The truth of College Wage Premium (CWP)
: overeducation, glass ceiling and advanced degree

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Abstract

In this study, the college premium refers to the wage differential between college graduates and high school graduates. With rapid social change, the perception of the college premium is also changing. Thus, this study aims to document the evolution of the college premium and explore the factors that influence it.

The analysis was conducted using the "march_cps.R data" spanning the period from 1976 to 2010. The primary objective was to examine the wage differentials based on college graduation status. To achieve this, an independent samples t-test was employed to assess the presence of a significant difference in wages between individuals with and without a college degree. Through the amplification and coefficients of the t-statistics, the wage gap between education levels can be estimated. Finally, to explore the potential trends in the impact of key variables on wages over time, a series of 35 regression models were estimated.

This study is meaningful in examining changes in college premium over time and demonstrating the factors affecting high and low income groups. However, there are also studies that show that the advanced degree premium occurs in jobs that require specialized skills in a rapidly changing society. The results of this study can be used as a reference for policy discovery, and it is necessary to continue research by updating the latest data and adding detailed variables on degrees.

1. Introduction

As education levels have leveled off in recent years and the number of college graduates has increased, the era of meritocracy rather than college wage premiums has arrived. Thus, large companies such as Google, Netflix, Tesla and Apple have introduced new hiring schemes that allow employees to be hired based on their ability to do the job rather than their degree (Pelta, 2023, May 11). However, blindly accepting this phenomenon and denying education can be poisonous.

There is a large body of research on the college premium, which demonstrates that college graduates earn higher wages than non-college graduates(Van Der Velden & Bijlsma, 2016). The impact of the college premium is also seen in national policy. The Obama administration's education policy from 2011 to 2020 focused on increasing the share of college graduates. Obama's policy pledge was to create a sustainable economic and educational environment in which all U.S. citizens can work, including economic stability for the middle class, rewarding hard work and responsibility, and providing good jobs (Mechaber, 2011). The uniqueness of this education policy is that it considers not only students but also families and alleviates economic distress during the study period so that more people can receive a university education. Education is not just about individual learning; it affects a wide range of sectors, including the economy, labor, and industry. The Obama administration's education policy is aimed at preparing a workforce for the science, technology, engineering, and math (STEM) sectors, which are at the core of our nation's future (100,000 great STEM teachers in 10 years). In other words, education policy drives the sophistication of cutting-edge industries and suggests that cutting-edge industries require university graduates.

With rapid social change, the perception of the college premium is also changing. Although we cannot say for sure that college graduation is very important, not only in the United States, but also in many countries, college education is required for specialized training and discovery of cutting-edge industries. This study aims to document the evolution of the college premium and explore the factors that influence it.

2. Background

2.1 College premium

In this study, the college premium refers to the wage differential between college graduates and high school graduates. There are many studies(Charles & Grusky, 1995;

Humensky, Jordan, Stroupe, & Hynes, 2013; Kleykamp, 2013) that have explored the factors that affect wages. These studies look at a variety of factors, including gender differences, veteran status, and more.

However, as the proportion of four-year college graduates increases globally, the college premium is changing. In the United States, the number of four-year college graduates continues to increase due to President Obama's education policies. In addition, according to Crivellaro (2016), European policies to expand participation in higher education between 1997 and 2010 increased the share of college graduates by more than 60% in Italy, Spain, Portugal, and the United Kingdom. It increased by more than 40% in Sweden, France, and Norway. This increase in the number of college graduates may reduce the attractiveness of the college wage premium from both a supply and demand perspective in the job market.

This evidence is supported by some studies. Crivellaro (2016) analyzes the college wage premium for an oversupply of college graduates in OECD countries. The results suggest that the oversupply of college graduates significantly affects labor supply and reduces the college wage premium. On the other hand, an undersupply of college graduates leads to a higher college wage premium. However, this study has a limitation in that it does not distinguish between college graduates from four-year college graduates and college graduates with an advanced degree. Therefore, we cannot blindly assume that the college premium decreases with oversupply. Weinberger (2011) explores the difference in the college wage premium for female workers with a four-year college degree and an advanced degree. The results show that an advanced degree in the job market has a higher impact on the college wage premium. Similarly, a growing number of studies have recently demonstrated the difference in the college wage premium between a four-year college degree and an advanced degree.

