitudinal responses from all four attitudinal measures. The results were very much the same as those reported in Table 5.

more on average than those in Category 3.<sup>12</sup> The effect is significantly different from zero for all four attitudinal measures, and ranges from about 1.1 hours per week to more than 2.8 hours per week. In addition, for responses to "working wives feel more useful," women who changed from Category 4 to Category 3 increased their hours worked by an average of 2.7 per week. In contrast, women who moved from Category 4 to Category 3 actually increased their hours of work for three of the four questions.

There are two potential explanations for the unexpected sign on three of the attitudinal responses. First, there may be some amount of miscoding, with women who say they strongly agree with a statement really strongly disagreeing. An alternative hypothesis is that women who strongly disagree with women working suffer worse economic conditions that induce them to work, despite their preferences. Two pieces of evidence point to the first explanation. Despite the inclusion of several economic and demographic measures, women who strongly agree with the three questions are predicted to work more hours. The second argument in favor of miscoding is the discrepancy between the first, second, and fourth questions on the one hand, and the third question on the other. For the first, second, and fourth questions, strong agreement indicates strong disagreement with women working, and vice versa. It would not be surprising if some women were confused by the wording of the question. Only the third question carries a positive connotation regarding women working. And only the third question consistently has significant coefficients of the expected sign.

Women with other economic resources should be the most likely to put their preferences into effect. In other words, if a woman thinks that women should not work but has no other means of support, she might have no alternative but to work. In contrast, if that

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<sup>12</sup> Before interacting the attitudinal measures with age, the mean age in the sample was subtracted. Thus the coefficients on attitudinal responses can be interpreted as the effect of changing a response for a woman who has no other sources of income and who has the average age of women in the sample.



same woman had a working spouse, she would be able to stay home. As a result, the coefficients on the interaction of nonlabor income with attitudinal responses should be negative. That is the case for category 2-4 responses for two of the attitudinal questions and one Category 3-4 response. Consider the statement, "A woman's place is in the home." Compare two women of average age who have zero nonlabor income and who are otherwise identical except that one gives a Category 1 response while the second gives a Category 2 response. On average, the woman with the Category 1 response will work .539 hours more per week. But the same women with 10,000 in nonlabor income would have an average difference of almost 3.5 hours ( $=0.539 + 10 \cdot .287$ ).

For three of the attitudinal measures, the interaction between attitudinal responses and age are significantly negative. This implies that older women have a more positive link between responses and hours of work. Consider again the regression using responses to "a woman's place is in the home" and consider again the two women with zero nonlabor income, one of which is in Category 1 and one of which is in Category 2. If the woman in Category 2 were 10 years older than average and the woman in Category 1 were average age, their average work effort would differ by about 1.6 hours per week ( $=.539 + 10 \cdot 0.11$ ).

Among economic variables, two things are notable. First, changes in wages appear to have a strong, but unexpectedly negative, impact on hours worked. Increasing the hourly wage rate by 1 dollar reduces hours worked by 2 to 3 per week. Second, increases in nonlabor income tend to reduce hours worked, even if attitudinal responses do not change. Increasing average nonlabor income by 1000 per year reduces hours worked by 1 per week.

The second page of Table 5 shows estimates of the parameters of  $\beta$  in equation (1b), or the determinants of the fixed effects,  $\gamma_i$ . The explanatory factors fall into several categories. First are responses to the attitudinal questions in the first relevant survey, 1972 for the Young

Women and 1979 for the Youth. Second are events from the woman's childhood: whether her mother worked, her mother's education, whether the family received a newspaper or magazine, and whether the woman had a library card. Third are demographic factors were included: age, eventual years of schooling, and race. Finally, to capture economic factors, a fixed-wage effect and average nonlabor income during the survey were included.<sup>13</sup>

Determinants of the fixed effect are generally as expected. Women who initially disagreed more with women working tend to work less themselves. For example, women who initially were in Category 4 worked between 3 and 5.2 hours fewer per week than women in Category 1. In contrast to the changes in hours, the difference between Category 3 and Category 4 in initial responses is generally a significant predictor of the fixed component of hours worked. Among demographic factors, older women work more, more educated women work more, and black women work nearly 3.5 fewer hours per week. Family background also seems to affect work effort. Women with working mothers worked .6 to .8 hours more than those with non-working mothers. An extra year of schooling for the mother increases hours of work by 0.1 to 0.15. Finally, women in families that received newspapers work about 1.5 hours more per week than other women.

#### Explanatory power of attitudinal responses

While these results imply that attitudinal responses are *statistically* significant determinants of hours worked, they say nothing about how large their explanatory power is. Tables 6 and 7 explore the ability of attitudinal responses to explain changes in hours worked over time within a cohort, as well as across cohorts.

Table 6 presents the predicted impact of changes in attitudinal responses on changes in

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<sup>13</sup> The fixed wage effect is the estimated person-specific component of a fixed-effects wage regression reported in the appendix. Average nonlabor income is intended to be a measure of the respondent's permanent nonlabor income.

hours worked within each cohort. To calculate these numbers, an individual's predicted change in hours worked was calculated using their original attitudinal responses (1979 responses for the Youth cohort and 1972 responses for the Young Women cohort). This calculation yields predicted changes in hours worked if a woman's attitudinal responses had not changed. Table 6 compares these predictions to reported changes in hours worked from the sample.

The first panel of Table 6 indicates that changes in attitudinal responses explain little of the increase in work experience of the youth cohort. Hours per week increased by 6.24 on average between 1979 and 1982, and 8.23 on average between 1982 and 1987. However, changes in attitudinal responses explain, at most, 1.0 percent of the change between 1979 and 1982, and 4.6 percent of the change between 1982 and 1987.

