The Ups and Downs in Women's Employment—Shifting Composition or Behavior from 1980-2010?

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Abstract

Women's employment increased over the 1980s, plateaued over the 1990s, and decreased after 2000. This research examines shifts in women's employment from 1980-2010 and investigates whether changes are due to shifts in the inclination of women to work for pay or are simply due to shifts in the composition of the population of women and their characteristics. I assess how the determinants of women's employment have changed over time using logistic regression, and then use methods of regression decomposition to decompose shifts in women's employment into two components, composition (shifting demographics) and coefficient (shifting inclinations). The main driver behind the change in women's employment over the decades is due to changes in the coefficients, with behavior change among married mothers playing a crucial role. However, a shift in the behavior of women with higher education depressed women's employment over the 1990s may be connected to the stalling of women's employment.

Introduction

After decades of gains in women's employment beginning in the 1960s, women's employment levels plateaued in the mid-1990s (Cotter, Hermsen, and Vanneman 2004; Moissa and Hipple 2006; Smith 2008; England 2010). The reasons for the large and steady rise in women's employment are many and well documented, but generally researchers examine labor force supply and demand factors, as well as cultural, ideological, and technological factors (for a discussion, see Cotter, Hermsen, and Vanneman 2004, Goldin 2006 , England 2005). Meanwhile, the decline in women's employment from 2000 to 2010 is largely attributed to the Great Recession, but women's employment also declined during the short recession in 2001 (Boushey 2008; Moissa and Hipple 2006; Smith 2008).

Yet, scholars continue to puzzle over the reasons behind the leveling off of women's employment over the 1990s, causing England (2005, p. 280) to conclude that "change in all three indicators [women's labor force participation, occupational sex segregation, and the sex gap in pay] has stalled out in the 1990s in the United States, although no one has offered a good explanation of why this is." Cotter, Hermsen, and Vanneman (2004) put forth several possible factors, including the lack of employer and state level policies that facilitate employment for mothers, the unequal sharing of family responsibilities among spouses and partners, and the possibility of a cultural backlash to the women's movement. Others point to the rise of intensive mothering (Hays 1996) and the labor intensive practice of cultivated childhoods among mothers with higher education levels (Lareau 2011), which increase the conflict between the ideal mother and ideal workers roles employed mothers experience (Blair-Loy 2005; Lewis 1997), as factors pushing mothers to exit the labor force (Stone 2007).

Some contemplate the stalling of women's employment as part of a broader pattern of a stalling of women's progress and the end of the gender revolution (Cotter et al. 2004; 2011; England 2005; 2010). Indeed many measures of women's progress have stalled out since the 1990s—the gender gap in pay (Blau and Kahn 2000); gender role attitudes (Cotter et al. 2011); women in elected office and positions of power in companies. Shifts in these measures could be due to a counter pressure not present in the previous decade, or could be due to the lack or reduction in already present force, or the absence of a factor that was previously pushing it up. Using logistic regression and regression decomposition, this paper investigates whether the slow-down of women's employment over the 1990s is due to the reduction in already present forces that during the 1990s did not exert as much pressure as they did in the 1980s, and also considers which factors contributed to the decline over the 2000s. Understanding whether the shift in

women's employment is due to changing demographics or changing behavior is key to correctly identifying the factors contributing to labor market trends.

To date, no research systematically examines the determinants of women's employment over the past three decades with an eye to parsing out the contributions of shifting demographics and behavior. Although not definitive, this research begins to fill the gap. In this paper, I examine the change in women's employment over three decades from 1980 to 2010, and investigate whether the decadal changes are due to shifts in the inclination of women to work for pay or simply due to shifts in the composition of women, or shifts in their characteristics. To answer this question I first examine changes in the determinants of women's employment over time using logistic regression, and then use methods of regression decomposition to decompose shifts in women's employment into two components, change attributed to composition (shifting demographics) and change attributed to coefficients (shifting inclinations). I focus my examination on the effects of three factors: family composition, educational attainment, and other family income.

The Rise in Women's Employment

Theoretical considerations

One theoretical framework typically used in research on mother's labor supply is neoclassical economic theory (Becker 1991; Blau, Ferber, and Winkler 1998), which contends that a mother's decision to work or not is made by comparing the value of her time in the market (her wage, w) to the value she places on her time spent at home caring for children and doing housework, or her reservation wage (w*), given a fixed budget constraint. If w is greater than w*, she participates in the labor market; if w is less than w*, she does not (she remains out or exits). The value of her market time consists of her wage rate net of child care expenses, and

depends on her market value, including her education level, job skills, seniority, and cumulative work experience (Desai and Waite 1991; Hofferth 1996; Leibowitz, Klerman, and Waite 1992).

The value of her nonmarket time is influenced by tastes and preferences (as is the value of market time), by the level of demands on her nonmarket time, and also by the family's objective economic need for her earnings. Theoretically, the greater availability of income from other sources than the mother's wages (husband's earnings or savings) increases the value placed on a mother's nonmarket time, reduces the opportunity cost of her foregone wages, and leads to lower labor force participation.