Recent global environmental changes, such as the declining birthrate and the 4th Industrial Revolution, have led to a wide range of changes in education policies, educational environments, and labor conditions. Recently, there have been unpredictable situations such as college graduates applying for jobs that do not require a college degree. This can lead to an oversupply of college graduates and a weakening of the college wage premium. In addition, the difference between a four-year college degree and an advanced degree will be more pronounced(Vedder, Denhart, & Robe, 2013).

2.2 Factors influencing Wage changes

Economic downturns or economic crises tend to increase support for far-right parties. Voters feel economically disenfranchised due to unemployment, lower incomes, and disappointment with the policies and practices of established parties(Frey & Weck, 1983; Norris, 2005; Payne, 1996), leading them to support far-right parties(Borchardt, 1991; Givens, 2005; Golder, 2003; Gurr, 1970).

The comparative politics academia suggests that stronger left-wing parties are associated with lower income inequality, but some studies suggest that the party composition of a government does not affect policy. However, these studies are only a small fraction of the total. Leighley and Nagler (1992) found that income level was the most important variable affecting voter turnout in U.S. elections between 1964 and 1988. Verba, Schlozman, Brady, and Nie (1993) also found that economically deprived classes had significantly lower political participation than those who did not. In other words, if low-income people are less engaged in politics than higher-income people, their views are less likely to be reflected in policy(Leighley & Nagler, 1992; Lijphart, 1997; Verba et al., 1993; Wolfinger & Steven, 1980).

Therefore, low-income people have less information about the differences in policy positions of political parties than higher-income people. As a result, low-income people are more likely to participate in politics based on non-ideological factors, and as a result, they may have a harder time understanding the differences between political parties' positions. Political change can lead to income inequality and affect wages. However, these factors are not the only ones that affect wages, there are many others, including gender and veteran status.

During the 1970s, working women were very rare in the United States. Jobs were segregated by gender and women's job opportunities were generally limited. As the 1980s approached, the number of working women increased, but most worked in clerical and service occupations, while men tended to work in more highly-paying management and production jobs(Charles & Grusky, 1995). As women's opportunities expanded, they began to enter various occupations, but a significant gender pay gap persisted. Mitra (2003) researched whether a Glass ceiling exists in the workplace regarding pay gaps between men and women. The results showed that, even for the same managerial positions, there was a clear pay gap between men and women, indicating the presence of a glass ceiling between genders.

In the late 1980s, as cities grew and society developed, women's education levels also increased. The number of women with a four-year college degree or advanced degree increased significantly compared to the past, and women with a college degree were able to obtain high-paying jobs as much as men. According to Weinberger (2011) research, the wage gap between college-educated women and men has significantly decreased. Particularly noteworthy with respect to women's college wage premium is that the number of women receiving higher wages than men has increased, and in the case of childless women, the wage gap between men and women is similar. Women have broken down the Glass ceiling that was clearly present between men and women through education.

There are a few wage studies on veterans(Humensky et al., 2013; Kleykamp, 2013; London, Heflin, & Wilmoth, 2011; Mani, 2013; Tennant, 2012; Walker, 2010). For example, Kleykamp (2013) found an earnings premium for veterans aged 18~40, using the Current Population Survey (CPS) from 2005 to 2011 (approximately 2000 veterans). Estimating a generalized linear model that controlled for demographic, family, and industry variables, the author found that veterans earned a 6% premium over non-veterans. In particular, the author estimated that this premium was larger for racial/ethnic minorities than white veterans. Additionally, much of this premium was due to the inclusion of workers without a highschool degree (1% of veterans compared to 11% of non-veterans). Humensky et al. (2013) estimated veteran vs. nonveteran outcomes for earnings, enrollment, and employment by various age groups, using the 2006~2011 CPS (approximately 3000 veterans). They found that Iraq/Afghanistan-era veterans had a higher probability of being employed for pay but no difference in earnings, except for the small group of veterans aged 18~25.

