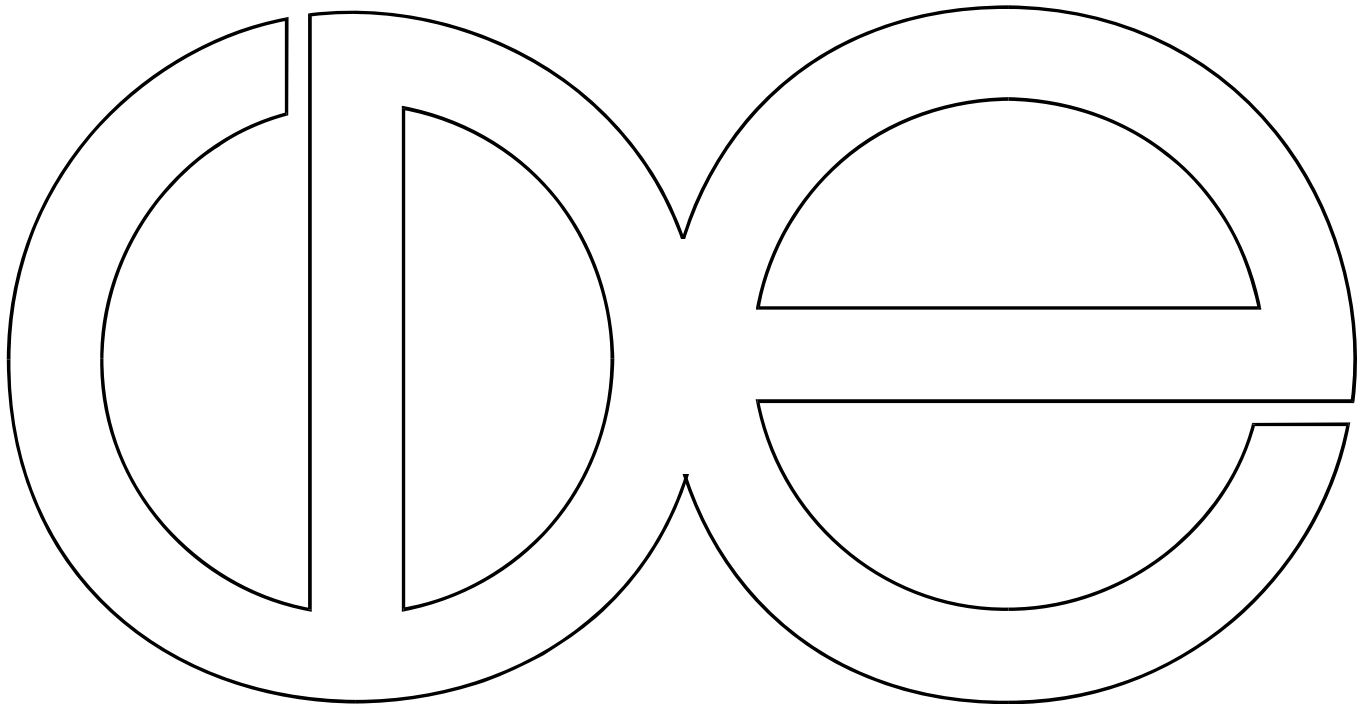


**Center for Demography and Ecology  
University of Wisconsin-Madison**

**Earnings Inequality and the Changing Association  
Between Spouses' Earnings**

**Christine R. Schwartz**

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# **EARNINGS INEQUALITY AND THE CHANGING ASSOCIATION BETWEEN SPOUSES' EARNINGS**

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## ABSTRACT

Increases in the association between spouses' earnings have the potential to increase economic inequality as marriages increasingly consist of two high- or two low-earning partners. This paper uses log-linear models and data from the March Current Population Survey to describe trends in the association between spouses' earnings and estimate the contribution of these trends to changes in earnings inequality among married couples between 1967 and 2005. I find that trends in the association are not well described by changes in the correlation coefficient, a widely used measure, but are better described by a model that differentiates between earners and non-earners and incorporates measures of the shrinking economic differences between spouses. Using this model, I estimate that increases in earnings inequality would have been about 25 to 30% lower than observed in the absence of changes in the association. I further decompose this impact into three subcomponents: changes due to (1) increases in the association between spouses' earnings among dual-earner couples; (2) declines in the negative relationship between husbands' earnings and the odds that wives work; and (3) the increasing prevalence of dual-earner couples.

## INTRODUCTION

In many ways, husbands and wives have become more equal over the past several decades. Husbands and wives increasingly share the same educational background, are more similar to one another with respect to their wages and hours worked, and share a more equal division of housework and child care (Bianchi, Robinson, and Milkie 2006; Cancian, Danziger, and Gottschalk 1993; Schwartz and Mare 2005). Increases in the resemblance of spouses, however, may have unanticipated consequences, namely, increasing inequality across families. As spouses become more economically similar, inequality among married couples may rise as marriages are increasingly likely to consist of two high- or two low-earning partners. Given the substantial rise in inequality in the United States since the late 1970s (Levy 1998), this raises the question: are marriages becoming more equal at the expense of economic equality across families? Past research suggests that the increasing resemblance of spouses' earnings accounts for a non-trivial portion of increasing inequality. Although the methodologies used and time periods studied vary, past studies have found that the increasing association between spouses' earnings accounts for between about 17 and 51% of the increase in economic inequality across married couple families (Blackburn and Bloom 1995; Cancian et al. 1993; Cancian and Reed 1999; Hyslop 2001).

Despite the importance of increases in the association between spouses' earnings for inequality, previous research has primarily focused on the impact of changes in wives' earnings and labor force participation on inequality (e.g., Cancian et al. 1993; Cancian and Reed 1999; Maxwell 1990; Treas 1987). Although recent studies have placed somewhat more emphasis on the contribution of changes in the association between spouses' earnings (Devereux 2004; Hyslop 2001; Reed and Cancian 2004), our understanding of the nature of these trends and their contribution to inequality remains limited. Previous studies have provided descriptive accounts

of the relationship between husbands' and wives' wages, hours worked, and earnings (e.g., Cancian et al. 1993; Juhn and Murphy 1997), but there are no studies that model the adequacy of various descriptions of these trends. Furthermore, previous research has generally focused on a single measure—the correlation coefficient—to estimate the impact of the changing association between spouses' earnings on inequality (Blackburn and Bloom 1995; Cancian and Reed 1998, 1999; Cancian et al. 1993; Hyslop 2001). This single measure, however, may obscure important changes in the association between spouses' earnings.

This paper takes a closer look at changes in the association between spouses' earnings and the contribution of these changes to increasing economic inequality among married couples in the U.S. from 1967 to 2005. Because several previous studies have focused on the relative contribution of husbands' and wives' earnings to growing inequality, I focus exclusively on the changing association between spouses' earnings. I use log-linear models and data from the March Current Population Survey (CPS) to describe changes in the association between spouses' earnings and to evaluate the adequacy of the correlation coefficient as a summary statistic. I find that changes in the correlation coefficient provide a poor description of changes in the association between spouses' earnings. Rather, changes in the association are better described by a model that differentiates between earners and non-earners and that incorporates measures of the shrinking economic differences between spouses, both in terms of their earnings relative to other members of their own sex (high-earning husbands are more likely to be married to high-earning wives) and in terms of the differences in their real earnings (the gap between husbands' and wives' earnings has declined). Next, I use my preferred log-linear model to decompose the total impact of changes in the association between spouses' earnings on multiple measures of inequality. Specifically, I decompose the impact of change in the association into three parts: (1)

increases in the association between spouses' earnings among dual-earner couples; (2) decreases in the negative relationship between husbands' earnings and the odds that wives work; and (3) increases in the prevalence of dual-earner couples. This method produces estimates that are consistent with previous research examining trends in inequality through the mid-1990s, but updates estimates through 2005, examines the impact of trends in the association between spouses' earnings on inequality across different portions of the earnings distribution, and provides a more detailed account of the components of the changing association.

## **POTENTIAL SOURCES OF THE CHANGING ASSOCIATION BETWEEN SPOUSES' EARNINGS**

Increases in the association between spouses' earnings may both be the result changes in assortative mating, that is, who marries whom, and changes in the way in which husbands and wives divide their home and market labor in marriage. Theory and previous research suggest that both mechanisms have contributed to increasing inequality across families.

### **Assortative Mating**

The massive growth of wives' labor force participation and earnings has prompted many scholars to argue that the institution of marriage has shifted from one based on *specialization and trading*, in which wives specialize in child care and housework and husbands specialize in market work (Becker 1974, 1981), to one based on *collaboration*, in which both partners make valued economic contributions to the household (e.g., Oppenheimer 1994, 1997; Sweeney 2002; Sweeney and Cancian 2004). Shifts in the economic foundations of marriage and increasingly egalitarian gender norms may have changed men's and women's preferences for mates. In

particular, as women's labor force participation has grown, men may have begun to compete for high-earning women just as women have traditionally competed for high-earning men (England and Farkas 1986:182; Oppenheimer 1994:332-34). Increasing symmetry in men's and women's preferences for mates implies greater resemblance between spouses' earnings and greater inequality across couples as marriages increasingly consist of two high- or two low-earning partners.

Empirical research supports the notion that mate selection has become more symmetric. For example, a recent study of marriage patterns among two cohorts of women shows that high wage women are more likely to marry men with high occupational status and high earnings potential than women with lower wages, and that this association has increased over time (Sweeney and Cancian 2004). Information on men's and women's stated preferences for mates also supports this hypothesis. Using data collected at six time points between 1939 and 1996, Buss et al. (2001) show that the importance that men place on women's financial prospects has increased and that, overall, men's and women's preferences for mates have become more alike. Trends such as these suggest that men are increasingly looking for partners who will "pull their own weight" economically in marriage (Oppenheimer 1994, 1997; Sweeney 2002).