When economists consider the causes of women's increased labor force participation, they contend that rising wages among women increased the opportunity cost of being a homemaker (Bergman 1986). In short, women's market value increased through increased education, job tenure, and cumulative experience (Blau et al. 1998; England and Farkas 1986; Hollister and Smith 2011). Concurrently the demands on women's nonmarket time have decreased with lowered fertility, delayed marriage, and increased divorce, resulting in women spending less time married and raising children, leaving more time for paid market work (Casper and Bianchi 2002), although some argue that the demands of motherhood have increased (Hays 1996; Lareau 2011).

Another perspective is that women's increased employment was driven by the increased demand for women's wages. The rise in single-mother families, stagnant and in some cases declining men's wages, and job loss in industries that traditionally employ men (such as manufacturing and agriculture) have increased the need for women to work for pay (Levy 1998). Economic restructuring has shifted the types of jobs available, increasing opportunities for women in the now larger, predominantly female service sector (Blau, Ferber, and Winkler 2002;

Falk and Lobao 2003; Sayer, Cohen, and Casper 2004; Smith 2011, Smith and Tickamyer 2011; Oppenheimer 1970).

Furthermore, gender roles have become less rigid, and today it is more common for couples to share responsibility for both work and family spheres (Bianchi, Milkie and Robinson 2007; Gallinsky, Aumann, and Bond 2011; Shelton and John 1996). Public attitudes have become more accepting of women working outside the home for pay (Thornton and Young-DeMarco 2001), even for women with young children. Policy makers have introduced legislation to ease work and family conflicts (such as the Family Medical Leave Act) and mandate paid work for single mothers who otherwise might seek welfare (Williams and Cooper 2004) and workers cite more job flexibility today than in the past (Golden 2001), even though job flexibility and family friendly policies are unevenly distributed (Smith and Smith 2010).

Determinants of Women's Employment

Several factors have been shown to be important factors predicting women's employment across multiple studies. Key among them include family composition (marital status and the presence of children), women's education level, and access to other family income (notably husband's earnings). These factors have also changed considerably over the decades.

Family composition

The American family has undergone substantial change since the 1950s, a time when most women married, had children and very few were employed (Bianchi, Robinson, and Milkie 2007). But changing family composition can be seen even looking back over the past three decades. Table 2 shows a substantial decrease in the proportion of women age 25-54 who were married with children from 1980 to 2010, and a large increase in single women without children.

Yet upon closer examination of this change by decade, we see moderate shifts in family composition in the 1980s resulting in a smaller proportion of married mothers, and a larger proportion of single women without children at the end of the 1980s, followed by a quieting or settling of family composition over the 1990s, with very little change. The 2000s are indicative of large shifts once again in family composition with a large decline in marriage most likely due to the Great Recession, as evidenced in the 15.7 percentage point decline in the proportion of married mothers , which was offset by the large increase in the proportion of single women without children.

Conventional thinking is that marriage and children depress women's employment as married women and mothers cut back their time in the labor force due to their increased family responsibilities or because their wages are not needed to support the family, or some combination of the two. Research shows that single women without young children are more likely to be employed than other women, but the strength of the association has eroded over time such that the gap in employment has narrowed greatly, most notably between single women without children and married women with children as the latter have increased their attachment to market work substantially (Cohen and Bianchi 1999; see also Table 1). In fact, Table 1 shows the convergence of employment rates among childless women beginning in the 1990s, but even more so in the 2000s due to a large drop in employment among single childless women during the Great Recession. Employment rates among single mothers increased sharply over the second half of the 1990s, due in part to welfare reform and also due to the economic boom of the late 1990s which increased job opportunities for those with low education levels (Blank 2000), narrowing the gap between single childless women and single mothers.

I expect to find a declining effect of marriage and children over time, accelerated over the 2000s. Given the continued gendered division of labor in the home—women perform the

majority of housework and child care, even if they are employed (South and Spitze 1994)—and the uneven distribution of work and family policies that leave some women with workplace flexibility and others without, I anticipate that married mothers will have a lower propensity to be employed than single childless women. However, married women and married mothers increased their labor force participation during the Great Recession, as evidenced by their increased role as breadwinners (Smith 2009, 2010). Further, research examining whether there was an added worker effect (namely married women increasing their labor supply in response to their husbands job loss) during the Great Recession compared with a time of prosperity (2005-2006), finds that wives were more likely to enter the labor force during the Great Recession (Mattingly and Smith, 2010). Concurrently, single childless women were hit hard by the recession, as evidenced by the large increase in their unemployment rate. Thus, it is possible that married mothers will be equally likely or perhaps even more likely to be employed in 2010.

It is widely known that the increase in women's employment over the 1970s and 1980s was largely driven by the increased employment of married women, and particularly married women with children (Goldin 2006). Goldin (2006) argues that there has been a quiet revolution in women's relationship to the labor market, with less emphasis on women engaging in paid work because of their families financial need, and more emphasis on the role of paid work in their fundamental identity and societal worth. Hollister and Smith (2011) argue that the behavior change of married mothers in the form of increased job continuity increased their job tenure until 1996, masking the overall labor market trend of decreasing job tenure. With this in mind, it is likely that the decompositions will show a strong behavior change effect among married mothers over the 1980s, but possibly less so over the 1990s, as married mothers' employment rates leveled off, and then again a strong effect over the 2000s as married mothers entered the labor force to compensate for their husbands job loss in the Great Recession. Furthermore, I expect

that changes in family composition will contribute more to the change in women's employment over the 1980s and the 2000s than during the 1990s as family composition was stable over the 1990s.