In contrast, the second panel of Table 6 indicates that changes in attitudinal responses are much better predictors of changing hours in the Young Women cohort. The best predictor, responses to "a woman's place is in the home," accounts for nearly half of the change in hours worked between 1972 and 1978, more than one-fifth of the change from 1978 to 1983, and nearly one-third of the change between 1983 and 1988.

Attitudinal responses might be better predictors for the Young Women cohort for several reasons. First, the original sample is older in the Young Women cohort than in the Youth cohort while the Youth cohort contains many more women at the beginning of their careers or still in school, and it contains fewer married women. A second, though related reason, is that changes in hours worked are much smaller on average for the Young Women cohort. Half of a change of 2 hours is only 2.5 times as much as 5 percent of a change of 8 hours. Changes in responses to "a woman's place is in the home" account for 0.3 hours between 1982 and 1987 and 0.49 hours between 1978 and 1983, but the former is only 3.6 percent of the actual change between 1982 and 1987 while the latter is 21.2 percent of the

change between 1978 and 1983.

As Goldin (1990) and others have shown, much of the increase in hours worked results from changes across cohorts, rather than changes over time within cohorts. Table 7 shows the differences which can be attributed to mean differences in age, wage rates, nonlabor income, and attitudinal responses. Overall, women in the Youth sample worked about 9 hours fewer per week than those in the Young Women's sample.<sup>14</sup> If attitudinal responses in 1979 in the Youth cohort had been the same as in 1972 in the Young Women cohort, women in the more recent cohort would have worked between .1 and .4 hours fewer per week. In contrast, age and nonlabor income each account for about 4 hours per week. Finally, note that most of the difference remains unexplained. Of the 9 hour difference between cohorts, between 6.8 and 7.7 is explained by the coefficient on cohort in the fixed effect regression.

### **5. Does Work Experience Help Predict Future Attitudinal Responses?**

The results thus far support the notion that changes in attitudinal responses can help explain the growth in employment. But what explains change in these responses? If attitudinal responses are affected by a person's economic experiences, then this effect can be incorporated into economic models. In particular, if work experience affects preferences, then exogenous shifts in preferences can have long-term effects. Likewise, short-term changes in wages, welfare policies, and the like can have long-term ramifications for employment. This section investigates whether work experience between two surveys is correlated with changes in attitudinal responses between surveys.

#### Cross-tabulations

Table 8 gives a first indication of the relationship between work experience and changes in attitudinal responses. The table presents mean hours of work between surveys in which

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<sup>14</sup> Note that hours worked are lower because the Youth cohort is being observed at a different part of their life cycle.

attitudinal questions were asked, by attitudinal response in consecutive surveys. For each attitudinal measure, the four columns represent responses in one survey, and the four rows represent responses in the next relevant survey. For example, among women with Category 1 responses to "A woman's place is in the home" in one survey, but Category 2 responses in the next survey, mean hours of work between surveys is 1355.

How does Table 8 address the question of the effects of work experience? If work experience does affect responses, then among women with a given response in one year, those who work more in the following years should be agree more with women working in the next survey than those who work less. Consider the second column, which refers to all women in Category 2 at one point in time. Among this group, we should expect that those who move to Category 1, and therefore are more in agreement with women working, should have greater work experience between surveys than those who remained in Category 2. Likewise, those who moved down to Category 3 or Category 4 should have less work experience in the intervening years than those who stayed in Category 2.

The results in Table 8 are generally in agreement with this prediction. Regardless of their initial attitudinal responses (indicated by the column), women in category 1 at the later point in time (that is, those represented by the first row of a panel) worked significantly more hours than those in category 2 (represented by those in the second row of each panel). Consider women in the first column for "a woman's place is in the home." Among women who stayed in Category 1, average annual hours worked was 1446. However, among women who changed to Category 2, average hours worked was significantly lower, at 1355. Similarly, among women in Category 3, there was even less work experience -- 1094 hours per year. The same basic pattern holds for other initial responses to "a woman's place is in the home," as well as responses to the other three attitudinal questions.

### Fixed-Effect Multinomial Logit Estimates of Attitudinal Responses

This section investigates the determinants of attitudinal responses using a version of a multinomial logit that allows for fixed-effects in the determinants of the discrete response. If attitudinal responses and employment both reflect preferences, then women who work a great deal might give responses that reflect agreement with women working. But that would not help us discern the impact of employment. Do those women give such responses because their work experience has changed them? Or do they give such responses and work a great deal because their preferences, fixed since childhood, favor work. The fixed-effects model provides one means of investigating the effects of changes in experience on changes in attitudinal responses.

In particular, assume the probability that respondent  $i$  gives response  $j$  at time  $t$  is

$$\text{Pr ob}(A_{it}=j) = \frac{e^{X_{it}\beta_j + \alpha_{ij}}}{\sum_{k=1}^J e^{X_{it}\beta_k + \alpha_{ik}}} \quad (2)$$

In words, each respondent has a separate fixed effect for each response category. For example, if  $\alpha_{i2}$  is large for a woman, then she might give Category 2 responses regardless of what other factors would ordinarily affect her responses. The logic of Chamberlain's (1980) work on fixed effects in binomial logit models can be extended to eliminate the fixed effect from these probabilities. Consider a woman who gives response  $j$  at time  $t$  and response  $l$  at time  $t+1$ . For this woman,

$$\text{Prob}(A_{it} = j, A_{it+1} = l | (A_{it} = j, A_{it+1} = l) \text{ or } (A_{it} = l, A_{it+1} = j)) = \frac{e^{(X_{it+1} - X_{it})(\beta_l - \beta_j)}}{1 + e^{(X_{it+1} - X_{it})(\beta_l - \beta_j)}}$$

In words, changes in characteristics (X) and responses can be used to infer the underlying parameters. Consider the group of women who either change from Category 2 to Category 3 or from Category 3 to Category 2. Those who moved to Category 2, indicating more favorable views of women working, should have experienced some event that moves them in that direction. Women moving the other way should have experienced the opposite event.