Growing economic inequality and rising economic standards for marriage may have also increased the importance of economic considerations in choosing a partner. Over the past half century, but especially since the late 1970s, the U.S. has witnessed rapid growth in economic inequality (Mishel, Bernstein, and Allegretto 2005). As economic differences between individuals widen, the economic costs of "marrying down" may become increasingly severe. Consistent with this hypothesis, studies that compare the strength of assortative mating cross-nationally find that countries with higher levels of economic inequality typically have higher

spousal resemblance on education (Fernández, Guner, and Knowles 2005; Torche 2008). Furthermore, growing economic inequality occurred alongside greater neighborhood segregation by income and greater workplace segregation by educational attainment, both of which may have led to greater assortative mating on earnings (Fischer et al. 2004; Hellerstein, Neumark, and McInerney 2008). Finally, rising expectations about the level of economic security necessary for marriage (Cherlin 2004; Edin, Kefalas, and Reed 2004), declines in the real earnings of men at the lower end of the economic spectrum from the late 1970s to the mid-1990s (Mishel et al. 2005), and the increased cost of raising children (Casper 1995) may have further heightened the importance of women's earnings for marriage and thus increased the symmetry of men's and women's mate selection preferences.

Even if economic considerations have not become increasingly important factors in choosing one's mate, increased sorting on earnings may be the unanticipated consequence of increased sorting on other dimensions. For example, previous research has shown that the odds that husbands and wives share the same educational attainment increased by about 25% between 1960 and 2003 (Schwartz and Mare 2005). To the extent that men and women are sorting on education as a proxy for "lifestyles" (e.g., values, beliefs, interests) rather than as an indicator of "life chances" (i.e., future earnings), increases in the association between spouses' earnings at the time of marriage may be the result of the increasing association between spouses' educational attainments rather than as a result of sorting on earnings.

### **The Division of Labor in Marriage**

The growing economic resemblance of spouses may also reflect changes in how husbands and wives allocate their labor and time within marriage. Recent evidence suggests that, not only are



couples more likely to match on earnings at the outset of their marriages, but they also maintain greater economic equality within marriage. Since the late-1960s the correlation between current spouses' earnings has increased and changed signs (Cancian et al. 1993). Before the late-1970s, the relationship between husbands' and wives' earnings was negative, with high-earning husbands tending to have low-earning wives, whereas from the 1980s on, the relationship has been positive and increasing, with high-earning husbands tending to have high-earning wives. Moreover, the earnings and labor force participation of women with high- and middle-earning husbands has increased disproportionately relative to the wives of women with low-earning husbands (Cancian et al. 1993; Juhn and Murphy 1997). Thus, changes in the way in which men and women choose their mates and changes in the way in which husbands' and wives' allocate their labor within marriage are likely to have both contributed to increases in the association between spouses' earnings and greater economic inequality across married couples.

The March CPS data, unfortunately, do not contain information with which to distinguish increased assortative mating from changes in couples' allocation of market and household work within marriage. The mechanisms predicted to increase assortative mating on earnings, however, also generally imply greater spousal resemblance on earnings within marriage. For example, a shift from a specialization and trading model of marriage to a collaborative model suggests that men's and women's mate selection will become more symmetric *and* that spouses will share a more equal division of labor once married. Indeed, assortative mating on economic considerations may largely be a function of one's plans about one's economic life after marriage. Therefore, although separating assortative mating effects from changes in the division of labor within marriage is an important avenue for future research, the current analysis examines the

association between spouses' earnings among currently married couples, which is a joint product of assortative mating and the division of labor and earnings in marriage.

## **INEQUALITY AND THE ASSOCIATION BETWEEN SPOUSES' EARNINGS**

### **Previous Research**

Previous studies have largely identified the impact of increases in the association between spouses' earnings on trends in inequality using the decomposition properties of the coefficient of variation (CV), a common measure of inequality. Changes in the CV may be decomposed into parts due to changes in inequality among husbands, inequality among wives, and the correlation between husbands' and wives' earnings. Formally, the decomposition for married couples is:

$$CV_m^2 = a^2 CV_h^2 + b^2 CV_w^2 + 2\rho_{hw} ab CV_h CV_w \quad (1)$$

where  $CV_m$ ,  $CV_h$ , and  $CV_w$  are the coefficients of variation for married couples' earnings, husbands' earnings, and wives' earnings, respectively,  $\rho_{hw}$  is the correlation between spouses' earnings,  $a$  is the share of couples' earnings from husbands,  $b$  is the share of couples' earnings from wives, and  $CV^2$  is the variance of earnings divided by the mean earnings specific to each group (e.g., Blackburn and Bloom 1995; Cancian et al. 1993; also see Mincer 1974). Thus, when inequality among husbands or wives increases, inequality among married couples increases. Similarly, an increase in the correlation between spouses' earnings will increase inequality among married couples, holding all else constant.

Most decomposition studies of the CV focus on the impact of changes in women's earnings on inequality (e.g., Cancian et al. 1993; Cancian and Reed 1999; Maxwell 1990; Treas 1987). These studies have generally found that changes in wives' earnings have attenuated rather than contributed to growing inequality, and that the driving force behind increased income

inequality across families has been increasing inequality among husbands, which has increased more rapidly than inequality across couples (e.g., Blackburn and Bloom 1995; Cancian and Reed 1999; Cancian et al. 1993; Reed and Cancian 2001). Changes in wives' earnings were equalizing because the massive movement of married women into the labor force has resulted in an increasingly compressed earnings distribution among wives that counteracted growing inequality among husbands. Furthermore, changes in wives' earnings have fully offset the dis-equalizing impact of increases in the correlation between spouses' earnings. Nevertheless, the impact of change in the correlation has not been trivial. Cancian et al. (1993:216) estimate that the impact of increases in the correlation alone was about half as large as the impact of increased inequality among husbands between 1968 and 1988.

Although most studies have focused on the effects of changes in wives' earnings on inequality, recent studies have provided detailed accounts of the effects of spouses on one another's wages and labor supply. However, these studies have not quantified the consequences of these changes for inequality (Devereux 2004; Juhn and Murphy 1997). Still other studies have used somewhat different decomposition methods to examine the components of changing inequality in the U.S. (e.g., methods based on the Gini coefficient, the Mean Logarithmic Deviation, or non-parametric ranking methods), but have not directly estimated the impact of changes in the association between couples' earnings on inequality (e.g., Karoly and Burtless 1995; Martin 2006; Reed and Cancian 2001). This study goes beyond past work by providing a more detailed description of how changes in the association between spouses' earnings have contributed to inequality.

## **Components of the Changing Association Between Spouses' Earnings**

Decomposing change in the CV involves measuring change in the association between spouses' earnings using the correlation coefficient. This method assumes that changes in a single summary measure of the relationship between spouses' earnings are adequate to describe the changing association. However, changes in the association may have occurred non-uniformly across the earnings distribution. In particular, examining change in the correlation between spouses' earnings conflates two potentially countervailing factors (Mincer 1974:123-4). In the late 1960s, wives with high-earning husbands were less likely to work than other wives and therefore had lower average annual earnings (Cancian et al. 1993). In other words, the relationship between spouses' earnings was negative. Yet, among couples in which both partners work, the relationship has been positive since at least the late 1960s, with high-earning men more likely to be married to high-earning women (Cancian et al. 1993). Thus, the correlation between spouses' earnings may increase (1) as a result of an increase in the association between spouses' earnings among couples in which both partners work and/or (2) as a result of a decline in the negative relationship between husbands' earnings and the odds that wives work. Previous studies have acknowledged that both of these factors have contributed to increased inequality (e.g., Cancian et al. 1993; Mincer 1974), but no study has quantified their separate effects.

A third, but little recognized, component of change in the correlation between spouses' earnings is change in the distribution of husbands' and wives' earnings. Given that the correlation between spouses' earnings is higher among couples in which both partners work than among all couples, increases in the correlation may be the result of increases in the proportion of dual-earner couples. In other words, as single-earner families are converted into dual-earner families, couples "migrate" from areas of the distribution where the correlation is lower (or

negative) to areas where it is higher. In his study of occupational mobility in Hungary, Simkus (1984) refers to these effects as *composition* effects. Note that composition effects are distinct from changes in the relationship between husbands' earnings and the odds that wives work. For example, as the negative effects of husbands' earnings decline, it is likely that the proportion of dual-earner couples will increase, but it is also possible that the proportion of dual-earner couples will decline if all wives, regardless of their husbands' earnings, are less likely to work. What matters for the size of the composition effects is the magnitude of the change in the proportion of dual-earner couples, or in other words, how many more couples there are in areas of the distribution where the correlation is high than where it is low compared with previous years.

This paper goes beyond past work by using log-linear models to decompose the overall impact of changes in the association between spouses' characteristics on trends in inequality into these three components, that is, to (1) increases in the association between spouses' earnings among dual-earner couples; (2) declines in the negative relationship between husbands' earnings and the odds that wives work; and (3) increases in the prevalence of dual-earner couples.

### **Changes in the Association between Spouses' Earnings and Inequality Throughout the Earnings Distribution**

Although the CV provides a convenient way of decomposing trends in inequality, like all summary measures, it may mask trends toward greater or lesser inequality in different parts of the earnings distribution. However, virtually all previous studies of the impact of change in the association on trends in inequality have used summary measures of inequality trends (e.g., Blackburn and Bloom 1995; Cancian and Reed 1999; Cancian et al. 1993; Reed and Cancian 2001; but see Reed and Cancian 2004). Nevertheless, there is good reason to suspect that

changes in the association between spouses' earnings have had different effects on growing inequality in different portions of the earnings distribution. For example, because increases in wives' labor force participation have occurred disproportionately for the wives of high- and middle-earning husbands (Juhn and Murphy 1997), we might expect these changes to have affected inequality more in the lower portion of the earnings distribution than in the upper portion, where increases in the labor force participation of wives have been similar. This paper investigates the impact of each of the three components of changes in the association discussed above on change in the CV and on changes in the share of total earnings held by high-, middle-, and low-earning couples.