Education

One measure of women's equality that did not stall over the 1990s is women's educational attainment (see Cotter et al 2004 for a discussion of the stalling of indicators of women's equality). In fact, women's education rose substantially since 1980, with the largest gains occurring in the 1990s. For example, the percentage of women 25 to 54 years who were college graduates rose from 17 percent in 1980 to 23 percent in 1990, but then jumped 11 percentage points by 2000, only to decrease over the 2000s by 5 percentage points (see Table 2). The proportion of women with some college education also rose considerably over the 1990s. Rising educational attainment has opened up job opportunities for women in occupations and industries that were otherwise closed to them (England 1992), and contributes to their higher earnings. A strong and consistent predictor of women's employment, women with higher education levels are more likely to be employed, and have stronger ties to the labor force, than women with lower education levels. Cohen and Bianchi (1999) find that this association grew stronger over time, with high school and college graduates committing more hours to paid employment between 1978 and 1998. I too expect to find an increasingly stronger association between higher levels of education and employment over time.

Women's attainment of advanced degrees also accelerated over the 1990s. If women are staying in school longer to attain higher levels of education, and this accelerated over the 1990s, it is possible that the effect of having a college degree on employment could decline somewhat over the 1990s. Because the Great Recession disproportionately hit those with lower education

levels, and that wives with higher education were more likely to enter the labor force during the Great Recession (Mattingly and Smith 2010), I anticipate that the effect of having higher levels of education will remain strong over the 2000s.

Because women's education level is a strong driver of women's employment, I expect the increase in the level of education contributed to an increase in women's employment at each decade. Put another way, the decomposition results should show a positive effect of the shifts in the means for education, or that compositional shifts in education accounted for a rise in women's employment.

The hypotheses for shifts in behavior by education are not so clear cut. On the one hand, highly educated women have invested time and money into their human capital, they have higher earning power and the opportunity costs of not working are greater. However, there are cultural factors that complicate this economic perspective. According to Lareau (2011), better educated parents hold higher standards of involvement in their children's daily lives, contributing in large part to the culture of intensive parenting, leading to work-family conflict for many mothers. Further, Stone (2007) credits inflexible workplaces and the lack of real part-time options for highly educated married mothers as factors that pushed these women out of the labor force. More recently, Cotter, Hermsen, and Vanneman (2011) argue that the rise of a new cultural frame, "egalitarian essentialism," (Charles and Grusky 2004; Charles and Bradley 2002, 2009) is the best explanation for the shifts in gender role attitudes that occurred over the 1990s. Egalitarian essentialism combines elements from two previously conflicting frames—feminism and traditional familism—by supporting stay-at-home mothering within the feminist rhetoric of choice and equality (Stone 2007). Gender essentialism also encompasses the notion that men and women are innately and fundamentally different in interests and skills (England 2010), with women being naturally better at child care and home production. This combination in turn

provides support for women to exhibit traditional gender roles within marriage (and either exit the labor force or not enter in the first place) while denying any implications of lower status or power for women (Cotter, Hermsen, and Vanneman 2011). Thus, there is reason to believe that the stalling of women's employment over the 1990s may be attributable to a shift in the behavior of highly educated mothers.

Other family income (primarily husband's earnings)

Men's wages, the primary component of other family income, were stagnant over the 1980s and into the 1990s, and although the wages of men with lower education levels lost ground, higher educated men's wages did not (Cotter et al. 2004). Although the effect of other family income on women's employment diminished by almost half from 1978 to 1998, access to higher levels of other family income continues to depress women's employment (Cohen and Bianchi 1999). Stone's (2007) study of highly educated, married women who left their high powered careers also finds that the high earnings of their husbands gave them the cushion needed for them to leave the labor force. I too expect to find a declining effect of other family income on women's employment over the three decades, but it is possible that the effect of other family income was stronger over the 1990s concurrent with the economic boon in the latter half of the 1990s which gave way to the rise in men's wages and in turn contributed to the leveling off of women's employment. There is limited evidence supporting this notion. Cotter et al. (2011) find marginal evidence that the mid-1990s downturn in gender ideology was stronger among high-income households, and "that change was felt most strongly by high-income households with working mothers for whom work-family stresses were most relevant (pg. 273).

Yet, employment rates are high among women with high earning husbands (see Table X), highlighting the larger role women's own human capital characteristics play in their

employment. The largest gains in women's employment are found among women with college degrees, and these women tend to be married to highly educated, high-earning husbands (Juhn and Murphy 1997). Women with college degrees have invested in their human capital and have exhibited strong ties to the labor force (Goldin 1990). Theory and empirical research agree that factors that increase market value and wages, such as higher education levels, full-time work, continuous work experience, and longer job tenure are positively associated with continuous labor force participation (Glass and Riley 1998; Leibowitz, Klerman, and Waite 1992; Smith, Downs, and O'Connell 2001).

Research shows that high earning men are more likely to marry high earning women (Burtless 1996) and that since the late 1960s the correlation between husbands' and wives' earnings has grown, although the correlation with education is stronger (Cancian and Reed 1999; Mare 1991). "Positive assortative mating" is a common practice, that is, men and women tend to sort into marriage on the basis of similar age, religion, race, class, physical characteristics, education (Becker 1981; Lichter 1990; Oppenheimer 1988; Sweet and Bumpass 1987) and increasingly on earnings (Cancian and Reed 1999; South 1991).