A number of interesting hypotheses can be examined. The primary hypothesis is that women who work more are more likely to change their attitudinal responses in the direction of agreeing with women working. To test this hypothesis,  $X_{it}$  includes hours worked in the year prior to the year t survey. This measure is appropriate if the effects of experience are short-lived, so that only the most recent experience is relevant. This measure has the advantage of requiring a short work history prior to the initial survey, as in the 1979 responses in the NLSY.<sup>15</sup>

Social psychologists argue that those who are unfamiliar with the object of their preferences are most likely to change their opinions when exposed to that object. In other words, women who are unfamiliar with the workplace are most likely to change their opinions after they work, while those with a long work history are unlikely to change their opinions. To

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<sup>15</sup> Two alternative definitions of work experience were tried. One defines work experience as average annual hours from the beginning of the panel to time t. Thus, work experience between time t and t+1 would increase if the woman worked more on average between the two surveys than she had prior to the first survey. This definition of work experience is consistent with a model of preference formation in which the effects of past experiences never wear off. The second alternative definition was hours worked between time t and t+1. By this definition, work experience increases if the woman works more in the several years before the t+1 survey than she had in the several years before the t survey. This definition is consistent with an intermediate model of preference formation in which the effects of experience do not last forever, but do last more than one year. The results using these alternatives were essentially the same as those presented in Table 7.

investigate this hypothesis, the change in recent work experience was interacted with work experience prior to time  $t$ . A woman might also learn about the work place from her parents. Therefore, changes in recent work experience was interacted with the binary variable indicating whether the woman's mother worked when the woman was age 14, and with the years of education of the respondent's mother.

Table 9 reports estimates of  $\beta$  for the statement, "A woman's place is in the home, not in the workplace." Results for the other attitudinal variables are presented in the Appendix, and are substantially the same as those reported in Table 9. The excluded category is Category 1, where Category 1 indicates strong disagreement with the statement, Category 2 indicates disagreement, Category 3 indicates agreement and Category 4 indicates strong agreement. As a result, a positive parameter estimate implies that the characteristic is associated with stronger agreement with the statement.

The results in Table 9 indicate that work experience does have a significant impact on changes in attitudinal responses. Increases in work experience are consistent with movements toward Category 1 (strong disagreement) from Categories 2 through 4. In addition, several of the other hypotheses are confirmed. Women who already have a great deal of experience are less likely to move away from Category 3. This is indicated by the positive coefficient on the interaction between previous work experience and the change in work experience. This effect of familiarity with the work place also is implied by the coefficient on the interaction between the change in average work experience and whether the respondent's mother worked. Those with working mothers or better educated mothers are more likely to move out of Category 2 as a result of recent work experience.

#### The Ability of Work Experience to Explain Changes in Attitudinal Responses

Work experience is a statistically significant factor in changing attitudinal responses,



but it might not explain much of the change. Table 10 examines the ability of differences in work experience to explain changing attitudinal responses. The Youth and Young Women cohorts were compared at two points -- 1972 in the Young Women cohort compared to 1982 in the Youth cohort, and 1978 in the Young Women cohort compared to 1987 in the Youth cohort. To do this simulation, hours worked in the previous year for a woman in the Youth cohort was lowered so that the average hours worked would be the same as in the Young Women cohort. For example, if the average woman in the Young Women cohort in 1972 worked 20 percent fewer hours than the average woman in the Youth Cohort, then I reduced the work experience for each woman in the Youth cohort by 20%. Then the distribution of attitudinal responses was predicted using actual work experience, predicted again using the reduced work experience, and the two predictions were compared.

The results in Table 10 imply that work experience, while statistically important, has little impact on the distribution of attitudinal responses. For no category, for any question in either year, is the predicted effect of attitudinal responses more than one percentage point. The largest impact is on Category 1 responses for "a woman's place is in the home" in 1982. If the Youth cohort had the average work experience of the Young Women cohort in 1972, the percentage strongly disagreeing with the question would have been 44.7 percent rather than 45.5 percent.

## **6. Conclusion**

This paper has analyzed the relationship between employment, hours of work, and attitudinal responses. The results are consistent with the hypotheses that attitudinal responses reflect preferences and that work experience affects attitudinal responses. Women who express attitudinal responses consistent with women working do tend to work more than other women. This pattern holds even after controlling for a variety of demographic and economic factors, including wage rates and nonlabor income. Changes in attitudinal responses between 1972 and

1987 were found to explain as much as 30 to 40 percent of the growth in employment over that time period. Controlling for past attitudinal responses, women who work more are more likely to express attitudinal responses in agreement with women working. However, hours of work explain only a small percentage of the change in attitudinal responses over time.

These results might be useful in thinking about the long-term effects of economic policy and economic shocks. Consider the recent debate on welfare reform. A number of proposals have been motivated by the notion that welfare recipients preferences toward have been shaped by their experiences on welfare and out of the workplace. If that is the case, then the converse should be true: having them work should change their preferences so that they would view working more favorably. The results in this paper do not provide encouragement for this point of view. Nevertheless, the results do indicate that attitudes are important, so that changing attitudes through some other mechanism might be a fruitful direction for welfare reform.

**Table 1**  
**Percentage of Women in the Labor Force During Week Prior to Interview,**  
**Weekly Earnings for Working Women, and Female/Male Income Ratios**  
**1890-1980**

Year	Labor Force Participation Rate 20-64 Years <sup>1</sup>	Weekly Earnings <sup>2</sup>	Estimated Female/Male Income Ratios <sup>3</sup>
1890	17.4	60	39.8%
1900	19.7	65	41.3
1920	22.9	85	46.2
1930	25.4	105	46.3
1940	29.4	140	45.8
1950	33.0	170	45.8
1960	40.6	225	44.3
1970	49.2	240	44.7
1980	62.4	250	45.2

<sup>1</sup> Source: Smith and Ward (1985), Table 1. Prior to 1940, individuals were classified as labor force participants if they were usually gainfully employed. From 1940 on, an individual was considered a participant if he or she was employed or looking for a job during the survey week. The participation rates reported by Smith and Ward are taken primarily from the decennial censuses and are adjusted to make the rates comparable before and after 1940.