### **Other Issues in the Study of the Association Between Spouses' Earnings and Inequality**

**Relative versus Absolute Measures of the Association.** A further issue is how to conceptualize the association between spouses' earnings. An intuitive way of thinking about the association is in terms of the extent to which high-earning husbands are paired with high-earning wives and low-earnings husbands are paired with low-earning wives. Using this conceptualization, what matters is a man or woman's earnings *relative* to other members of his or her own sex. Previous studies of the impact of changes in the association on inequality have used measures that are consistent with this notion (Blackburn and Bloom 1995; Cancian and Reed 1998, 1999, 2004; Cancian et al. 1993; Hyslop 2001). The correlation coefficient, for example, is a relative measure of the association as it measures the extent to which husbands with earnings above the average husbands' are married to wives with earnings above the average wives'.

Relative measures are conceptually appealing, but they may be inadequate for describing changes in the association between spouses' earnings. Rather, capturing changes in the *absolute*

difference between spouses' earnings may also be important. There are several ways that absolute differences may play a role. For example, changes in individuals' stated preferences reveal that the importance men place on a woman's financial prospects has increased (Buss et al. 2001). If men increasingly prefer women with earnings that are more *similar* to their own in real terms, these changes may be better described by a model that accounts for declines in the absolute difference between spouses' earnings. Moreover, if egalitarian couples are more likely to strive for equal power in their relationships via the similarity of their earnings (Blumstein and Schwartz 1983:142; Brines and Joyner 1999), then the increasing prevalence of couples with egalitarian gender norms may have also resulted in a decline in the absolute difference between spouses' earnings. I use log-linear models to test whether changes in the association between spouses' earnings are better described by changes in relative measures of spouses' earnings or by measures that also account for changes in the real dollar differences between their earnings.

**The Accounting Framework.** I follow past work by estimating the impact of various components of trends in inequality using counterfactuals. My overarching question is: "What would the change in inequality among married couples have been in the absence of changes in the association between spouses' earnings, given that all else had changed as observed?" Behaviorally, if the association between spouses' earnings had not changed, it is unlikely that changes in husbands' and wives' inequality would have changed as observed. I do not attempt to develop a behavioral model of the relationship between partner choice, labor force participation, and earnings here. Instead, the decomposition portion of this paper is essentially an accounting exercise. Other studies have made important inroads in developing such behavioral models (Devereux 2004; Juhn and Murphy 1997; Lundberg 1988).

**Selection into Marriage.** This paper focuses on the role of husband-wife earnings associations in accounting for increased earnings inequality among married couples. While changes in family structure have clearly affected inequality (e.g., Karoly 1996; Martin 2006; Western, Bloome, and Percheski 2008), whether these changes have contributed to or offset increases in the correlation between spouses' earnings depends on the types of marriages these singles would form if they were to marry. A major demographic shift that may have affected who marries whom is non-marital cohabitation. Increased non-marital cohabitation has largely offset declines in marriage rates among white women, although less so for black women (Bumpass, Sweet, and Cherlin 1991). To test the sensitivity of my results to selection into marriage versus cohabitation, I performed the analyses presented here using a pooled sample of married and cohabiting couples, defined using POSSLQ methods (Casper and Cohen 2000). The inequality trends and decompositions using the pooled sample are very similar to those for married couples alone (results available upon request). Moreover, it is possible to utilize the decomposition properties of the CV and the methods presented here to incorporate singles into future analyses of trends in family inequality (e.g., Cancian and Reed 1999). Examining these processes among married couples is the first step toward understanding their consequences for the population as a whole.

## **DATA, MEASUREMENT, AND METHODS**

### **Data**

I use data from the 1968 through 2006 March Current Population Surveys (CPS) to examine trends in earnings inequality. These data have been used extensively to study changes in inequality in the U.S. (for reviews see Katz and Autor 1999; Levy and Murnane 1992). Because



the earnings data from the March CPS pertain to annual earnings in the year prior to the survey, the time series begins in 1967 and ends in 2005. I limit the sample to married adults in which both partners are between the ages of 21 and 55 ( $N = 849,484$ ), in which neither partner is in the armed forces ( $N = 835,177$ ) or is self-employed ( $N = 723,491$ ), and in which neither partner worked part-year because of school, retirement, or military service, resulting in a final sample size of 710,899 married couples.<sup>1</sup> This sample definition minimizes earnings measurement problems among younger and older adults (Cancian and Reed 1999).

## **Measurement**

I define husbands' (wives') earnings as the sum of their annual wage and salary income. This diverges somewhat from past work which typically includes other sources of income (income from other household members, interest and dividend income, transfer payments and pension income) (Blackburn and Bloom 1995; Cancian et al. 1993; Cancian and Reed 1999; but see Hyslop 2001). I examine the association between spouses' earnings rather than their incomes because of the special importance of those with zero annual wage and salary income. On average, wage and salary income makes up 91% of the total income of spouses. The percentage of total income from spouses' wage and salary income has remained relatively stable over the period examined here, declining 3 percentage points from 1967 to 2005. Moreover, trends in income inequality and the correlation between spouses' incomes closely resemble those for earnings (results available upon request).

The Census Bureau places an upper-bound or "top code" on the earnings it releases to protect the confidentiality of high-earning individuals. The dollar amount of these top codes has

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<sup>1</sup> Sensitivity tests showed that the total impacts of changes in the association between spouses' earnings on inequality are slightly smaller when the self-employed and earnings from self-employment and farm income are included in the analysis than when they are excluded, but overall, the decomposition results are quite similar.

changed over time, which may, in and of itself, induce variation in inequality. To avoid these effects, I impose a consistent top code corresponding to the maximum percentage of the sample with top-coded earnings in any year (3.0% of men's wage and salary income) following Burkhauser et al. (2004). Thus, husbands' (wives') earnings above the 97<sup>th</sup> percentile are replaced with the earnings of those at the 97<sup>st</sup> percentile in each year. Earnings are inflation adjusted to 2005 dollars using the CPI-U-RS from 1977 to 2004. For 1967 to 1976, I use extrapolated measures of the CPI-U-RS that are based on the ratio of the CPI-U-RS to the CPI-U in 1977 (U.S. Census Bureau 2006).

I examine trends in the CV and inequality in different portions of the earnings distribution, measured in terms of couples' share of total earnings among all married couples (Kuznets 1955). Under perfect equality, the top 20% of couples would command 20% of the earnings. However, historically, the top 20% of families have received a much larger portion of total national income (Mishel et al. 2005). I use the ratio of the share of total earnings held by the top 20% of couples compared with the earnings held by the lowest 20% of couples to measure inequality between high- and low-earning couples ("high-low inequality"), the ratio of the earnings shares for the top 20% compared with the middle 60% to measure inequality between high- and middle-earning couples ("high-middle inequality"), and the ratio earnings shares for the middle 60% compared with the bottom 20% to measure inequality between middle- and low-earning couples ("middle-low inequality").<sup>2</sup>

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<sup>2</sup> Another way of measuring inequality in different portions of the earnings distribution would be to examine the ratios of couples' earnings at various percentiles, e.g., the 90/10, 90/50, and 50/10 ratios. The decomposition of trends in these measures, however, is sensitive to the categorization of earnings used in the log-linear models, whereas the decomposition of the measures used here is not. Substantively, it makes little difference which measures are used as trends in the earnings ratios and trends in the ratios of earnings shares are similar to one another (Daly and Valetta 2006 and author's calculations).

## Methods

I analyze changes in the association between spouses' earnings using log-linear models for contingency tables. Log-linear models are flexible tools for describing different facets of changing associations and allow for the easy construction of counterfactuals by imposing constraints on the association coefficients. To form the contingency table, I classify husbands and wives with non-zero earnings by the percentiles they occupy in their sex-specific earnings distributions and include a separate category for those with zero annual wage and salary income. Specifically, I cross-classify husbands' earnings by wives' earnings ( $H, W =$  zero earnings, 1-5<sup>th</sup> percentile, 6-10<sup>th</sup> percentile, ..., 96-100<sup>th</sup> percentile) by year (1967-1970, 1971-1974, ..., 1999-2002, 2003-2005), which results in a  $21 \times 21 \times 10 = 4,410$  cell table. The table of husbands' by wives' earnings is large to preserve adequate detail in spouses' earnings.

Because husbands and wives are classified according to their earnings percentiles separately by sex, the classification scheme is based on husbands' and wives' earnings *relative* to other members of their own sex. I incorporate the real dollar values of husbands' and wives' earnings by assigning time-varying "scale scores" to each earnings category. Mobility researchers have employed scale scores in models of occupational mobility (e.g., Hout 1984; Logan 1983), but these methods are less common in the analysis of marriage tables. The scale scores equal 0 for the zero earnings category and are equal to the real earnings of those in the 3<sup>rd</sup> percentile for those in the 1-5<sup>th</sup> percentiles, the earnings of those in the 8<sup>th</sup> percentile for those in the 6-10<sup>th</sup> percentiles, and so forth. In this way, I incorporate both relative and absolute measures of spouses' earnings into the analysis. This approach is consistent with previous descriptive work, which has often examined trends in wives' earnings and labor force participation by their husbands' earnings or wage decile (e.g., Juhn and Murphy 1997; Cancian et al. 1993).

An alternative way of forming the contingency table would have been to classify husbands and wives according to their real earnings rather than their earnings percentiles. There are two main drawbacks to this approach. First, wives' real earnings have increased so dramatically that any constant classification scheme necessarily results in the clustering of wives' earnings at the bottom end of the distribution in the late 1960s or at the top end in recent years. Because of this clustering, data from tables formed in this way do not reproduce observed trends in the association between spouses' earnings or trends in inequality well. Second, this method leads to a table with many zero cells, which can be problematic for log-linear models (Clogg and Eliason 1987). Data tables formed by classifying spouses' earnings by their earnings percentiles reproduce observed trends well and, as discussed above, also incorporate measures of spouses' real earnings. Moreover, changes in the correlation between spouses' earnings percentiles and their real earnings are quite similar (results available upon request).