Given that family income has risen over the decades (with the 2000s being an exception due to the Great Recession), I expect the decomposition results to show a positive effect of the shifts in the means for other family income, or that compositional shifts in other family income could account for a rise in women's employment.

It is possible that the decompositions will show a positive and increasing effect for the shifts in the coefficients for other family income at the higher income levels suggesting that women with higher other family income also have strong ties to the labor force, due perhaps to their own high earnings potential. Yet, it is also possible that this behavior effect was diminished

over the 1990s as men's earnings increased at that time, particularly high earning men's earnings, enabling high earning, highly educated women to exit the labor force.

Data and Methods

Data

This analysis draws on Current Population Survey (CPS) data from 1980, 1990, and 2000 March Supplements and the 2010 ASEC data. The CPS is collected monthly by the U.S. Census Bureau and includes a nationally representative sample of roughly 57,000 households. I limit my sample to women aged 25 to 64 and have a sample size of 44,314 in 1980, 41,653 in 1990, 35,702 in 2000, and 56,455 in 2010. The CPS data are well suited for my analyses because the March and ASEC supplements collect economic and demographic information useful to assess changes in the female labor supply.

Variables

The dependent variable is women's employment. Women are coded as employed if they worked for pay in the previous year. There are three key explanatory measures of interest: marital status, education level, and other family income. Married is coded 1 if the woman is married, and 0 otherwise. Education is coded as four dummy variables indicating whether the women has less than a high school degree (reference group), a high school diploma, some college but no degree, or a Bachelor's degree or higher. Age is a coded as three dummy variables indicating whether the woman is age 25-34 (reference group), 35-44, and 45-54. Variables measuring family composition include a dummy of whether the woman has a child under 18 and another for whether she has a child under 6, a dummy variable indicating whether she is a single mother, and the marital status variable describe above. Other family income (not including the woman's own

earnings) is coded as quintiles, with the lowest quintile as the reference group. Other variables include race and ethnicity, rural residence, and fifty state dummy variables that control for state fixed effects. By including the state dummies, I control for any unexplained effects due to differences in the state environment, including differences in unemployment rates, unionization, welfare benefits and policy differences.

Analytical Strategy

In this research, I use data from the March Current Population Surveys (1980, 1990, 2000, and 2010) to document the rise, plateau, and decline in women's employment rates over three decades. First, I present employment rates of women age 25-54 from 1980 to 2010 overall and by select characteristics. Then, I examine changes in the determinants of women's employment by marital status, with a focus on the effect of marital status, education, and age over time using logistic regression techniques and present predicted probabilities of being employed. Finally, I use methods of regression decomposition to decompose shifts in women's employment into two components: the portion that is attributable to shifts in the composition of women (i.e., their characteristics) and the portion that is due to shifts in women's behavior, or inclination to work for pay first for all women, and then by marital status to get a more nuanced understanding of what factors are driving the change in married women's behavior. I utilize a simple Oaxaca regression decomposition following Blank and Sherloz (2006) that characterizes the change in employment between two periods as:

$$\hat{} \text{(employment)} = (\hat{}X)\, a_1 + (\hat{}a)\, X_2$$

Where ^ indicates the change between period 1 and period 2 in the means of women's employment, X_1 is a vector of estimated coefficients on each variable in period t, and a_t is the vector of estimated coefficients on each variable in period t.

The extent to which changing demographic composition accounts for the change in employment rates can be evaluated using standard demographic methods of decomposition or components analysis (Blank and Shierholz 2006; Sayer, Cohen and Casper 2004). Differences between two crude rates can be attributed to differences in both status-specific rates and population composition (Oaxaca 1973; 2006). Differences in rates can be decomposed into parts attributed to changing propensity to be employed (behavioral effects) and parts attributed to changes in the distribution of women by factors such as education, number of children, marital status, and age (composition effects). Therefore, regression decomposition techniques allow me to answer the question of whether the change in women's employment is due to the changing inclination among women to work outside the home or whether the change is due to a change in the structure of the population of women, such as how many women are married, have children or have a college degree, three factors that have been shown to be associated with women's employment. The regression decompositions focus on several demographic and economic sources of change, including age, education, marital status, recent fertility, race and ethnicity, and residence (among others).

Results

Table 1 shows that employment rates among women age 25 to 54 rose by 8.2 percentage-points during the 1980s. But the rise in employment rates slowed and then plateaued during the 1990s, with an overall rise of 3.1 percentage points over the decade. Two recessions over the 2000s translated into a decrease in women's employment by 5 percentage points from 2000-2010. These employment patterns are generally seen across family composition, education, and other family income.

Yet, important demographic changes were occurring concurrent with the changes in women's employment. For example, Table 2 shows a large rise in women's educational attainment, the decline in marriage, and lower fertility—factors that are correlated with higher employment among women. The central goal of this research is to disentangle the extent to which changing employment is due to changes in the structure of the population of women or due to changing behavior, or tastes for employment among women.

< Table 1 and 2 about here >

Table 3 presents logistic regressions results predicting women's employment for 1980, 1990, 2000, and 2010. The results are consistent with previous research. Controlling for family composition, demographics, family income, and state and rural residence, a clear relationship exists between increasing education and employment: women with higher levels of education are more likely to be employed. The odds ratios on all three dummy variables for education—high school graduate, some college, and college graduate—rise dramatically from 1980 to 1990, but less so from 1990 to 2000, suggesting a slowing effect of education on women's employment over the 1990s. Consistent with previous research, I find that children and higher other family income depress women's employment. Married women's propensity for employment increases over the decades, but in 1990 married women were no more likely than single women to be employed. While women age 35-44 consistently have the greatest likelihood of employment over time, the odds that older women will be employed increases over the decades.