While these studies focus on the wages of veterans, many other social and economic factors have been shown to affect wages, including age, race, and location. There are many socioeconomic factors that can affect wages. This study explores the socioeconomic factors that affect the college premium, but the college premium as defined in this study is highly correlated with wages. Therefore, we examine factors that affect wages in addition to the college premium.

3. Materials and methodology

3.1 Variable and Data collection

The primary focus of this study is wages, which can be measured in two main forms: weekly wage and hourly wage. Although these measures are highly correlated, they are not identical due to factors such as hours worked and job characteristics. Consequently, we analyze both variables in our analysis. The minimum hourly wage observed was $1.42, while the median stood at $12.02, and the maximum reached $182.91. For weekly salary, the minimum value was $42.46, the median was $509.62, and the maximum value reached $12,192.90. Given the left-skewed distribution of the variable, we opted to log-transform the wages to improve normality and enhance the accuracy of our estimations.

One sub-research question addressed in this study revolves around examining variations in the college premium across different income groups. Specifically, our focus lies on distinguishing between high-income and low-income groups, and various methodologies can be employed for this purpose. While one commonly used approach involves utilizing tax distribution data, we resort to the distribution of wages due to data limitation, as supported by prior studies (Slemrod, 1996). The high-income group is defined as the 90th percentile of weekly and hourly wages, while the low-income group comprises the 10th percentile of weekly and hourly wages.

In addition, this analysis incorporates interaction terms to examine the differential effects of college graduation premium within specific groups. Specifically, the interaction terms included in the model are (college graduate * female) and (college graduate * veteran). By including these interaction terms, we can conduct more nuanced analyses, such as assessing whether female college graduates experience higher wages compared to their non-graduate counterparts, or if veterans with a college degree have higher wages compared to non-graduate veterans. All analytical procedures implemented in this study include tests for multicollinearity using methods such as Variance Inflation Factor (VIF), conditional number, and correlation analysis (Midi, Sarkar, & Rana, 2010).

3.2 Methodology

The analysis was conducted using the “march_cps.R data” spanning the period from 1976 to 2010. The March Current Population Survey (CPS) is a nationally representative survey conducted by the U.S. Census Bureau and the Bureau of Labor Statistics. It is an important source of information on labor market conditions, income, and various socio-

economic characteristics of the U.S. population. The March CPS is conducted annually and collects data from a sample of households across the country.

The primary objective was to examine the wage differentials based on college graduation status. To achieve this, an independent samples t-test was employed to assess the presence of a significant difference in wages between individuals with and without a college degree. Through the amplification and coefficients of the t-statistics, the wage gap between education levels can be estimated.

Subsequently, to explore the potential trends in the impact of key variables on wages over time, a series of 35 regression models were estimated. Each regression model (Eq(1) and Eq(2)) focused on a specific year within the dataset. The key variables of interest included factors such as age, gender, education level, and other relevant demographic characteristics. Specifically, to identify the effect of the education premium, we visualize the beta values and confidence intervals of the effect of the education graduation variable on wages. Overall, by running regressions for each year, the aim was to investigate whether there were discernible patterns or changes in the influence of these variables on wages across the analyzed period.

$$log(weekly\ earns) = \beta_0 + \beta_1 college\ grad + \beta_2 female + \beta_3 marital\ status + \beta_4 full\ time + \beta_5 veteran + \beta_6(female \cdot college\ grad) + \beta_7(veteran \cdot college\ grad) + \mu \quad \text{Eq(1)}$$

$$log(hourly\ wages) = \beta_0 + \beta_1 college\ grad + \beta_2 female + \beta_3 marital\ status + \beta_4 full\ time + \beta_5 veteran + \beta_6(female \cdot college\ grad) + \beta_7(veteran \cdot college\ grad) + \mu \quad \text{Eq(2)}$$

This two-step approach involving t-test analysis and regression modeling allowed for a comprehensive examination of wage differentials based on college graduation status and provided insights into potential trends and dynamics in the relationship between key variables and wages over the 35-year period.

4. *Results*

4.1 College premium trend over time

Figure 1 shows the percentage of university graduates each year. The percentage of college graduates in the corresponding year increases as the years go by. And from 2002, college graduates accounted for about 50.462% of the total, and began to exceed the majority.