I start with a baseline model in which the association between spouses' earnings is assumed to be time-invariant. Because the primary concern of this paper is with *trends* in the association, I do not parameterize the time-invariant association parsimoniously. Instead, I allow the association between spouses' earnings to vary freely in the cross-section and focus on more parsimonious representations of the change (Raymo and Xie 2000; Xie 1998). Doing so substantially improves the fit of the model over more restricted representations of the association. The baseline model for the association is:

$$\log(\mu_{ijt} / t_{ijt}) = \lambda + \lambda_i^H + \lambda_j^W + \lambda_t^Y + \lambda_{it}^{HY} + \lambda_{jt}^{WY} + \lambda_{ij}^{HW} \quad (2)$$

where  $H$  denotes husband's earnings category ( $i = 1, \dots, 21$ ),  $W$  is wife's earnings category ( $j = 1, \dots, 21$ ), and  $Y$  is period ( $t = 1, \dots, 10$ ). Thus,  $\mu_{ijt}$  is the expected number of marriages between husbands in earnings category  $i$  and wives in earnings category  $j$  in period  $t$ . This model contains all possible interaction terms for the cross-sectional interaction between husbands' and wives' earnings categories ( $\lambda_{ij}^{HW}$ ), controls for changes in the distributions of husbands' and wives' earnings ( $\lambda_{it}^{HY}, \lambda_{jt}^{WY}$ ), and contains all lower order terms. The March CPS contains weights to ensure that the sample is representative of the population. I incorporate these weights by using an offset  $t_{ijt}$ , which is the inverse of the total weighted frequency of the cell divided by the unweighted cell count (Agresti 2002:391; Clogg and Eliason 1987).

**Linear-by-Linear Models.** To examine the adequacy of correlation-type measures in describing changes in spouses' earnings, I use linear-by-linear association models (Agresti 2002; Haberman 1974). Linear-by-linear association models represent the relationship between spouses' earnings in terms of a single association parameter that is conceptually and mathematically similar to the correlation coefficient. Formally, a linear-by-linear association model is:

$$\log(\mu_{ijt} / t_{ijt}) = \text{Baseline model} + \beta_t^Y u_{it} v_{jt} \quad (3)$$

where  $u_{it}$  are husbands' log scale scores in period  $t$ ,  $v_{jt}$  are wives' log scale scores in period  $t$ ,  $u_{it} v_{jt}$  is the product of the scale scores, and  $\beta_t^Y$  denotes the linear-by-linear association parameter in period  $t$ . For standardized scale scores,  $\beta$  is equal to  $\rho / (1 - \rho^2)$ , where  $\rho$  is the correlation coefficient (Agresti 2002:270). Thus, to maximize the comparability of the linear-by-

linear coefficients to the correlation coefficients, I standardize  $u_{it}$  and  $v_{jt}$  to have mean 0 and standard deviation 1 within years.

The model presented in equation (3) assumes that change in the association between spouses' earnings can be represented with a single correlation-type measure. It has long been recognized, however, that increases in the correlation between spouses' earnings may both be due to increases in the association between spouses' earnings among dual-earner couples and to declines in the negative relationship between husbands' earnings and the odds that wives work (Mincer 1974). To capture both of these types of changes, I add special terms to equation (3) for changes in the relationship between husbands' earnings and the odds that wives have zero annual earnings. This model can be represented as:

$$\log(\mu_{ijt} / t_{ijt}) = \text{Baseline model} + \beta_t^Y u_{it} v_{jt} + \gamma_{ikt}^{HZ^w Y} \quad (4)$$

where  $Z^w$  is a dummy variable indicating whether wives have zero annual earnings ( $k = 0,1$ ) and  $\gamma_{ikt}^{HZ^w Y}$  represents the odds that wives with zero annual earnings are married to husbands in earnings category  $i$  in period  $t$ . This model contains all possible interaction terms for changes in the relationship between the odds that wives work and their husbands' earnings category. When estimating the models, I specify a more parsimonious representation of this relationship.

**Distance Models.** The linear-by-linear models presented above estimate changes in the association between husbands' and wives' earnings *relative* to other members of their own sex. However, if men's and women's preferences about how *different* their earnings are have also changed, then correlation-type models may not fit changes in the association between spouses' earnings adequately. To test whether changes in the association are better represented by changes in the difference between spouses' real earnings, I estimate the following model:

$$\log(\mu_{ijt} / t_{ijt}) = \text{Baseline model} + \gamma_{ikt}^{HZ^w Y} + \delta_t^Y (|u_{it} - v_{jt}|) \quad (5)$$

where  $|u_{it} - v_{jt}|$  is the absolute value of the difference between husbands' and wives' log scale scores (unstandardized) in period  $t$  and  $\delta_t^Y$  is the effect of a one unit increase in  $|u_{it} - v_{jt}|$  on the log odds that a marriage is in joint earnings category  $ij$  in period  $t$ .

## RESULTS

### Descriptive Statistics

Figure 1 shows trends in the CV and in the ratio of the earnings shares going to high-, middle-, and low-earning couples.<sup>3</sup> Earnings inequality has risen by each of the four measures. From 1967-1970 to 2003-2005, the CV for married couples grew by 38%. Furthermore, the earnings of married couples were increasingly concentrated among couples in the top 20% of the earnings distribution, and less concentrated in the hands of couples in the bottom 20% and middle 60% of the earnings distribution. Specifically, high-low inequality grew by 87% over this period and middle-low inequality increased by 59%. By contrast, high-middle inequality grew more slowly, rising by 18%. Figure 1 also shows that high-low and middle-low inequality declined during the economic expansion of the mid-1990s but both measures have increased substantially since then. These estimates are consistent with other studies of trends in inequality among families (e.g., Daly and Valletta 2006; Gottschalk and Danziger 2005). Increases in the association between spouses' earnings may play a key role in accounting for these trends. As discussed above, increases in the association between spouses' earnings may be decomposed into three components: (1) increases in the association between spouses' earnings among dual-earner couples; (2) declines in the negative relationship between husbands' earnings and the odds that

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<sup>3</sup> This figure is estimated from individual-level data. Grouped data, which are used to estimate the log-linear models, produce qualitatively similar results. An analysis of the impact of using grouped versus individual-level data in estimating the trends and decompositions is available from the author upon request.

wives work; and (3) increases in the proportion of dual-earner couples. In what follows, I describe trends in each of these three components before modeling them more formally.

First, as inequality among married couples increased, the correlation between spouses' earnings also shifted substantially. Figure 2 shows that, among dual-earner couples, the correlation between spouses' earnings rose from 0.08 in 1967-1970 to 0.23 in 2003-2005, or almost tripled. Trends for all couples mirror those for dual-earners, but are lower or negative, moving from -0.08 to 0.12. The 1980s witnessed the largest change in the correlation, while the 1970s and 1990s were relatively stable in comparison, especially for dual-earners. These results are consistent with past studies (Cancian et al. 1993; Reed and Cancian 2004) and show that, despite considerable variation over time, the correlation remains quite low. Nevertheless, these shifts may have substantial implications for changes in earnings inequality if their effects on inequality are large.

Among dual-earner couples, the earnings of wives with middle- and high-earning husbands increased especially rapidly. Figure 3 shows the percent change in the median earnings of wives with high-, middle-, and low-earnings husbands (defined as husbands with annual earnings in the top 20%, middle 60%, and bottom 20% of husbands' earnings, respectively). Wives' earnings increased regardless of their husbands' earnings, but the earnings of wives with high-earning husbands increased fastest, followed by the wives of middle-earning husbands, and last by the wives of low-earning husbands. These trends have implications for inequality in different parts of the earnings distribution. Because the gap between (a) the earnings of wives with high-earning husbands and those with middle-earning husbands increased faster than the gap between (b) the earnings of wives with middle-earning husbands and those with low-earning



husbands, we would expect that changes in the association between spouses' earnings among dual-earners will have contributed more to high-middle inequality than to middle-low inequality.

Second, part of the increase in the correlation between spouses' earnings among all couples may arise from a decline in the negative relationship between husbands' earnings and the likelihood that wives work. Figure 4 shows that, between the late 1960s and the early 2000s, wives were also increasingly likely to work regardless of husbands' earnings. At the same time, the relationship between husbands' earnings and the likelihood that wives work shifted substantially. In the late-1960s, as husbands earned more, the likelihood that their wives worked declined in a relatively linear fashion. This relationship has slowly changed into a weak inverted "U", with the wives of low- and high-earning husbands being somewhat less likely to work than the wives of middle-earning husbands.

Figure 5 presents the information shown in Figure 4 in a somewhat different way to highlight the potential consequences of these trends for inequality. Figure 5 shows that the labor force participation of wives with high- and middle- earning husbands grew disproportionately relative to those with low-earning husbands. The labor force participation of wives with middle-earning husbands is quite high, topping 80% in the late 1990s. In the 2000s, however, women's labor force participation dropped somewhat as overall unemployment increased (Boushey 2005; Percheski 2008). The similarity of the increase in labor force participation among the wives of high- and middle-earning husbands suggests that reductions in the negative effects of husbands' earnings on wives' labor force participation will not have had large effects on high-middle inequality. By contrast, the greater growth in the labor force participation of wives with high- and middle-earning husbands compared to those with low-earning husbands suggests that the

effects of these shifts will have larger effects on changes in middle-low inequality than on high-middle inequality.