<sup>2</sup> Adapted from Bergmann (1986), Figure 2-2. Earnings are expressed in constant 1984 dollars. The source does not state whether weekly earnings are adjusted for changes in average hours worked over the period.

<sup>3</sup> Source: Smith and Ward (1985), Table 9. Ratios before 1940 are estimated in Smith and Ward (1984). The source does not state whether the ratio is adjusted for differing hours worked by men and women.

**Table 2**  
**Percentage Employed, Mean Hours of Work, and Mean Hourly Wages**  
**Women 18-35 Years Old, by Age Group, 1968-1987**  
**National Longitudinal Surveys of Youth and Young Women**

<u>Year</u>	<u>Years of Age</u>				
	<u>18-20</u>	<u>21-25</u>	<u>26-30</u>	<u>31-35</u>	<u>36-40</u>
<b>I. Percentage Employed at Some Time During the Year</b>					
1968	73.3	74.3	72.6		
1973	81.6	77.1	63.0	55.5	
1978	77.7 <sup>2</sup>	76.7 <sup>2</sup>	75.0	64.1	69.3
1983	80.3	81.0	72.5	72.2	72.2
1987	85.3 <sup>1</sup>	83.3	80.1	83.0	81.0
1973-1988	3.7 <sup>1</sup>	6.2	17.1	28.5	11.7
<b>II. Annual Hours of Work for Working Women</b>					
1968	576	996	925		
1973	879	1080	950	785	
1978	866 <sup>2</sup>	1285	1232	1037	959
1983	803	1184	1331	1304	1251
1987	1069 <sup>1</sup>	1362	1280	1309	1289
1973-1988	190	282	330	524	330
<b>III. Hourly Wage for Working Women (1968 Dollars)</b>					
1968	1.45	1.93	2.17		
1973	1.59	2.10	2.51	2.58	
1978	1.40 <sup>2</sup>	2.15	2.35	2.52	2.47
1983	1.25	1.83	2.29	2.53	2.52
1987	1.29 <sup>1</sup>	2.20	2.40	2.62	2.73
1973-1988	-0.30	0.10	-0.11	0.04	0.26

Notes. Sample weights were used to make the means nationally representative.

<sup>1</sup> For 18-20 year old women, 1985 is the last year available.

<sup>2</sup> Taken from the 1979 wave of the Youth cohort.

<sup>3</sup> Represents the change from 1978 to 1987.

**Table 3****Frequencies of Responses to Selected Attitudinal Questions in National Longitudinal Survey, Young Women Cohort**

	Young Women				Youth		
	<u>1972</u>	<u>1978</u>	<u>1983</u>	<u>1988</u>	<u>1979</u>	<u>1982</u>	<u>1987</u>
<b>A woman's place is in the home.</b>							
Strongly Disagree	12.5%	29.2%	32.7%	38.1%	39.9%	46.6%	53.9%
Disagree	50.8	51.2	52.5	48.3	45.5	41.6	37.3
Agree	28.9	15.7	11.4	10.9	11.0	9.4	7.4
Strongly Agree	7.8	4.0	3.5	2.7	3.7	2.4	1.4
<b>A wife does not have time for outside employment.</b>							
Strongly Disagree	8.4	17.8	20.4	22.5	18.4	24.8	33.3
Disagree	62.1	65.5	64.0	62.7	60.0	59.5	54.5
Agree	23.1	13.9	12.8	12.8	17.4	13.1	10.4
Strongly Agree	6.5	2.8	2.8	2.0	4.2	2.6	1.8
<b>A working wife feels more useful.</b>							
Strongly Agree	7.5	11.8	9.9	10.2	15.3	13.7	11.9
Agree	41.3	39.2	40.4	37.9	45.8	43.9	36.9
Disagree	45.7	41.8	41.3	42.7	32.0	35.1	40.1
Strongly Disagree	5.5	7.2	8.4	9.2	6.8	7.4	11.1
<b>Employment of wives leads to juvenile delinquency.</b>							
Strongly Disagree	14.2	16.8	16.6	17.6	21.6	24.9	25.2
Disagree	58.6	58.9	57.1	55.9	55.4	58.2	58.3
Agree	22.2	20.3	22.2	22.9	19.4	14.4	14.7
Strongly Agree	5.0	4.1	4.1	3.6	3.6	2.5	1.8

Source: Calculated from National Longitudinal Survey of Labor Market Experience, Young Women and Youth cohorts.

Notes: Calculations exclude women with invalid responses for any question in a given year, or who respond, "No opinion." for any question in a given year. Sample weights were used to make the responses nationally representative.

**Table 4**  
**Hours Worked in the Previous Week by All Women,**  
**Percentage of Women Working During the Previous Week, and**  
**Hours Worked in the Previous Week for Working Women**  
**By Attitudinal Response**

**1972-1988, Women 18 and Older**

	<u>A woman's place is in the home, not in the office<sup>1</sup></u>	<u>A wife does not have time for outside employment<sup>1</sup></u>	<u>A working wife feels more useful<sup>2</sup></u>	<u>Employment of wives leads to juvenile delinquency<sup>1</sup></u>
<u>Hours worked in the week prior to the survey, all women</u>				
Category 1	25.6*	26.1*	25.6*	25.4*
Category 2	21.3*	22.2*	23.7*	22.5*
Category 3	15.5	15.7	19.9*	17.5*
Category 4	16.0	16.7	17.6	16.0
<u>Percentage who worked in the week prior to the survey</u>				
Category 1	69.6*	70.6*	70.2*	68.8*
Category 2	59.2*	61.6*	65.2*	61.7*
Category 3	45.7	45.3	55.4*	50.9
Category 4	46.2	48.0	49.4	48.1
<u>Hours worked in the week prior to the survey, working women</u>				
Category 1	36.4*	36.5*	36.2	36.3**
Category 2	35.2	35.4	35.8*	35.8*
Category 3	33.7	34.0	35.0	33.7
Category 4	33.7	34.7	34.6	32.7

\* Different from entry below at a 5% significance level.