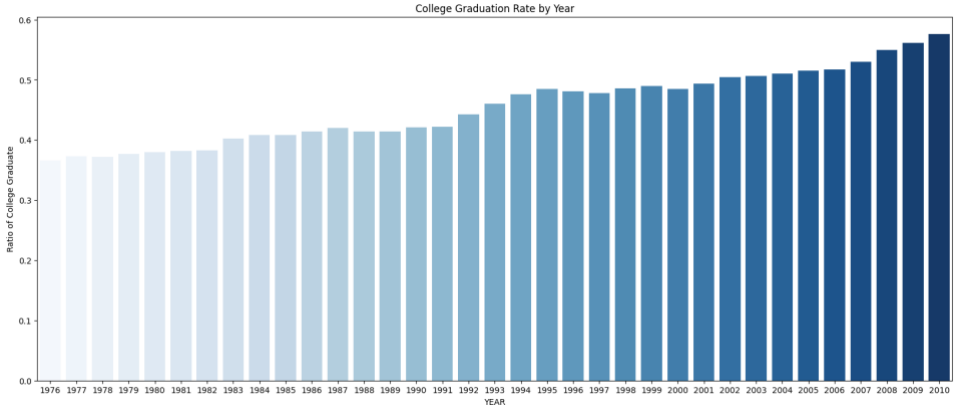

Figure 1. T-statistics of the difference in log(weekly wages) between college graduates and non-graduates

An independent samples t-test was conducted to examine the wage disparity between college graduates and non-graduates from 1976 to 2010. Wages were categorized into weekly and hourly wages. To improve normality, log transformations were applied to both the weekly and hourly wage data. The findings revealed an increasing wage gap between college graduates and non-graduates over the study period (Figure 2 and 3). Although a temporary narrowing of the gap was observed in the late 1990s, a substantial and widening gap emerged in the 2000s and continued thereafter. Notably, the t-statistic reached a significant value of 90 in the late 2000s.

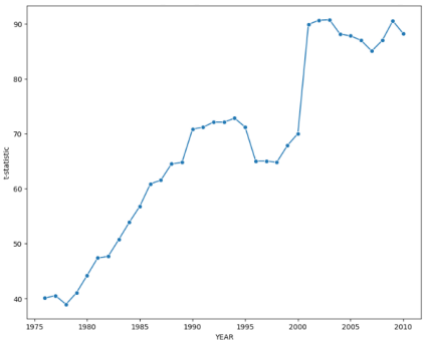

Figure 2. T-statistics of the difference in log(weekly wages) between college graduates and non-graduates

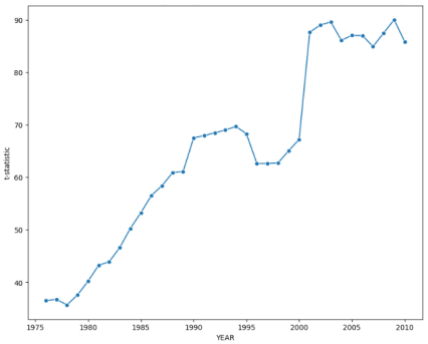

Figure 3. T-statistics of the difference in log(hourly wages) between college graduates and non-graduates

A regression analysis was conducted to examine the effect of college graduation on wages from 1976 to 2010. Figures 4 and 5 depict the trend of the beta coefficient for college graduation in the linear regression model over this period. Notably, the beta coefficient for college graduates exhibited a consistent and upward trajectory from 1976 to 2010. Specifically, between 1979 and 1986, the beta coefficient for college graduates experienced substantial and consecutive increases. Within this timeframe, the beta coefficient for college graduation in the two linear regression models rose by approximately 79.461% and 84.958%, respectively.

In the linear regression model inferring log (weekly earnings), the beta coefficient for college graduation started at 0.1009 and reached 0.2527, representing an increase of approximately 150.446%. The lowest value of the college graduation beta coefficient was observed in 1979 (0.0964), while the highest value was observed in 2009 (0.2527). In the linear regression model inferring log (hourly wages), the beta coefficient for college graduation started at 0.0829 and reached 0.2297, showing an increase of about 177.081%. The lowest value of the college graduation beta coefficient was observed in 1977 (0.0823), whereas the highest value was observed in 2009 (0.2338).