Finally, increases in the proportion of married couples in which both partners work can also affect the correlation between spouses' earnings and thereby inequality. This can occur as couples move from areas of the joint distribution of spouses' earnings where the association is low or negative to areas in which it is higher. Figure 6 shows that in the late 1960s, just over half of husbands and wives worked but in the 2003-2005 period 69% of all couples were dual-earners, down from a high of 73% in 1995-1998. A regression of variation in the proportion of dual-earner couples on the proportion of working wives reveals that the virtually all of this increase is due to increases in the proportion of wives who work ( $R^2 = 0.998$ ). Given that the correlation between spouses' earnings among dual-earners is higher than that among all couples (Figure 2), as the proportion of dual-earner couples increases, the correlation between spouses' earnings will increase due to these compositional shifts alone.

### **Log-Linear Models**

Table 1 provides the model specifications and fit statistics for log-linear models of trends in the association between spouses' earnings. I present both the  $G^2$  and the Bayesian information criterion (BIC) statistics for model fit but rely mainly on the BIC because of the large sample sizes in each year (Raftery 1995). More negative BIC statistics indicate a better fitting model. Table 1 shows that the baseline model (Model 1), which assumes that the association between spouses' earnings is time-invariant, fits the data poorly relative to other models.

**Linear-by-Linear Models.** Model 2 estimates the log-linear model equivalent of trends in the correlation coefficient for all couples. This model assumes that changes in the association

between spouses' earnings are adequately represented as by a single association parameter measuring the relationship between spouses' relative earnings, an assumption implicit in previous decompositions of the CV.<sup>4</sup> In Model 3, I test whether special terms for the substantial change in the relationship between husbands' earnings and the likelihood that wives work seen in Figure 4 improve the fit of the model. This model allows for changes in a non-linear (quadratic) association between husbands' earnings percentile and the odds that wives have zero annual earnings.<sup>5</sup> The linear-by-linear coefficients estimated in Models 2 and 3 produce trends that are nearly identical to trends in the correlation coefficient for all couples and for dual-earner couples, respectively (not shown). The better fit of Model 3 compared with Model 2 suggests that change in the association between husbands' earnings and the odds that wives work is a key component of the changing association between spouses' earnings. The interaction coefficients estimated in Model 3 ( $Z^w H_{ip}^2 Y$ ) also produce trends in the association between husbands' earnings and the odds that wives work that are qualitatively similar to the descriptive trends shown in Figure 4 (not shown).

**Distance Models.** Model 3 includes special terms for the changing relationship between husbands' earnings and the odds that wives work, but still assumes that trends in the association between the earnings of dual-earner couples can be described in terms of the association between spouses' relative positions in their earnings distributions. That is, these models estimate the extent to which high-earning women are married to high-earning men, but if spouses are increasingly concerned about the equality of their real earnings (Brines and Joyner 1999), these

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<sup>4</sup> The earnings scale scores are logged earnings except in Model 2 in which earnings are not logged. Model 2 does not use logged spouses' earnings because it does not include special parameters for couples in which either partner has zero earnings. Using logged earnings does not affect the model selection.

<sup>5</sup> Model specification tests not presented here showed that the quadratic specification fits the data as well as a model in which the relationship between husbands' earnings percentile and the odds that wives work is allowed to vary freely. Other tests showed that terms for changes in the relationship between wives' earnings and the odds that husbands work did not improve the fit of the model.

models will not fit the data adequately. To investigate this possibility, I add terms for changes in the absolute value of the difference between husbands' and wives' log earnings scale scores by year ( $|H_s - W_s|Y$ ). These terms significantly improve the fit of the model over Model 3, which is consistent with the hypothesis that changes in the difference between spouses' absolute earnings is an important component of the changing association.

It may be, however, that Model 4 fits the data better than Model 3 not because absolute measures of the association fit the data better than relative measures, but because of other differences in the way in which the two models specify changes in the association. A more comparable test of whether relative or absolute measures of the changing association between spouses' earnings fit the data better is a test of the fit of Model 5, which includes terms for changes in the absolute value of the difference between spouses' earnings percentiles by year ( $|H_p - W_p|Y$ ), against Model 4. As is evident from the  $G^2$  and BIC, models that describe changes in the association between spouses' relative earnings do fit the data somewhat better than those that refer only to changes in absolute measures of the earnings association. However, it may be that both measures are necessary. Model 6 includes relative and absolute measures of economic differences between spouses' earnings, and fits the data better than Models 4 or 5. These results suggest that increases in the association between spouses' earnings are due to both a tighter association between spouses' relative earnings and their earnings in real terms. In other words, the change arises from declines in the odds that high-earning husbands are married to low-earning wives, and, beyond this, to declines in the odds that husbands and wives have *different* earnings from one another in real terms.

## Decomposing the Impact of the Changing Association Between Spouses' Earnings

To perform the decomposition, I successively remove terms from the preferred log-linear model (Model 6) and use the predicted frequencies from these models to estimate counterfactual trends in inequality. Table 2 shows the model specifications and fit statistics for the models used in the decomposition and describes the counterfactuals employed. First, I use Model 6 to predict trends in inequality (shown in Table 2 as Model D1).<sup>6</sup> Second, I estimate the contribution of changes in the association between spouses' earnings among dual-earners to increased inequality by removing these terms from Model 6 (Model D2). Removing these parameters is equivalent to estimating a model that assumes there has been no change in the association between spouses' earnings for dual-earners.<sup>7</sup> The difference in predicted inequality trends implied by Models D1 and D2 is an estimate of the portion the trend that is due to changes in the association between spouses' earnings among dual-earner couples. Third, to estimate the impact of changes in the relationship between husbands' earnings and the odds that wives work, I remove the terms for trends in this association ( $Z^w H_p^2 Y$ ) (Model D3). The difference between inequality trends implied by Models D2 and D3 is an estimate of the impact of change in the relationship between husbands' earnings and the odds that wives work on trends in inequality.

At this point, there are no remaining terms for trends in the association between spouses' earnings. Although the association is constant in Model D3, the predicted frequencies from this model may still produce trends in the correlation coefficient because the correlation coefficient is sensitive to changes in the marginal distributions of husbands' and wives' earnings. This occurs because, even given a constant association between spouses' earnings ( $H_p W_p$ ), the correlation

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<sup>6</sup> The use of predicted trends in inequality introduces some error into the decomposition, but the model fits the data well enough so that this error is minimal.

<sup>7</sup> When the trend parameters are removed, the associations are held constant at their "average" values across the time series. See Simkus (1984) for a further discussion of this issue.

between spouses' earnings will increase as spouses move from areas of the marriage table where the association is low or negative to areas in which it is higher. For comparability with past research using the correlation coefficient, I capture these composition effects by dropping the cross-sectional association terms ( $H_p W_p$ ) from Model D3. The difference in inequality trends implied by Models D3 and D4 is an estimate of the impact of composition effects, which are largely a function of the increasing proportion of dual-earner couples, on trends in inequality. Note that terms for trends in the distributions of husbands' and wives' earnings remain in Model D4 ( $H_p Y$ ,  $W_p Y$ ). Thus, although wives' labor force participation increased dramatically between 1967 and 2005, the difference in inequality trends implied by Models D3 and D4 only captures the portion of this change that is due to the "migration" of couples from areas of the marriage table in which the association is low or negative to areas in which it is higher.

Figure 7 summarizes the results of the decomposition. For readers interested in more detail, Appendix Table 1 shows the predicted and counterfactual trends estimated from Models D1 to D4 and is the basis for the results shown in Figure 7. The total height of the bars corresponds to the counterfactual, "What would trends in inequality have been had the association between spouses' earnings remained constant but all else had changed as observed?" Under this counterfactual, I estimate that approximately 25 to 30% of increases in earnings inequality among married couples between 1967 and 2005 can be attributed to the increasing association between spouses' earnings, depending on the measure used. These estimates fall between those presented by Blackburn and Bloom (1995), who estimate that changes in the correlation accounted for 44 to 51% of change in the CV between 1979 and 1987, and those presented by Cancian and Reed (1999), who estimate that changes in the correlation accounted for 17% of changes in the CV between 1979 and 1989.

Over a period similar to that examined by Blackburn and Bloom and Cancian and Reed (1975-1978 to 1987-1991), I find that 43% of the change in the CV is due to changes in the association between spouses, an estimate closer to Blackburn and Bloom's. Cancian and Reed's estimate may be lower than Blackburn and Bloom's and that presented here because, unlike Blackburn and Bloom and the present analysis, Cancian and Reed estimate the contribution of changes in the correlation between wives' earnings and all other sources of income (husbands' earnings, earnings from other household members, income from other sources such as interest and dividend income, transfer payments and pension income) rather than just between husbands' and wives' earnings. The change in the correlation between wives' earnings and residual income (income other than husbands' earnings) is negative (Cancian and Reed 1999; Cancian et al. 1993) and thus the inclusion of residual income depresses estimates of the contribution of changes in the correlation to inequality. Nevertheless, together these findings suggest that the increasing association between spouses' earnings has had modest effects on trends in inequality.

Figure 7 also shows the contribution of the three subcomponents of the changing association. Although changes in the association account for roughly similar portions of increased inequality across the four measures, the source of these contributions vary substantially. For the CV, 45% of the total impact of change in the association is attributable to increases in the association between spouses' earnings among dual-earner couples, 36% is due to the weakening negative effects of husbands' earnings on the odds that wives work, and the remaining 19% is due to the increasing proportion of dual-earner couples (Appendix Table 1). By contrast, the contribution of changes in the relationship between husbands' earnings and the odds that wives work is larger for trends in high-low inequality than for the CV (48% vs. 36%)

and the contribution of the growing association between spouses' earnings among dual-earners is smaller (28% vs. 45%).

Furthermore, as expected on the basis of the descriptive statistics that showed a disproportionate increase in the earnings of working wives with high-earning husbands (Figure 3), changes in the association between spouses' earnings among dual-earners had the largest impact on trends in high-middle inequality and a smaller impact on middle-low inequality (57% vs. 8%). Conversely, declines in the negative effects of husbands' earnings on the odds that wives work had a larger impact on middle-low inequality than on high-middle inequality (69% vs. 17%). This can be traced to the similar magnitude of increases in labor force participation among wives with high- and middle-earning husbands, and the slower rates of increase among wives with low-earning husbands (Figure 5). The impact of the increasing percentage of couples that are dual-earners is roughly similar across the different inequality measures, explaining about 20 to 25% of the total contribution of changes in the association.