\*\* Different from entry below at a 10% significance level.

<sup>1</sup> Category 1=Strong Disagreement, Category 2=Disagreement, Category 3=Agreement, Category 4=Strong Agreement

<sup>2</sup> Category 1=Strong Agreement, Category 2=Agreement, Category 3=Disagreement, Category 4=Strong Disagreement

Means are weighted to reflect the national averages for the age groups represented in the survey.

**Table 5**  
**Fixed Effect Parameter Estimates of Hours Worked During Survey Week**  
**Women in the NLSY and NLS-Young Women**  
(Asymptotic standard errors are reported in parentheses)

	<u>“A woman’s place is in the home”</u>	<u>“A wife does not have time for outside employment”</u>	<u>“A working wife feels more useful”</u>	<u>“Employment of wives leads to juvenile delinquency”</u>
Constant	99.716 (6.195)	99.864 (6.194)	97.853 (6.191)	100.617 (6.209)
<u>Attitudinal Response</u>				
Category 2-4	-0.539 (0.463)	-0.735 (0.503)	-0.540 (0.631)	-0.399 (0.515)
Category 3-4	-1.547 (0.730)	-1.465 (0.633)	-1.219 (0.457)	-2.115 (0.578)
Category 4	0.838 (1.354)	0.926 (1.186)	-2.708 (0.773)	0.320 (1.253)
<u>Attitudinal Index interacted with Nonlabor Income</u>				
Category 2-4	-0.287 (0.081)	-0.220 (0.089)	-0.092 (0.128)	-0.147 (0.097)
Category 3-4	-0.196 (0.128)	-0.076 (0.114)	-0.373 (0.082)	0.046 (0.101)
Category 4	-0.035 (0.265)	0.234 (0.186)	0.135 (0.121)	0.293 (0.212)
<u>Attitudinal Index interacted with Age</u>				
Category 2-4	-0.110 (0.057)	-0.126 (0.064)	-0.044 (0.082)	-0.204 (0.067)
Category 3-4	-0.133 (0.086)	-0.247 (0.079)	0.011 (0.056)	-0.199 (0.068)
Category 4	-0.172 (0.159)	-0.247 (0.152)	-0.109 (0.096)	-0.114 (0.142)
Nonlabor income	-0.364 (0.188)	-0.294 (0.200)	-0.349 (0.208)	-0.511 (0.197)
Age squared	-0.501 (0.034)	-0.500 (0.034)	-0.490 (0.034)	-0.503 (0.034)
Age cubed/1000	4.997 (0.382)	4.993 (0.382)	4.874 (0.382)	5.053 (0.382)
Predicted wage	-2.816 (0.769)	-2.951 (0.768)	-2.777 (0.766)	-2.848 (0.768)
R-squared	0.105	0.106	0.107	0.104

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Explanatory variables also include whether the woman lived in an SMSA and whether she lived in a central city, as well as dummy variables for each year.

**Table 5 (Continued)**  
**Fixed Effect Parameter Estimates of**  
**Hours Worked During Survey Week**  
**Women in the NLSY and NLS-Young Women**  
(Asymptotic standard errors are reported in parentheses)

	<u>“A woman’s place is in the home”</u>	<u>“A wife does not have time for outside employment”</u>	<u>“A working wife feels more useful”</u>	<u>“Employment of wives leads to juvenile delinquency”</u>
Constant	-25.831 (1.824)	-25.358 (1.854)	-29.636 (1.937)	-25.567 (1.834)
<u>Initial Attitudinal Responses</u>				
Category 2-4	0.581 (0.423)	-0.025 (0.510)	0.809 (0.775)	-1.684 (0.475)
Category 3-4	-2.647 (0.531)	-2.315 (0.486)	0.875 (0.411)	0.546 (0.472)
Category 4	-1.989 (0.975)	0.276 (0.936)	1.872 (0.561)	-4.154 (1.006)
Age	1.991 (0.088)	1.994 (0.089)	1.989 (0.089)	2.013 (0.089)
Education	0.281 (0.145)	0.287 (0.145)	0.384 (0.145)	0.330 (0.145)
<u>Events at age 14</u>				
Mother worked	0.501 (0.405)	0.389 (0.406)	0.486 (0.406)	0.508 (0.407)
Mother’s education	0.073 (0.076)	0.077 (0.076)	0.102 (0.076)	0.091 (0.076)
Family received magazine	0.621 (0.567)	0.613 (0.568)	0.735 (0.570)	0.653 (0.570)
Woman had a library card	1.183 (0.568)	1.112 (0.569)	1.311 (0.570)	1.190 (0.570)
Family received a newspaper	2.525 (0.615)	2.493 (0.617)	2.625 (0.617)	2.543 (0.618)
Black	-4.808 (0.637)	-4.831 (0.638)	-4.664 (0.638)	-4.737 (0.639)
Average Nonlabor Income	-1.187 (0.088)	-1.194 (0.089)	-1.213 (0.089)	-1.212 (0.089)
Fixed Wage Effect	-0.572 (1.404)	-0.609 (1.402)	-0.586 (1.407)	-0.733 (1.406)
Young Women’s Cohort	7.655 (0.522)	7.114 (0.511)	7.112 (0.510)	6.883 (0.509)
R-squared	0.620	0.622	0.608	0.612