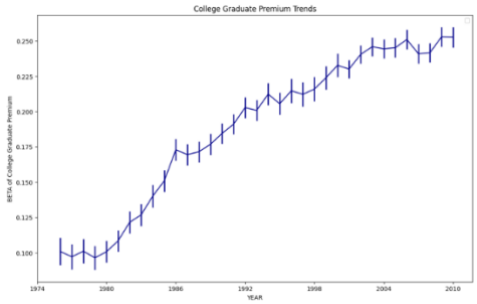

Figure 4. Beta of the college graduates in a linear regression model inferring yearly log(weekly earns)

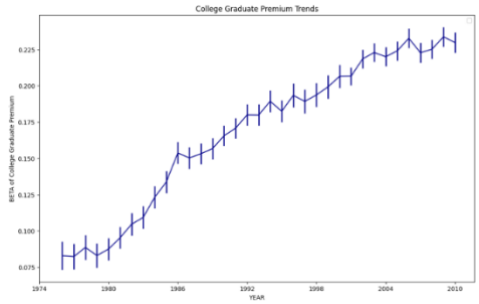

Figure 5. Beta of the college graduates in a linear regression model inferring yearly log(weekly earns)

4.2 Wage disparity and college premium

Figures 6 and 7 show the wage disparity between college graduates and non-graduates within the high-income group. Initially, during the mid-1980s, no significant wage differences were observed within high-income group. However, starting from the 2000s, a significance wage gap emerged, with college graduates earning significantly higher wages compared to non-graduates. This trend holds true for both weekly and hourly wages.

Moving on to Figures 8 and 9, we examine the wage gap between college graduates and non-graduates within the low-income group. In contrast to the high-income group, a

different pattern emerges within the low-income group. Until 1990, college graduates in the low-income group earned higher wages than their non-graduate counterparts. However, over time, the wage gap between the two groups became statistically insignificant. Furthermore, in the 2000s, college graduates in the low-income group experienced lower weekly and hourly wages compared to non-graduates.

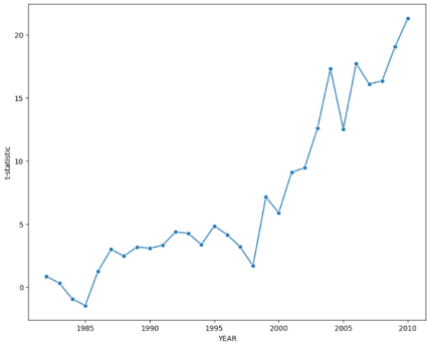

Figure 6. T-statistics of the difference in log(weekly wages) between college graduates and non-graduates among high-income group (90 percentile)

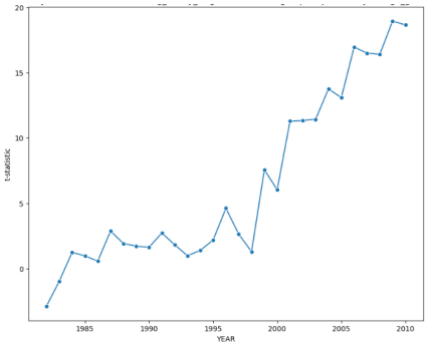

Figure 7. T-statistics of the difference in log(hourly wages) between college graduates and non-graduates among high-income group (90 percentile)

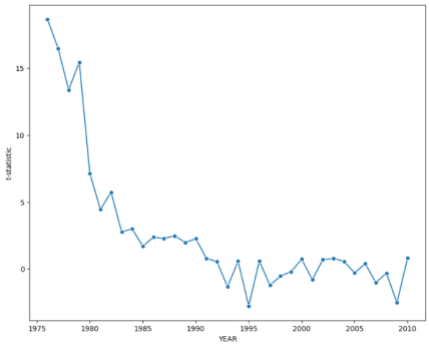

Figure 8. T-statistics of the difference in log(weekly wages) between college graduates and non-graduates among low-income group (90 percentile)