## **DISCUSSION**

This study has investigated whether the growing economic similarity of spouses has resulted in an unintended consequence – growing inequality across married couples. The increasing association between spouses' earnings accounts for a non-trivial portion of trends in earnings inequality among married couples in the U.S. between 1967 and 2005. Increases in earnings inequality among married couples would have been about 25 to 30% lower than observed in the absence of the increased association between spouses' earnings, depending on the measure of inequality used. The magnitude of these estimates is consistent with previous studies using different methodologies (Blackburn and Bloom 1995; Cancian and Reed 1999).



What is new to this analysis is that I decompose the source of these impacts and show how the changing association has contributed to inequality in different ways in different portions of the earnings distribution. Specifically, changes in the association between spouses' earnings among dual-earner couples have contributed more to growing inequality at the top of the earnings distribution, whereas declines in the negative effects of husbands' earnings on the odds that wives work have contributed more to inequality at the bottom. Changes in the association between spouses' earnings among dual-earner couples and declines in the negative effects of husbands' earnings on the odds that wives work have had roughly equal impacts on increases in the CV. Previous research has speculated that both of these factors have played a role in increasing inequality in the U.S. (e.g., Cancian et al. 1993; Levy 1998; Mincer 1974), but none have quantified their separate contributions to inequality in different portions of the earnings distribution.

These trends offer a basis for tentative speculation about the future impact of changes in the economic resemblance of spouses. First, between the mid-1990s and 2005, wives' labor force participation rates flattened, leading some to speculate that wives' labor force participation had reached a ceiling (Goldin 2006). Over this period, there was also little change in the relationship between husbands' earnings and the odds that wives work. Nevertheless, the correlation between spouses' earnings continued to increase because of disproportionate growth in the earnings of wives with high-earning husbands. If wives' labor force participation remains at its current levels and the relationship between husbands' earnings and the odds wives work also remains unchanged, then any future contribution of increases in the association between spouses' earnings to inequality will come from further increases in the association between the earnings of spouses in which both partners work. Furthermore, the faster growth of wives' earnings with

high-earning husbands suggests that the near-future impact of changes in the association between spouses' earnings may be greatest for inequality between high- and middle-earning couples.

In addition to providing a decomposition of the impact of change in the association between spouses' earnings on inequality across married couples, this paper has tested the adequacy of various descriptions of the changing association between spouses' earnings. I find that changes in the association between spouses' earnings are not well described by the correlation coefficient, which has often been used in previous literature, but are better described by a model that distinguishes between earners and non-earners, and incorporates measures of diminishing economic differences between spouses, both with respect to their relative earnings (high-earning husbands are more likely to be married to high-earning wives) and with respect to the absolute difference between spouses' earnings.

These findings complement work on the shifting economic foundations of marriage (e.g., Oppenheimer 1994, 1997; Sweeney 2002; Cancian and Sweeney 2004). Recent empirical studies have shown that spouses' preferences for mates have become more similar, that sorting into marriage on socioeconomic factors has increased, and that husbands and wives have more similar economic roles within marriage (e.g., Buss et al. 2001; Cancian and Sweeney 2004; Schwartz and Mare 2005; Bianchi, Robinson, Milkie 2006). Each of these findings supports the notion that marriage has moved from being well-characterized by a specialization and trading model of marriage to a collaborative model of marriage, both at the outset of marriage and within marriage. This study connects a key component of these trends, the rising resemblance of spouses' earnings, to growing inequality.

A limitation of this paper is that it relies on cross-sectional data, which means that I have not been able to determine the extent to which trends in the association between spouses'

earnings are due to increased assortative mating versus changes in the division of labor within marriage. The independent contribution of these effects to increased inequality has received limited attention (Hyslop 2001), and deserves further study. Although the potential effects of assortative mating patterns on inequality has been of considerable interest to stratification scholars and demographers (e.g., Smits, Ultee, and Lammers 1998; Schwartz and Mare 2005), it is possible that changes in assortative mating have had negligible effects on the association between spouses' earnings compared with the dramatic changes in wives' labor force participation. Indeed, studies of trends in educational assortative mating suggest that increased assortative mating may have had little impact on inequality (Kremer 1997; Western et al. 2008). These studies point to the importance of future research on the consequences of changes in spouses' behavior after marriage for growing inequality.

This paper has focused on one component of changing family patterns and their effects on inequality, but it is part of a growing constellation of research that examines the relationship between changing family patterns and economic inequality. The increasing prevalence of single-parent families stemming from increased divorce and non-marital fertility has also had substantial effects on trends in inequality across families (e.g., Western et al. 2008; Daly and Valletta 2006). At the same time, growing economic inequality itself may affect family and marriage patterns (McLanahan and Percheski 2008). For example, rising economic inequality may have increased the economic resemblance of spouses as the costs of "marrying down" have increased (Fernández et al. 2005). Finally, the growing resemblance between spouses' earnings may have consequences for the intergenerational transmission of status and inequality. Occupational and educational mobility studies show that both mother's and father's status matter for children's success (Kalmijn 1994; Mare 1981). Future research should investigate whether

the growing resemblance between spouses' earnings has led to a stronger relationship between children's family background and their life chances.

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**Table 1. Log-Linear Models of Trends in the Association Between Husbands' and Wives' Earnings: 1967-2005**

Model	df	G <sup>2</sup>	BIC
(1) $H_p Y + W_p Y + H_p W_p$	3600	13476	-35031
(2) Model 1 + $L_s Y$	3591	10986	-37400
(3) Model 1 + $L_s Y + Z^w H_p^2 Y$	3564	8960	-39062
(4) Model 1 + $Z^w H_p^2 Y +  H_s - W_s  Y$	3564	7617	-40405
(5) Model 1 + $Z^w H_p^2 Y +  H_p - W_p  Y$	3564	7509	-40513
(6) Model 1 + $Z^w H_p^2 Y +  H_s - W_s  Y +  H_p - W_p  Y$	3555	6942	-40959

*Note:* N = 710,899; Cells = 4,410. Earnings are log earnings in 2005 dollars except in Model 2 in which earnings are not logged. Model terms are as follows (degrees of freedom):  $H_p$ =husbands' earnings percentile (20);  $W_p$ =wives' earnings percentile (20);  $Y$ =year (9);  $L_s$ =linear-by-linear association (using time-varying scale scores) (1);  $Z^w$ =no annual earnings, wives (1);  $H_p$ =husbands' earnings percentile (linear term) (1);  $|H_s - W_s|$ =absolute value of difference between husbands' log earnings and wives' log earnings (1);  $|H_p - W_p|$ =absolute value of difference between husbands' earnings percentile and wives' earnings percentile (1).

*Source:* 1968-2006 March Current Population Survey.

**Table 2. Log-Linear Models for Decomposing of the Impact of Changes in the Association Between Spouses' Earnings on Earnings Inequality: 1967-2005**

Model	df	G <sup>2</sup>	BIC
(D1) Model 1 + Z <sup>w</sup> H <sub>ip</sub> <sup>2</sup> Y +  H <sub>s</sub> -W <sub>s</sub>  Y +  H <sub>p</sub> -W <sub>p</sub>  Y	3555	6942	-40959
(D2) H <sub>p</sub> Y + W <sub>p</sub> Y + H <sub>p</sub> W <sub>p</sub> + Z <sup>w</sup> H <sub>ip</sub> <sup>2</sup> Y	3573	10602	-37542
(D3) H <sub>p</sub> Y + W <sub>p</sub> Y + H <sub>p</sub> W <sub>p</sub>	3600	13476	-35031
(D4) H <sub>p</sub> Y + W <sub>p</sub> Y	4000	55579	1682

Counterfactuals

(D1) - (D2) = No change in the association among dual-earners

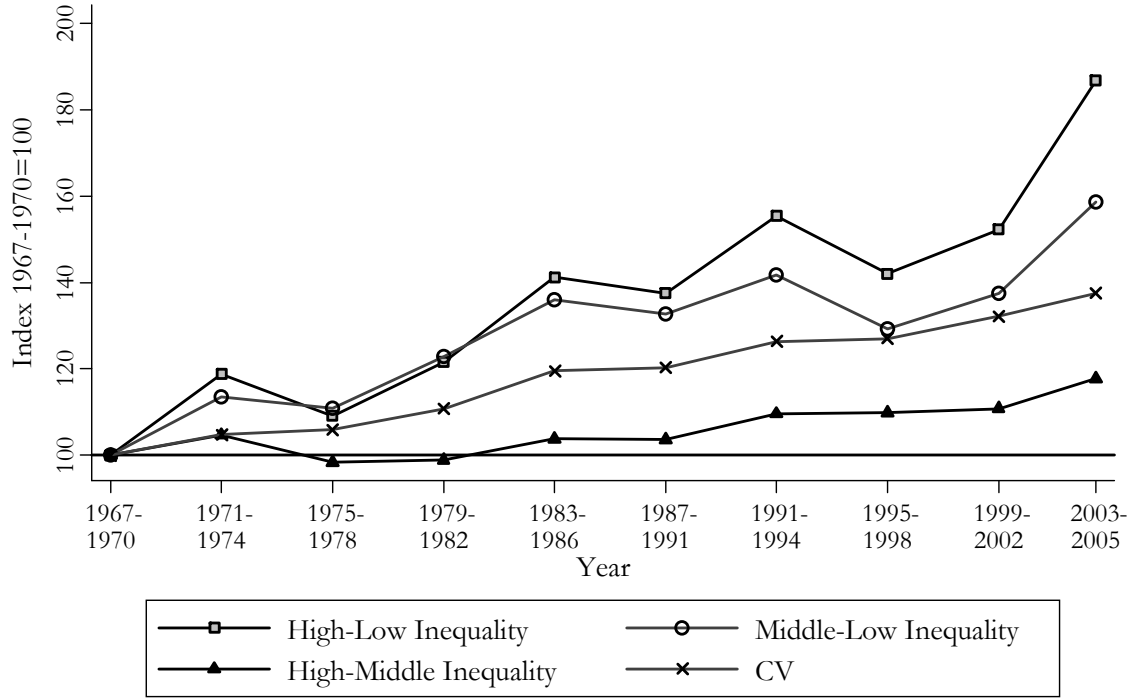
(D2) - (D3) = No change in the relationship between husbands' earnings and the odds that wives work

(D3) - (D4) = No change in the percentage of couples that are dual-earners (composition effects)

*Note:* N = 710,899; Cells = 4,410. Model terms are as follows (degrees of freedom): H<sub>p</sub>=husbands' earnings percentile (20); W<sub>p</sub>=wives' earnings percentile (20); Y=year (9); Z<sup>w</sup>=no annual earnings, wives (1); H<sub>ip</sub>=husbands' earnings percentile (linear term) (1); |H<sub>s</sub>-W<sub>s</sub>|=absolute value of difference between husbands' log earnings and wives' log earnings (1); |H<sub>p</sub>-W<sub>p</sub>|=absolute value of difference between husbands' earnings percentile and wives' earnings percentile (1).