**Table 6**

**Predicted Impact of Changes in Attitudinal Responses over time within Cohort**  
(Percentage attributable to attitudinal responses in parentheses)

Year	Actual change in the sample	"A woman's place is in the home"	"A wife does not have time for outside employment"	"A working wife feels more useful"	"Employment of wives leads to juvenile delinquency"	All four attitudinal measures used
<u>Youth Cohort</u>						
1979-82	6.24	6.19 (- 1.0%)	6.21 (- 0.5%)	6.35 (+ 1.7%)	6.18 (- 1.0%)	6.26 (+ 0.3%)
1982-87	8.23	7.93 (- 3.6%)	7.85 (- 4.6%)	8.62 (+11.3%)	8.08 (- 1.8%)	8.12 (- 1.3%)
<u>Young Women's Cohort</u>						
1972-78	2.42	1.24 (-48.8%)	1.70 (-29.8%)	2.35 (- 2.9%)	2.21 (- 8.7%)	1.25 (-58.3%)
1978-83	2.31	1.82 (-21.2%)	1.90 (-17.7%)	2.53 (+ 9.5%)	2.39 (+ 3.5%)	2.11 (- 8.7%)
1983-88	2.13	1.44 (-32.4%)	1.68 (-21.1%)	2.25 (+ 5.6%)	2.07 (- 2.8%)	1.62 (-23.9%)

**Table 7**

**Predicted Impact of Selected Factors on Changes in Average Hours of Work Across Cohorts**

Year	"A woman's place is in the home"	"A wife does not have time for outside employment"	"A working wife feels more useful"	"Employment of wives leads to juvenile delinquency"	All four attitudinal measures used
<u>Overall Difference: -8.99 hours per week</u>					
Age	-3.976	-3.983	-3.971	-4.019	-4.064
Nonlabor Income	3.964	3.986	4.050	4.046	4.029
Attitudinal Responses	0.372	0.110	0.239	0.102	0.440
Average wage	0.079	0.084	0.081	0.102	0.123
Cohort	-7.655	-7.144	-7.112	-6.883	-7.644

**Table 8**  
**Changes in Attitudinal Response:**  
**Mean Annual Hours of Work Between Surveys**  
**Women in the National Longitudinal Surveys of Labor Market Experience**  
**Youth and Young Women's Cohorts**  
**1972-1988**

Attitudinal Responses in the Next Survey	Attitudinal Responses in one Survey			
	Category 1	Category 2	Category 3	Category 4
A woman's place is in the home				
Category 1 <sup>1</sup>	1446	1313*	1160*	1441*
Category 2	1355*	1182*	933*	912
Category 3	1094*	879	850	864
Category 4	1496	939	861	822
A wife does not have time for outside employment.				
Category 1 <sup>1</sup>	1490*	1338*	1190*	1518*
Category 2	1391	1221*	1014*	954
Category 3	1292	1007**	815	927
Category 4	1323	1138	867	711
A working wife feels more useful				
Category 1 <sup>2</sup>	901**	985*	1098*	1089*
Category 2	1026	1105*	1206*	1266*
Category 3	1115	1204	1355	1436
Category 4	1006	1236	1377	1506
Employment of wives leads to juvenile delinquency.				
Category 1 <sup>1</sup>	1478*	1320*	1137	1210
Category 2	1359*	1267*	1099*	1051
Category 3	1151	1037	905	1018*
Category 4	1215	1114	865	732

The sample includes women age 18 or older during the first of two surveys with attitudinal questions. Responses are weighted to reflect national averages.

\* Differs from entry below at a 5% significance level.

\*\* Differs from entry below at a 10% significance level.

<sup>1</sup> Category 1=Strong Disagreement, Category 2=Disagreement, Category 3=Agreement, and Category 4=Strong Agreement.

<sup>2</sup> Category 1=Strong Agreement, Category 2=Agreement, Category 3=Disagreement, and Category 4=Strong Disagreement.

**Table 9**  
**Fixed-Effect Multinomial Logit Estimates of Attitudinal Responses**  
**Women in the NLSY and NLS-Young Women: 1972 through 1988**  
**Responses to "A woman's place is in the home, not in the workplace."**  
(Asymptotic standard errors are reported in parentheses)

	<u>Category 2</u>	<u>Category 3</u>	<u>Category 4</u>
Constant	-1.244 (0.219)	-2.056 (0.310)	-2.247 (0.450)
Change in Hours Worked in Year Prior to Survey	-0.180 (0.068)	-0.539 (0.104)	-0.126 (0.156)
<u>Interactions with Change in Hours Worked in Previous Year</u>			
Average Work Experience	0.018 (0.060)	0.203 (0.093)	-0.014 (0.144)
Age	-0.008 (0.006)	-0.022 (0.009)	0.029 (0.018)
Mother's Years of Education	0.039 (0.014)	-0.018 (0.017)	0.019 (0.032)
Whether Mother Worked When Respondent Was 14	0.112 (0.062)	0.018 (0.107)	0.184 (0.163)
Change in Hourly Wage	-0.328 (0.474)	-0.484 (0.704)	-0.593 (1.057)
<u>Year Dummies</u>			
1979-1982 (Youth)	0.820 (0.316)	1.935 (0.466)	1.225 (1.293)
1982-1987 (Youth)	0.966 (0.164)	1.514 (0.268)	1.597 (0.470)
1978-1983 (Young Women)	1.011 (0.141)	1.428 (0.195)	1.953 (0.287)
1983-1988 (Young Women)	0.703 (0.188)	1.202 (0.272)	1.556 (0.392)

**Table 10**  
**Predicted Impact of Changing Work Experience**  
**on Attitudinal Responses**  
**1972-1982 and 1978-1987**