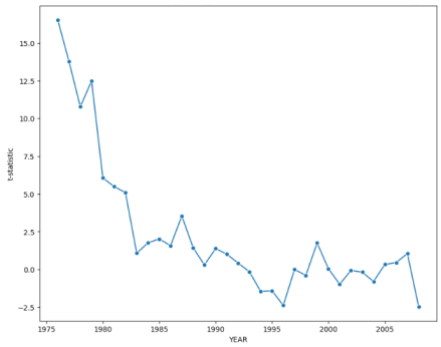

Figure 9. T-statistics of the difference in log(hourly wages) between college graduates and non-graduates among high-income group (90 percentile)

Figures 10 and 11 present the beta values of college graduation within the high-income group obtained from the linear regression model. It is evident that the beta values remain relatively stable within a certain range. Across the entire study period, the average, standard deviation, maximum, and minimum values of the college graduation beta in the linear regression model predicting log (weekly earnings) are approximately 0.0454, 0.00976, 0.0658, and 0.0279, respectively. The highest beta value is observed in 1996, while the lowest beta value is observed in 1978. Notably, the period between 1995 and 1999 exhibits relatively large variability in college graduation beta, with a standard deviation of 0.0158.

For the linear regression model predicting log (hourly wage), the average, standard

deviation, maximum, and minimum values of the college graduation beta within the high-income group are approximately 0.039, 0.0086, 0.0607, and 0.0217, respectively. The highest beta value is observed in 1999, while the lowest beta value is observed in 1995. Similar to the log (weekly earnings) model, the period between 1995 and 1999 demonstrates higher variability in college graduation beta, with a standard deviation of 0.0147.

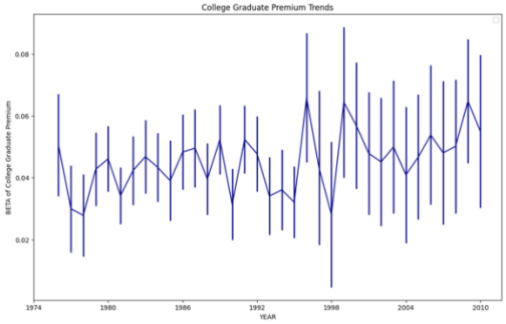

Figure 10. Beta of the college graduates in a linear regression model inferring yearly log(weekly earns) in the high-income group (90 percentile)

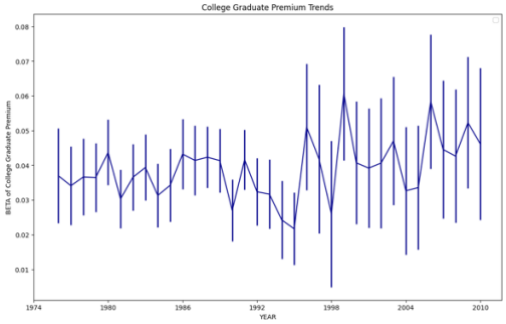

Figure 11. Beta of the college graduates in a linear regression model inferring yearly log(hourly wages) in the high-income group (90 percentile)

Figures 12 and 13 depict the beta values of college graduation within the low-income group derived from the linear regression model. Notably, unlike the high-income group, some points within the low-income group exhibit negative beta values. In the high-income group, the confidence interval of the beta estimate for college graduation in 1998 does not encompass negative values.

Within the low-income group, the mean, standard deviation, maximum, and minimum values of the college graduation beta in the linear regression model predicting log (weekly earnings) are approximately 0.0023, 0.0076, 0.0149, and -0.016, respectively. The highest beta value is observed in 2000, while the lowest beta value is observed in 1985. Years with negative college graduation beta values include 1977, 1978, 1980, 1981, 1983, 1985, 1991, 1992, 1994, 1996, 1998, 1999, 2002, 2006, and 2007.

Regarding the linear regression model predicting log (hourly wages) within the low-income group, the mean, standard deviation, maximum, and minimum values of the college graduation beta are approximately 0.0007, 0.0059, 0.00985, and -0.014, respectively. The highest beta value is observed in 1993, while the lowest beta value is observed in 1983. Years with negative college graduation beta values include 1976, 1980, 1981, 1983, 1985, 1989, 1990, 1991, 1992, 1999, 2002, and 2007.