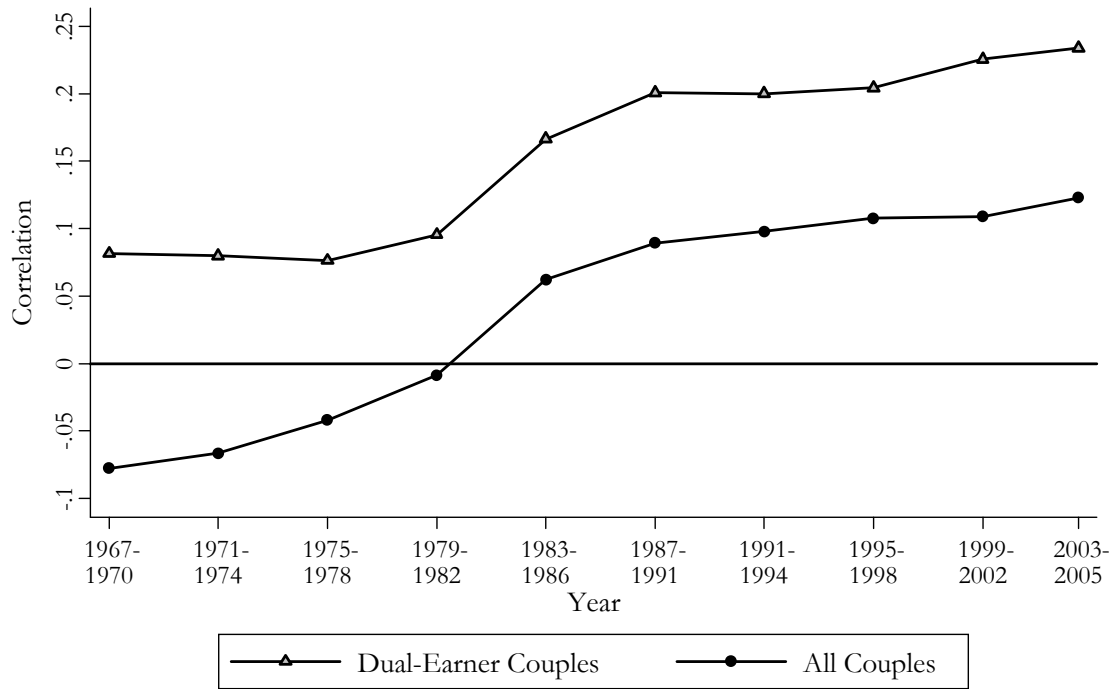
*Source:* 1968-2006 March Current Population Survey.

Figure 1. Changes in Earnings Inequality Among Married Couples (Husbands and Wives Aged 21-55): 1967-2005



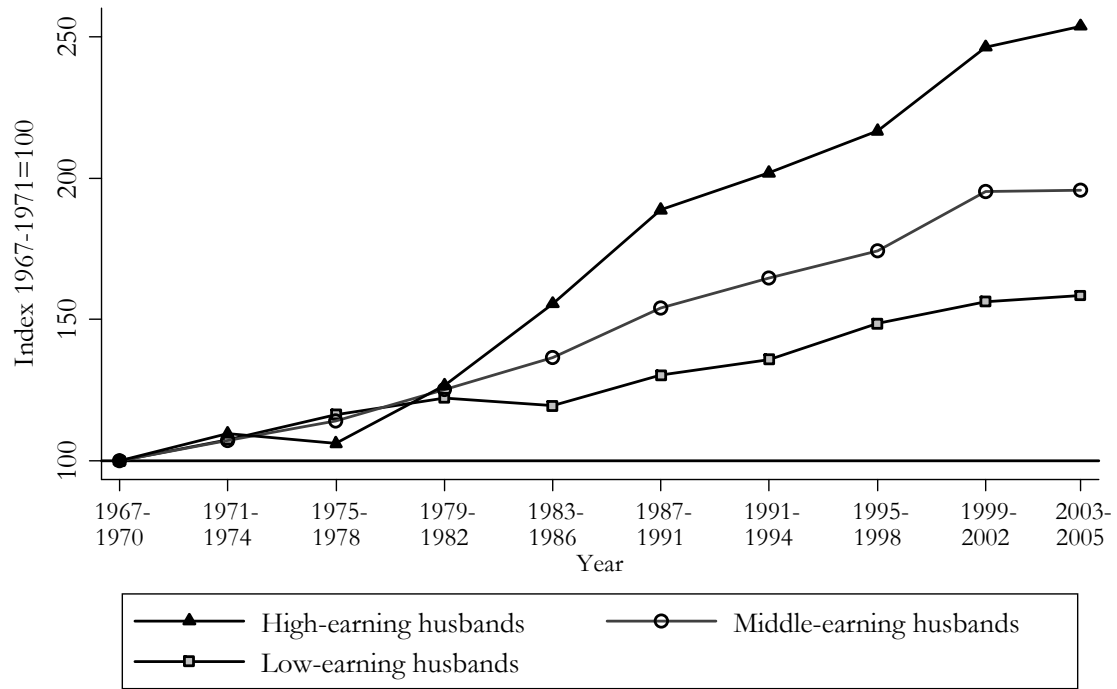
Source: 1968-2006 March Current Population Survey.

Figure 2. Correlation Between Husbands' and Wives' Earnings: 1967-2005



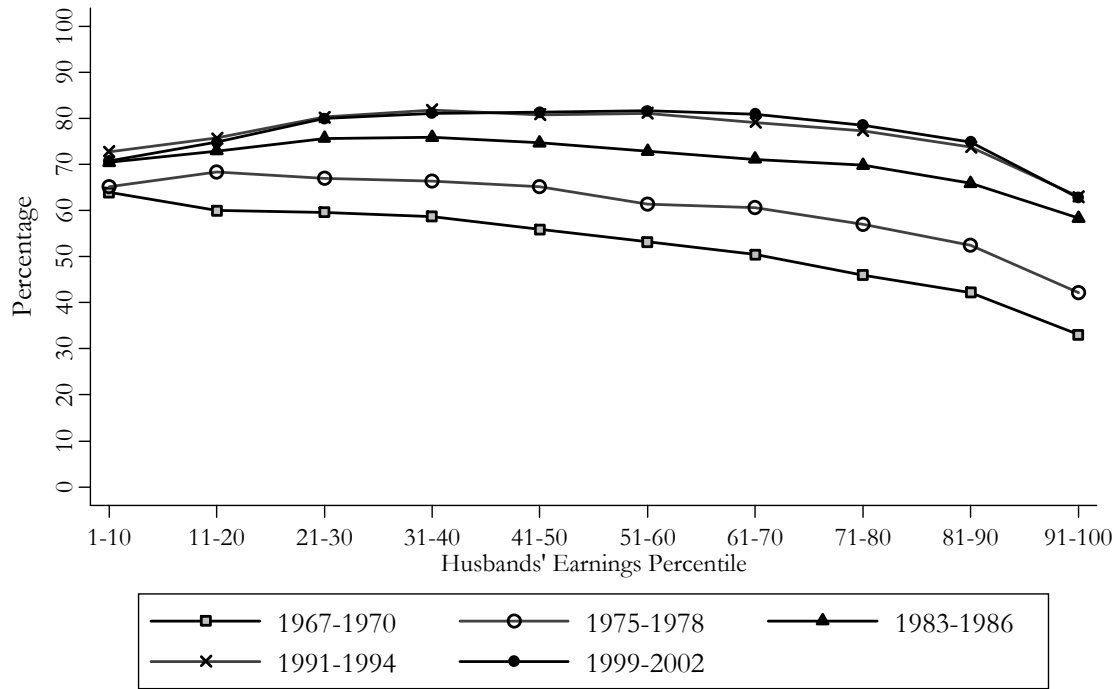
Source: 1968-2006 March Current Population Survey.