Table 4 presents the logistic regression results for married and single women separately. Education increased the probability of women's employment for both married and single women, but the effect of education declined for married women only in the 1990s, while this declining effect continues into the 2000s for single women with high school or some college education. The negative effect of children diminished measurably over the decades for both

married and single women, such that during the 1990s single women with children were *more likely* to be employed than single women without children. The results for other family income show that employment among married women is depressed only among those with very high other family income (quintile 5), while among single women higher levels of other family income depress employment overall, highlighting the importance of analyzing single and married women separately.

< Table 3 and 4 about here >

Table 5 shows that the 8.2 percentage-point increase in women's employment from 1980-1990 is primarily due to shifts in the coefficients (or behavior change), yet about 42 percent (41.5%=(3.4/8.2)*100) is due to shifts in the mean levels of the Xs (or compositional change). In other words, if the composition of the population of women had stayed the same in 1990 as it was in 1980, women's employment would still have increased over the 1980s, but the increase would have been 42% less (only risen to 74.2 percent instead of to 77.1 percent). Overall, the increase in women's employment over the 1980s was driven by changes in the effects of family composition and education. These factors driving up women's employment were offset somewhat by changes in other family income and the other variables (the state dummy variable principally) and the constant. The following two panels partition the change in women's employment into two components, that which is attributable to changes in the means, or the changing composition of the population of women, and that which is attributable to changes in the coefficients, or the changing behavior or inclination of women to engage in paid work.

We first explore the compositional effects. Women's increased educational attainment was the driving force behind the compositional effects, with a positive effect of education on women's labor supply. Specifically, changes in the composition of women by education (i.e., a larger proportion of women have higher education levels in 1990 compared with 1980), pushed

women's employment up over the 1980s because women with higher education levels are more likely to be employed. Shifts in women's family composition and other family income contributed less to women's increased employment over the 1980s.

The final panel shows the portion of the change in women's employment due to shifts in coefficients only, or behavior change. Recall that the majority of the change in women's employment over the 1980s was due to shifts in behavior. Changing behavior of women by family composition and educational attainment pushed women's employment up during the 1980s. In fact, the change in behavior among married women was a major driver in the rise in women's employment over the 1980s. More women were employed in 1990 than in 1980 because more married women and more educated women were working for pay. While the net coefficient (behavior) effect for other family income depressed women's employment over the 1980s, higher levels of other family income (quintile 4 and 5), meanwhile, exerted a positive effect on women's employment.

Women's employment grew at a slower pace over the 1990s. The 3.1 percentage-point increase was again due more to behavior change, but to a lesser extent (55%). Compositional shifts through increasing educational attainment due to the increase in college graduates played a larger role in pushing up women's employment in the 1990s than in the 1980s, but shifts in family composition played less of a role. Shifts in the composition of families by other family income depressed women's employment, but only slightly, in the 1990s.

Behavior change among married women held steady in the 1990s and continued to exert an upward pressure on women's employment, but we see behavior change among single mothers with children consistent with other research indicating a rise in single mothers' employment in the latter half of the 1990s. But these increases were more than countered by the negative coefficients seen for women at all education levels, indicating that behavior change among

women with higher levels of education was no longer a driving force pushing up women's employment. Again we see that other family income overall exerts a negative effect on women's employment in the 1990s, with moderate levels of other family income (quintiles 2 and 3) exerting a negative behavior effect and higher levels of other family income (quintiles 4 and 5) exerting a positive effect.

Over the 2000s the United States experienced two recessions and both times women's employment declined, resulting in a 5.0 percentage-point decline in women's employment over the decade. Shifting demographic characteristics worked against the tide of two recessions and pushed up women's employment, but were more than offset by the behavior change that contributed to the decline in employment. In fact, without the compositional effects of education the reductions in women's employment over the 2000s would have been even larger. Changes in the coefficients for family composition and education both had a positive effect on women's employment. We see again a change in married women's behavior, consistent with research showing that wives responded to husband's job loss by looking for and commencing work during the Great Recession (Mattingly and Smith 2010; Smith and Mattingly 2012). Changing behavior among higher educated women also pushed up women's employment in the 2000s, reversing the 1990s trend of education depressing behavior change. This is also consistent with research showing that women with college degrees were more likely to commence work during the recession, likely due to their greater human capital (Mattingly and Smith 2010). However, these positive forces were more than offset by the negative effect of other family income and the large negative effect of the constant.

The results in Table 5 suggest that the behavior of educated women over the three decades was an important factor in women's employment. My results indicate that during the 1980s, women with at least a high school degree changed their behavior and entered the labor

force more so at the end of the decade than at the beginning. Over the 1990s, education exerted a negative effect on women's employment, indicating behavior change among women with more than a high school degree. This behavior change by education may have been enough to stall out women's employment over the 1990s. Finally, over the 2000s, higher levels of education pushed up women's employment.