	<u>1982</u>		<u>1987</u>	
	<u>Predicted using</u> actual work <u>experience</u>	<u>Predicted using</u> 1972 work <u>experience</u>	<u>Predicted using</u> actual work <u>experience</u>	<u>Predicted using</u> 1978 work <u>experience</u>
<b>"A woman's place is in the home, not in the office."</b>				
Category 1	45.5	44.7	58.6	58.2
Category 2	40.3	40.6	33.5	33.8
Category 3	12.2	12.5	6.6	6.7
Category 4	2.1	2.0	1.3	1.3
<b>"A wife does not have time for outside employment."</b>				
Category 1	23.2	22.8	37.6	37.1
Category 2	57.9	58.0	52.6	52.9
Category 3	15.6	15.9	6.8	7.1
Category 4	3.2	3.3	2.9	3.0
<b>"A working wife feels more useful."</b>				
Category 1	8.9	8.8	10.2	10.0
Category 2	36.5	36.6	33.1	33.0
Category 3	35.9	36.3	34.8	35.3
Category 4	18.7	18.3	21.9	21.7
<b>"Employment of wives leads to juvenile delinquency."</b>				
Category 1	24.5	24.2	28.9	28.5
Category 2	59.6	59.4	51.9	51.8
Category 3	14.0	14.4	16.3	16.6
Category 4	1.9	2.0	2.9	3.0

## References

- Bergmann, Barbara R. (1986) *The Economic Emergence of Women*. Basic Books. New York.
- Chamberlain, Gary. (1984). "Panel Data." in *Handbook of Econometrics*, vol. II. edited by Z. Griliches and M. Intriligator. 1247-1318. North-Holland: Amsterdam.
- Goldin, Claudia. (1990). *Understanding the Gender Gap: An Economic History of American Women*. Oxford University Press. New York.
- Hill, Richard J. (1981). "Attitudes and Behavior". in *Social Psychology: Social Perspectives*. edited by Morris Rosenberg and Ralph H. Turner. Basic Books, Inc. New York.
- Hofferth, Sandra L. and Deborah A. Phillips. (1987). "Child Care in the United States, 1970 to 1995." *Journal of Marriage and the Family*. 49(3): 559-571.
- van Horn, Susan Householder. (1989). *Women, Work, and Fertility, 1900-1986*. New York University Press. New York.
- LaPiere, Richard T. (1934). "Attitudes vs. Actions." *Social Forces*. 13: 230-237.
- Levy, Frank (1988). *Dollars and Dreams: The Changing American Income Distribution*. Norton. London.
- Macke, Anne Statham, Paula M. Hudis, and Don Larrick. "Sex-Role Attitudes and Employment Among Women: Dynamic Models of Continuity and Change". in *Women's Changing Roles at Home and on the Job*. Special Report No. 206. Employment and Training Administration. Department of Labor. September 1978.
- Mincer, Jacob. (1960). "Labor Force Participation of Married Women: A Study of Labor Supply." in *Aspects of Labor Economics*. National Bureau of Economic Research Conference Volume. Arno Press. Princeton, NJ.
- Schor, Juliet. (1991). *The Overworked American*. Basic Books. New York.
- Shapiro, David and Lois B. Shaw. (1983). "Growth in the Labor Force Attachment of Married Women: Accounting for Changes in the 1970s". *Southern Economic Journal*. 50(2): 461-473.
- Shaw, Lois B. and David Shapiro. (1987). "Women's Work Plans: Contrasting Expectations and Actual Work Experience". *Monthly Labor Review*. 110(1): 7-13.
- Smith, James P. and Michael P. Ward. (1985). "Time Series Growth in the Female Labor Force." *Journal of Labor Economics*. 3(1): S59-S90.
- Spitze, Glenna D. and Linda J. Waite. (1980). "Labor Force and Work Attitudes: Young Women's Early Experiences". *Sociology of Work and Occupations*. 7(1): 3-32.
- Spitze, Glenna D. and Linda J. Waite. (1981). "Wives' Employment: The Role of

Husbands' Perceived Attitudes". *Journal of Marriage and the Family*. 43(1): 117-124.

Statham, Anne and Patricia Rhoton. "Attitudes toward Women Working: Changes over Time and Implications for the Labor-Force Behaviors of Husbands and Wives". in *Unplanned Careers: The Working Lives of Middle-Aged Women*. edited by Lois Banfill Shaw. Lexington Books. Lexington, MA. 1983.

## **Appendix of Auxiliary Results**

This appendix contains four tables of additional empirical results.

Table A-1 presents the wage regression used to predict wages for the main estimation procedures in the body of the paper. For the Youth cohort, the change in wage rates from year to year was regressed on the change in age (i.e. the number of years between observing wages) only. This is the same as allowing wages to trend up over time for each individual within the cohort. This specification was chosen because adding higher order terms did not significantly improve the fit of the regression. For the Young Women's cohort, the change in hourly wage over time was regressed on the change in age and age-squared. For each cohort, additional specifications were tried, in which changes in wage rates were related to changes in the local unemployment rate and changes in location, with no substantial change in any of the main results. For each cohort, the person-specific component of wages was calculated as the mean wage observed over the time period. This person-specific component was regressed on a variety of demographic factors.

Tables A-2 through A-4 present of the fixed-effect multinomial logit regression for the three attitudinal measures not presented in Table 9. These are "Wives have no time for outside employment.", "Working wives contribute to juvenile delinquency.", and "Working women feel more useful."