Figure 3. Changes in Wives' Earnings by Husbands' Earnings (Dual-Earner Couples): 1967-2005



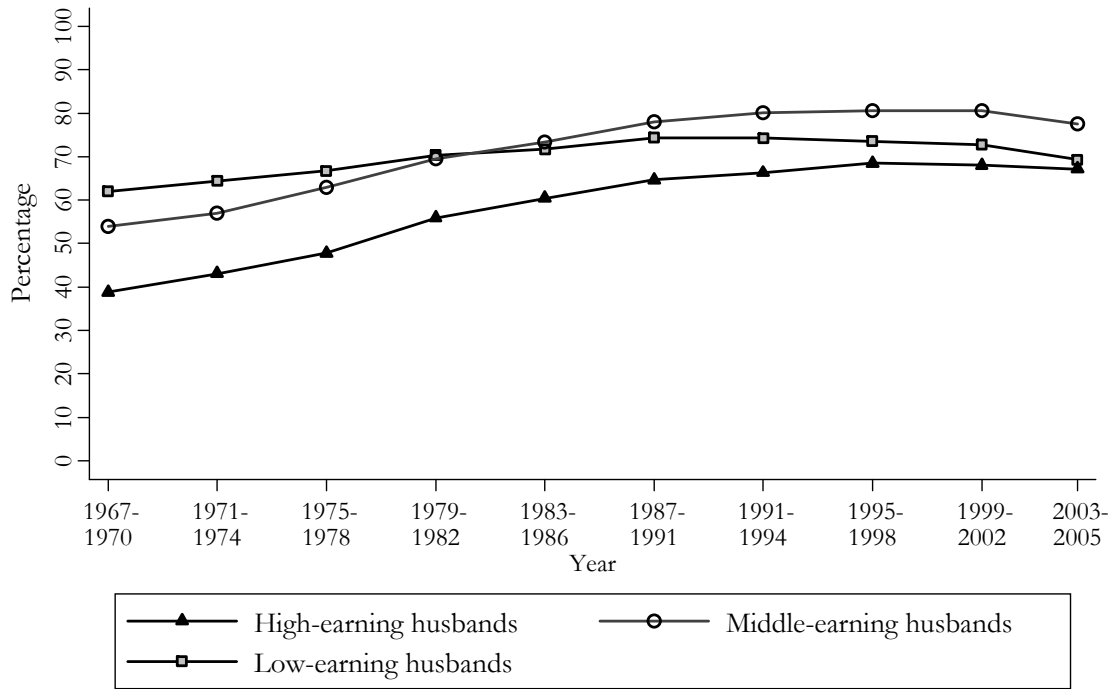
Source: 1968-2006 March Current Population Survey.

Figure 4. Percentage of Wives With non-Zero Annual Earnings by Husbands' Earnings Percentile and Selected Years



Source: 1968-2006 March Current Population Survey.

Figure 5. Percentage of Wives With non-Zero Annual Earnings by Year and Husbands' Earnings: 1967-2005

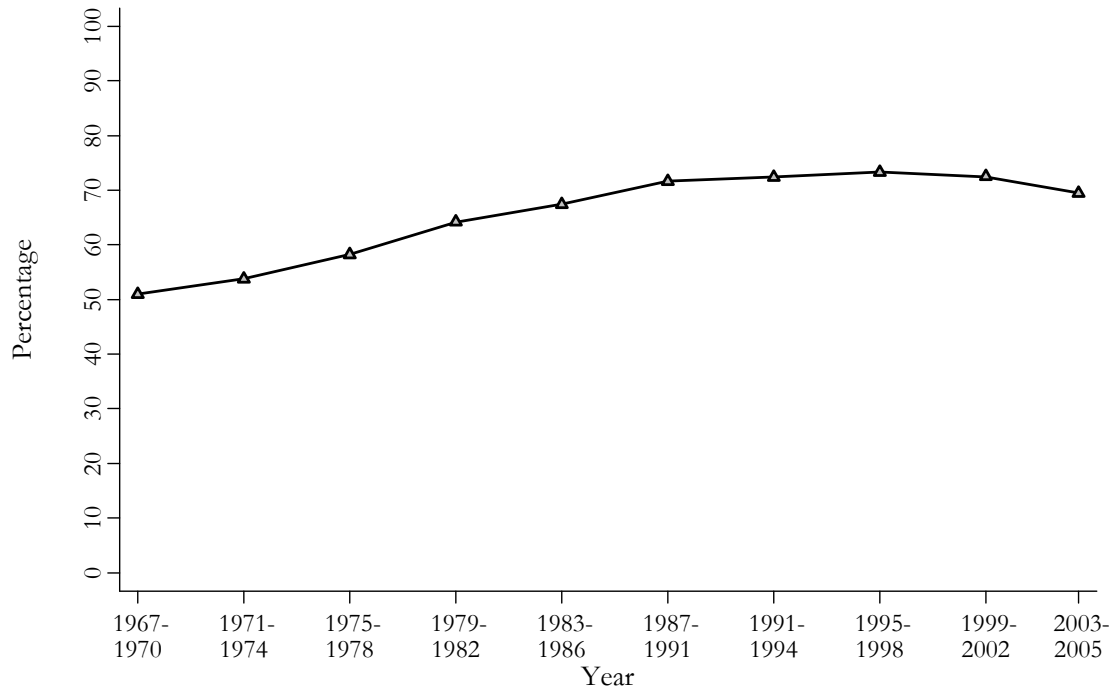


Source: 1968-2006 March Current Population Survey.



Figure 6. Percentage of Married Couples in which Both Partners have non-Zero Annual Earnings: 1967-2005

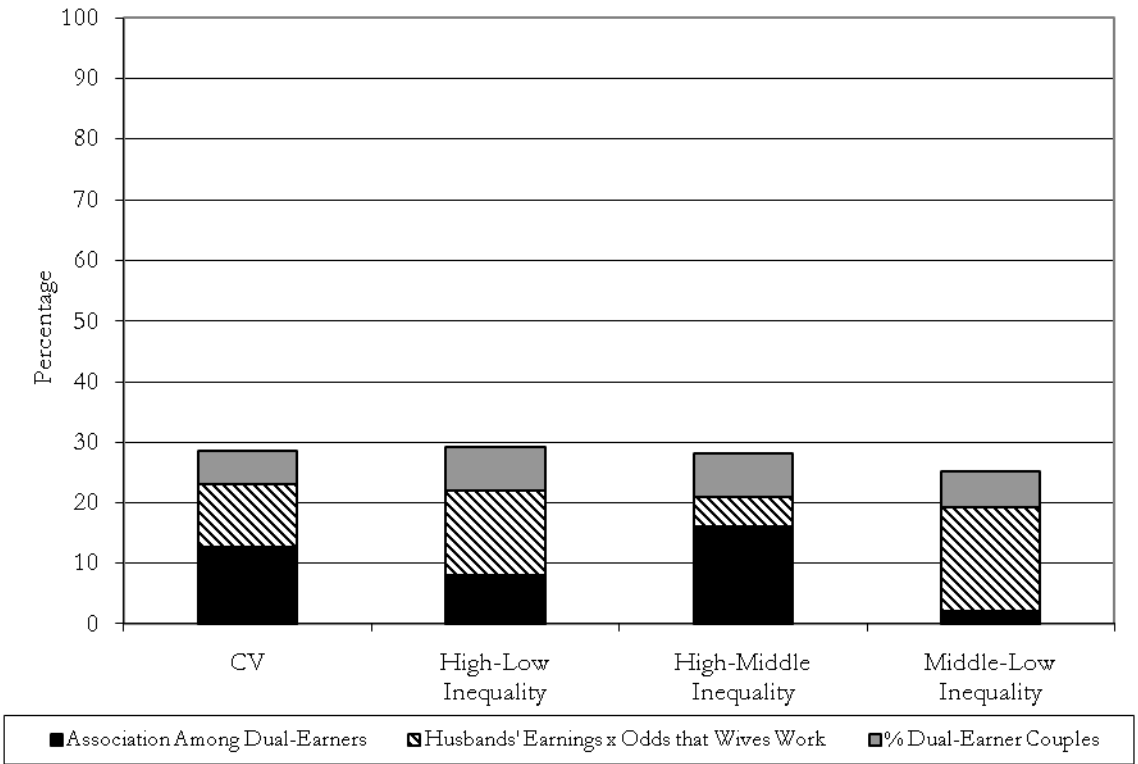
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Source: 1968-2006 March Current Population Survey.

**Figure 7. Decomposition of Change in Earnings Inequality Among Married Couples into Components Due to the Association Between Spouses' Earnings: 1967-2005**



Source: 1968-2006 March Current Population Survey.

**Appendix Table 1. Decomposition of Changes in Earnings Inequality Among Married Couples into Components Due to the Association Between Spouses' Earnings: 1967-2005**

Inequality Measure and Component	(A) 1967- 1970	(B) 2003- 2005	(C) Difference (B) - (A)	(D) % Change vs. (1)	(E) % of Total Association Component
CV					
(1) Predicted	0.451	0.629	0.178	--	--
(2) No change in association among dual-earners	0.460	0.616	0.155	12.7	44.6
(3) + No change in husbands' earnings x odds wives work	0.470	0.607	0.137	23.0	36.2
(4) + No change in % dual-earner couples	0.468	0.596	0.127	28.5	19.2
					100.0
High-Low Inequality					
(1) Predicted	3.959	7.257	3.298	--	--
(2) No change in association among dual-earners	3.987	7.018	3.031	8.1	27.6
(3) + No change in husbands' earnings x odds wives work	3.894	6.464	2.570	22.1	47.8
(4) + No change in % dual-earner couples	3.806	6.137	2.332	29.3	24.7
					100.0
High-Middle Inequality					
(1) Predicted	0.582	0.736	0.154	--	--
(2) No change in association among dual-earners	0.592	0.721	0.129	16.0	56.7
(3) + No change in husbands' earnings x odds wives work	0.600	0.721	0.122	20.9	17.4
(4) + No change in % dual-earner couples	0.603	0.714	0.111	28.2	25.9
					100.0
Middle-Low Inequality					
(1) Predicted	6.804	9.860	3.056	--	--
(2) No change in association among dual-earners	6.735	9.728	2.993	2.1	8.2
(3) + No change in husbands' earnings x odds wives work	6.495	8.959	2.464	19.4	68.8
(4) + No change in % dual-earner couples	6.307	8.595	2.288	25.1	23.0
					100.0

*Source:* 1968-2006 March Current Population Survey

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