Table 6 presents decomposition results broken down for married and single women to women's behavior, and to elucidate differences in the factors influencing married and single women's employment over the three decades. First off, the rise in married women's employment over the 1980s was much larger than the rise among single women, and nearly all of the rise was due to behavioral change among married women. The rise in single women's employment over the 1980s, on the other hand, was due to compositional change. In fact, single women would have seen a decrease in employment absent the shifts in their composition by education, which drove their employment rates up.

Compositional change in education was a factor driving up single and married women's employment up in all three decades, with the compositional shifts in single women's education being particularly important in the 1980s and 1990s. Compositional change in family structure and other family income again played a very small role.

For married women, employment rates were pushed up during the 1980s and 1990s by behavior change among those with children, but diminished in the 2000s. While the presence of children exerted a negative effect on single women's employment behavior in the 1980s, but it exerted a positive effect in the 1990s and 2000s.

For both single and married women, employment rates were pushed up during the 1980s by behavior change among women with more than a high school degree. The negative

behavioral effect of education during the 1990s was stronger among single than married women. Similar behavioral patterns by education emerge for single and married women in the 2000s.

Behavioral differences by other family income are apparent when we consider marital status. For married women, the net effect of other family income is zero over the 1980s, with the negative effect of moderate levels of other family income cancelling out the positive effect of higher other family income. This pattern continues into the 1990s, but the positive effect of high other family income gains strength and the negative effect of moderate levels of other family income lessens resulting in a net positive effect overall. In the 2000s, the coefficients for all other family income levels are exerting a positive effect on married women's employment behavior. Behavior change due to increasing other family income is much less prominent among single women in the 1980s and 1990s, but in the 2000s higher levels of other family income exerted a negative effect on single women's employment.

Preliminary Conclusions

The results of this study suggest that a sizable amount (about 40%) of the increase in women's employment was due simply to changes in the structure of the population of women over the 1980s and the 1990s, in particular, increasing educational attainment. The majority of the change in women's employment however was due to changing behavior of women. In the 1980s and the 1990s, the increase in women's employment was driven by changes in women's inclination to work for pay among married women. One difference between the 1980s and the 1990s is the role of education. In the 1980s, behavior change among women with higher education levels bolstered women's employment, however, during the 1990s, behavior change among these women diminished women's employment. This shift in higher educated women's behavior may be connected to the stalling of women's employment over the 1990s. Over the

2000s, again we see that behavior change among married women and highly educated women are critical factors pushing women's employment up, but they are offset by other variables that depress women's employment.

The Great Recession has altered our society in many ways, the ramifications we will see unfold in the coming years. Trends in women's employment, too have been altered due to the Great Recession, with young, single childless women having lower employment rates than in previous decades due to their high unemployment rates. The effect of delaying marriage and childbirth, the foregoing of college or premature exits due to financial constraints will also play out in women's employment in the coming decades. This research has also shown an erosion of large differences in employment by family formation, and we may need new theories to explain how employment, family structure and other family income interact.

Although women's employment stalled during the 1990s and declined during the 2000s, men's employment hasn't fared much better. The gap between women's and men's employment has declined steadily since the 1960s and is the lowest it has ever been (end of gender revolution website). In 2010, the difference in women's and men's employment was only 10 percentage points, and among some sub-groups women's and men's employment is similar. Given the structure of work, centered on face-time, overwork, and the ideal worker norm (Cha 2011), and the current gendered division of labor in the home, where women are primarily responsible for care and housework (Bianchi et al 2007), is there an organizational limit to women's employment? Without structural change within workplaces and the home, what level of equality in women's employment can we realistically expect?

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Table 1. Employment Rates of Women by Demographic Characteristics, 1980-2010

	1980	1990	2000	2010
Total	68.9	77.1	80.2	75.3
Education				
Less than High School	54.7	55.5	59.4	50.7
High School	68.8	77.4	78.6	71.2
Some college	74.8	81.7	83.5	78.2
College graduate	80.8	86.7	86.8	83.3
Family structure				
Married with kids	61.8	72.6	75.3	71.3
Married without kids	71.4	78.6	81.7	77.8
Single with kids	74.3	74.2	83.3	76.5
Single without kids	85.3	87.0	85.8	78.2
Income quintiles (yearly)				
Income quintile 1	83.1	86.9	90.3	85.1
Income quintile 2	65.0	69.8	73.0	67.0
Income quintile 3	71.7	78.6	79.2	72.9
Income quintile 4	65.7	77.3	81.9	77.1
Income quintile 5	59.1	71.3	75.4	72.3
Age				
25-34	72.8	78.3	80.7	75.3
35-44	68.7	78.6	80.2	74.7
45-54	62.8	72.9	79.8	75.7

Source: 1980, 1990, 2000, 2010 Current Population Survey (March)

Table 2. Frequency Distribution of Women by Demographic Characteristics, 1980-2010

	1980	1990	2000	2010
Education				
Less than High School	21.2	14.2	10.1	10.9
High School	42.4	46.7	26.9	31.7
Some college	19.4	16.6	29.5	29.3
College graduate	17.0	22.6	33.6	28.2
Family structure				
Married with kids	51.1	43.2	40.5	24.8
Married without kids	22.4	24.3	24.3	14.2
Single with kids	12.0	12.9	13.0	22.9
Single without kids	14.5	19.6	22.3	38.1
Income quintiles (yearly)				
Income quintile 1	20.1	21.9	21.7	22.9
Income quintile 2	17.3	18.0	18.3	19.3
Income quintile 3	19.7	19.2	18.7	19.2
Income quintile 4	21.5	20.5	20.5	19.3
Income quintile 5	21.4	20.4	20.8	19.2
Age				
25-34	42.9	40.6	31.7	32.2
35-44	30.0	35.2	37.4	32.2
45-54	27.2	24.3	30.9	35.7