**Table A-1**  
**Auxiliary Regression of Hourly Wage Rates**  
**Women in the NLSY and NLS-Young Women**  
(Asymptotic standard errors are reported in parentheses)

	Youth Cohort	Young Women's Cohort
<u>Time-varying portion</u>		
Age	10.669 (1.771)	19.642 (0.969)
Age-squared		-0.238 (0.016)
R-squared	0.0036	0.0511
<u>Fixed-effect portion</u>		
Constant	-247.055 (974.905)	-62.896 (57.775)
Mother worked	17.346 (29.387)	-3.810 (2.551)
Mother's years of schooling	-0.252 (5.443)	0.957 (0.503)
Family received magazines	33.982 (33.345)	-0.856 (3.133)
Woman had library card	26.421 (35.368)	14.109 (3.180)
Family received a newspaper	15.685 (38.704)	13.124 (4.266)
Black	-26.090 (35.222)	0.786 (3.294)
Years of schooling	9.528 (41.283)	-1.566 (3.345)
Years of schooling, squared	-0.145 ( 1.544)	0.559 (0.125)
Age in 1979 or 1968	28.530 (107.001)	8.912 (5.446)
Age in 1979 or 1968, squared	-0.749 (2.997)	-0.115 (0.135)
R-squared	0.0256	0.8498



**Table A-2**  
**Fixed-Effect Multinomial Logit Estimates of Attitudinal Responses**  
**Women in the NLSY and NLS-Young Women: 1972 through 1988**  
**Responses to "Wives have no time for outside employment."**  
(Asymptotic standard errors are reported in parentheses)

	<u>Category 2</u>	<u>Category 3</u>	<u>Category 4</u>
Constant	-1.047 (0.164)	-1.945 (0.229)	-0.872 (0.335)
Change in Hours Worked in Year Prior to Survey	-0.276 (0.048)	-0.394 (0.067)	-0.196 (0.102)
<u>Interactions with Change in Hours Worked in Previous Year</u>			
Average Work Experience	0.140 (0.041)	0.122 (0.064)	-0.101 (0.094)
Age	-0.026 (0.004)	-0.060 (0.006)	-0.023 (0.011)
Mother's Years of Education	0.042 (0.008)	0.013 (0.010)	0.063 (0.017)
Whether Mother Worked When Respondent Was 14	0.014 (0.042)	0.090 (0.067)	0.187 (0.114)
Change in Hourly Wage	0.280 (0.344)	0.540 (0.506)	-2.910 (0.744)
<u>Year Dummies</u>			
1979-1982 (Youth)	0.614 (0.156)	1.135 (0.274)	1.275 (0.759)
1982-1987 (Youth)	0.398 (0.131)	0.668 (0.193)	1.519 (0.283)
1978-1983 (Young Women)	0.790 (0.108)	1.485 (0.148)	1.148 (0.216)
1983-1988 (Young Women)	0.827 (0.140)	1.577 (0.196)	0.871 (0.280)

**Table A-3**  
**Fixed-Effect Multinomial Logit Estimates of Attitudinal Responses**  
**Women in the NLSY and NLS-Young Women: 1972 through 1988**  
**Responses to "Working wives contribute to juvenile delinquency."**  
(Asymptotic standard errors are reported in parentheses)

	<u>Category 2</u>	<u>Category 3</u>	<u>Category 4</u>
Constant	-0.223 (0.181)	-0.029 (0.225)	0.361 (0.397)
Change in Hours Worked in Year Prior to Survey	-0.260 (0.047)	-0.520 (0.061)	0.015 (0.115)
<u>Interactions with Change in Hours Worked in Previous Year</u>			
Average Work Experience	0.187 (0.045)	0.299 (0.056)	0.012 (0.101)
Age	-0.028 (0.004)	-0.048 (0.006)	-0.073 (0.011)
Mother's Years of Education	-0.035 (0.010)	-0.064 (0.012)	0.037 (0.025)
Whether Mother Worked When Respondent Was 14	-0.118 (0.049)	-0.056 (0.066)	-0.241 (0.119)
Change in Hourly Wage	0.328 (0.405)	-0.556 (0.507)	-2.510 (0.904)
<u>Year Dummies</u>			
1979-1982 (Youth)	-0.153 (0.309)	-0.365 (0.490)	-0.380 (0.731)
1982-1987 (Youth)	0.124 (0.135)	0.416 (0.193)	0.739 (0.349)
1978-1983 (Young Women)	0.366 (0.114)	0.452 (0.143)	0.530 (0.247)
1983-1988 (Young Women)	-0.026 (0.153)	-0.206 (0.196)	-0.676 (0.352)

**Table A-4**  
**Fixed-Effect Multinomial Logit Estimates of Attitudinal Responses**  
**Women in the NLSY and NLS-Young Women: 1972 through 1988**  
**Responses to "Working wives feel more useful."**  
(Asymptotic standard errors are reported in parentheses)

	<u>Category 2</u>	<u>Category 3</u>	<u>Category 4</u>
Constant	-0.559 (0.222)	-0.762 (0.228)	-0.910 (0.303)
Change in Hours Worked in Year Prior to Survey	-0.397 (0.056)	-0.761 (0.059)	-0.773 (0.093)
<u>Interactions with Change in Hours Worked in Previous Year</u>			
Average Work Experience	0.393 (0.052)	0.533 (0.054)	0.332 (0.076)
Age	-0.022 (0.005)	-0.020 (0.006)	-0.021 (0.008)
Mother's Years of Education	-0.040 (0.011)	-0.047 (0.012)	-0.087 (0.015)
Whether Mother Worked When Respondent Was 14	-0.058 (0.066)	-0.087 (0.068)	-0.057 (0.101)
Change in Hourly Wage	0.554 (0.493)	0.706 (0.512)	1.780 (0.668)
<u>Year Dummies</u>			
1979-1982 (Youth)	0.764 (0.406)	1.122 (0.427)	0.054 (0.453)
1982-1987 (Youth)	0.339 (0.172)	0.948 (0.184)	0.783 (0.229)
1978-1983 (Young Women)	0.670 (0.136)	0.939 (0.139)	0.843 (0.187)
1983-1988 (Young Women)	0.380 (0.180)	0.685 (0.185)	0.731 (0.249)