Source: 1980, 1990, 2000, 2010 Current Population Survey (March)

Table 3. Logistic Regression Predicting Women's Employment (odds-ratios)

	1980		1990		2000		2010	
High school	2.104	***	2.815	***	2.486	***	2.3568	***
Some college	2.698	***	3.774	***	3.542	***	3.5471	***
College graduate	3.815	***	5.614	***	5.136	***	5.4058	***
Married with kids	0.364	***	0.527	***	0.724	***	0.9391	
Married without kids	0.711	***	0.916		1.112	+	1.3637	***
Single with kids	0.532	***	0.493	***	1.02		1.1472	*
Income quintile 2 (yearly)	0.553	***	0.426	***	0.341	***	0.3766	***
Income quintile 3 (yearly)	0.711	***	0.59	***	0.476	***	0.4562	***
Income quintile 4 (yearly)	0.513	***	0.478	***	0.475	***	0.4759	***
Income quintile 5 (yearly)	0.348	***	0.289	***	0.269	***	0.3097	***
Age 35-44	1.055		1.109	**	1.103	*	1.1069	**
Age 45-54	0.672	***	0.747	***	0.982		1.1047	**
Black, Non-Hispanic	0.941		0.91	+	1.015		0.8585	***
Other, Non-Hispanic	0.854		0.709	+	0.683	***	0.7481	***
Hispanic	0.813	***	0.816	***	0.825	***	0.9075	*
Rural	1.003		1.075	+	0.996		1.0081	
N	35,226		34,452		29,755		45,575	

* p < .05, ** p < .01, *** p < .001

Includes state-dummies not shown.

Source: 1980, 1990, 2000, 2010 Current Population Survey (March)

Table 4. Logistic Regression Predicting Employment for Married and Single Women

	Single Women								Married Women							
	1980		1990		2000		2010		1980		1990		2000		2010	
High school	3.162	***	3.631	***	2.890	***	2.425	***	1.807	***	2.363	***	2.191	***	2.227	***
Some college	4.419	***	5.387	***	4.776	***	3.890	***	2.269	***	3.063	***	2.970	***	3.244	***
College graduate	7.553	***	10.863	***	7.947	***	8.560	***	3.153	***	4.344	***	4.190	***	4.342	***
With kids	0.647	***	0.583	***	1.145	***	1.188	***	0.509	***	0.571	***	0.660	***	0.734	****
Income quintile 2 (yearly)	0.353	***	0.300	***	0.246	***	0.302	***	1.004		0.925		0.879		0.967	
Income quintile 3 (yearly)	0.485	***	0.496	***	0.348	***	0.301	***	1.200	*	1.135		1.081		1.090	
Income quintile 4 (yearly)	0.420	***	0.380	***	0.349	***	0.343	***	0.880		0.950		1.091		1.103	
Income quintile 5 (yearly)	0.627	*	0.413	***	0.411	***	0.338	***	0.597	***	0.578	***	0.600	***	0.698	***
Age 35-44	1.075		1.177	**	0.998		1.073		1.074	+	1.113	**	1.178	***	1.183	***
Age 45-54	0.785	**	0.890		0.945		0.968		0.671	***	0.726	***	1.054		1.268	***
Black, Non-Hispanic	0.499	***	0.549	***	0.765	*	0.753	***	1.493	***	1.503	***	1.404	***	1.107	
Other, Non-Hispanic	0.481	***	0.470	*	0.660	**	0.900		0.955		0.871		0.674	***	0.727	***
Hispanic	0.562	***	0.672	***	0.753	***	1.055		0.890	+	0.842	**	0.821	***	0.817	***
Rural	0.835	*	0.951		0.900		0.780	***	1.042		1.119	*	1.032		1.138	**
N	9,078		10,986		10,262		16,701		26,148		23,466		19,493		28,874	

* p < .05, ** p < .01, *** p < .001

Includes state-dummies not shown.

Source: 1980, 1990, 2000, 2010 Current Population Survey (March)

Table 5. Decomposition of Women's Employment: 1980-1990, 1990-2000, 2000-2010

	All women		
	1980-1990	1990-2000	2000-2010
1980	68.9	NA	NA
1990	77.1	77.1	NA
2000	NA	80.2	80.2
2010	NA	NA	75.2
Difference	8.2	3.1	-5.0
Change Due to:			
Shifts in means (characteristics)	3.4	1.2	0.9
Shifts in coefficients (behavior)	5.3	1.7	-5.6
Shifts due to interaction	-0.4	0.2	-0.2
Changes due to:			
Family structure	6.3	3.5	2.6
Education	5.4	-0.8	4.3
Other family income	-0.2	-0.3	-2.1
Other variables[1]	-5.1	0.5	-1.9
Constant	2.0	0.0	-7.5
Changes in means only: (composition)			
Family structure	1.1	0.2	-0.1
Married w kids	1.3	0.2	0.0
Married no kids	-0.1	0.0	-0.1
Single w kids	-0.1	0.0	0.0
Education	1.6	1.7	1.0
High school	0.7	-3.2	-0.9
Some college	-0.6	3.2	0.1
College graduate	1.5	1.7	1.8
Other family income	0.2	-0.1	0.1
Income quintile 2	-0.1	0.0	-0.2
Income quintile 3	0.0	0.0	-0.1
Income quintile 4	0.1	0.0	0.1
Income quintile 5	0.2	-0.1	0.3
Other variables[1]	0.3	-0.7	-0.3
Constant	0.0	0.0	0.0
Changes in coefficients only: (behavior)			
Family structure	5.2	3.3	2.7
Married w kids	4.3	1.6	1.5
Married no kids	0.9	0.4	0.9
Single w kids	0.0	1.3	0.3

Education	3.8	-2.5	3.3
High school	2.1	-1.5	0.4
Some college	0.9	-0.4	1.1
College graduate	0.8	-0.6	1.8
Other family income	-0.4	-0.2	-2.2
Income quintile 2	-0.5	-0.3	-0.4
Income quintile 3	-0.4	-0.4	-0.8
Income quintile 4	0.3	0.3	-0.6
Income quintile 5	0.2	0.2	-0.4
Other variables[1]	-5.4	1.2	-1.6
Constant	2.0	0.0	-7.5

[1] Other variables include age, race, metro status, and a state fixed effect

Source: 1980, 1990, 2000, 2010 Current Population Survey (March)

Table 6. Decomposition of Women's Employment: 1980-1990, 1990-2000, 2000-2010

	Single Women			Married Women		
	1980-1990	1990-2000	2000-2010	1980-1990	1990-2000	2000-2010
1980	80.3	NA	NA	64.7	NA	NA
1990	81.9	81.9	NA	74.8	75.0	NA
2000	NA	84.8	84.4	NA	77.7	77.7
2010	NA	NA	77.6	NA	NA	73.8
Difference	1.6	2.9	-7.3	10.0	3.0	-4.0
Change Due to:						
Shifts in means (characteristics)	2.3	0.6	0.4	2.5	1.2	0.7
Shifts in coefficients (behavior)	-0.9	2.4	-7.4	7.7	1.6	-4.4
Shifts due to interaction	0.3	-0.1	-0.2	-0.2	0.2	-0.2
Changes due to:						
Family composition	-0.2	3.5	0.4	3.9	8.5	-6.0
Education	5.1	-2.3	3.7	5.1	0.5	4.2
Other family income	-0.7	-1.0	-2.2	0.0	0.5	1.2
Income quintile 2	-0.6	-0.6	-0.8	-0.3	-0.1	0.2
Income quintile 3	0.1	-0.4	-0.9	-0.4	-0.2	0.1
Income quintile 4	-0.1	0.0	-0.1	0.4	0.6	0.2
Income quintile 5	-0.1	0.0	-0.4	0.3	0.2	0.7
Other variables[1]	4.3	-4.7	-4.0	-6.8	2.1	-0.2
Constant	-7.3	7.2	-4.1	8.2	-8.3	-3.2
Changes in means only: (composition)						
Family structure	0.3	0.2	0.0	0.8	0.1	0.0
With kids	0.3	0.2	0.0	0.8	0.1	0.0
Education	2.0	1.9	0.9	1.6	1.7	1.0
High school	2.1	-3.6	-0.4	0.4	-2.8	-1.2
Some college	-1.2	4.3	0.4	-0.3	2.6	-0.1
College graduate	1.1	1.2	0.9	1.5	1.9	2.3
Other family income	-0.6	-0.7	-0.6	0.0	-0.2	0.1
Income quintile 2	-0.5	-0.6	-0.3	0.0	0.0	0.0
Income quintile 3	0.0	-0.1	-0.3	0.0	0.0	0.0
Income quintile 4	-0.1	0.0	0.1	0.0	0.0	0.0
Income quintile 5	0.0	0.0	-0.1	0.0	-0.2	0.1
Other variables[1]	0.4	-0.8	0.4	0.1	-0.4	-0.5
Constant	0.0	0.0	0.0	0.0	0.0	0.0
Changes in coefficients only: (behavior)						
Family structure	-0.5	3.3	0.4	3.1	8.4	-6.0

With kids	-0.5	3.3	0.4	3.1	6.0	-3.5
Education	3.1	-4.2	2.8	3.5	-1.2	3.2
High school	1.2	-2.6	0.0	2.1	-0.7	0.5
Some college	0.9	-0.7	0.7	0.8	-0.2	1.2
College graduate	1.0	-0.9	2.1	0.6	-0.3	1.5
Other family income	-0.1	-0.3	-1.6	0.0	0.7	1.1
Income quintile 2	-0.1	0.0	-0.5	-0.3	-0.1	0.2
Income quintile 3	0.1	-0.3	-0.6	-0.4	-0.2	0.1
Income quintile 4	0.0	0.0	-0.2	0.4	0.6	0.2
Income quintile 5	-0.1	0.0	-0.3	0.3	0.4	0.6
Other variables[1]	3.9	-3.9	-4.4	-6.9	2.5	0.3
Constant	-7.3	7.2	-4.1	8.2	-8.3	-3.2

[1] Other variables include age, race, metro status, and a state fixed effect

Source: 1980, 1990, 2000, 2010 Current Population Survey (March)