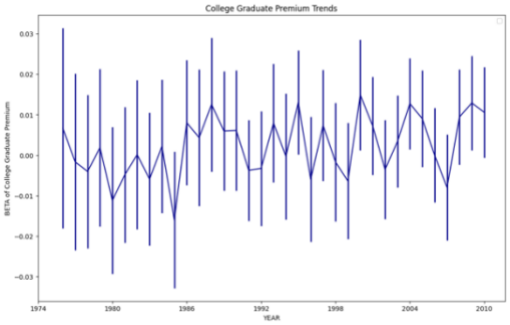

Figure 12. Beta of the college graduates in a linear regression model inferring yearly log(weekly earns) in the low-income group (90 percentile)

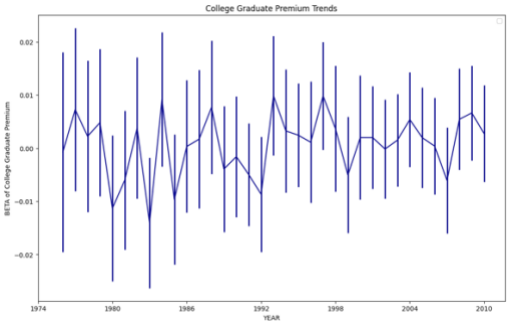

Figure 13. Beta of the college graduates in a linear regression model inferring yearly log(hourly wages) in the low-income group (90 percentile)

4.3 Political regime and college premium

Figures 14 and 15 present additional information on the ruling parties in the United States, complementing Figures 4 and 5. Figures 16 and 17 display the college graduation beta values obtained from the linear regression model, organized by the ruling party. It is evident from Figures 14 and 15 that the college graduation beta increases over time, indicating that the party in power during recent years tends to exhibit higher college graduation beta values.

In the linear regression model predicting log (weekly earnings), the college graduation beta exhibits a skewness of approximately -0.257 and a kurtosis of -1.276 for the Republican party. For the Democratic party, the skewness and kurtosis are approximately -0.816 and -1.092, respectively. For the linear regression model predicting log (hourly wages), the college graduation beta exhibits a skewness of approximately -0.224 and a kurtosis of -1.260 for the Republican party. For the Democratic party, the skewness and kurtosis are approximately -0.766 and -1.071, respectively.

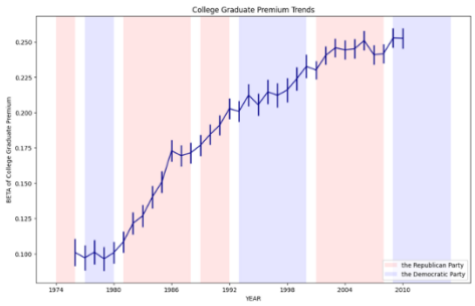

Figure 14. the US ruling party and Beta of the college graduates in a linear regression model inferring yearly log(weekly earns)

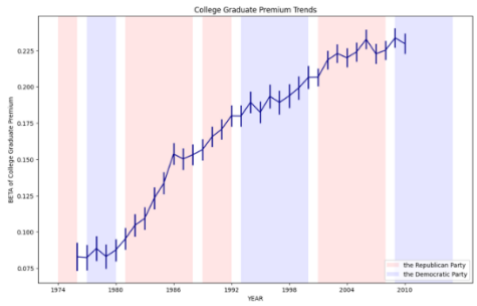

Figure 15. the US ruling party and Beta of the college graduates in a linear regression model inferring yearly log(weekly earns)

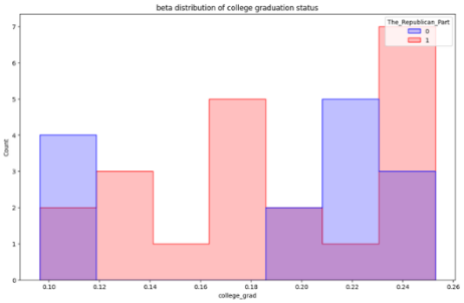

Figure 16. College graduation beta distribution of a linear regression model that infers log (weekly earns) according to the US ruling party

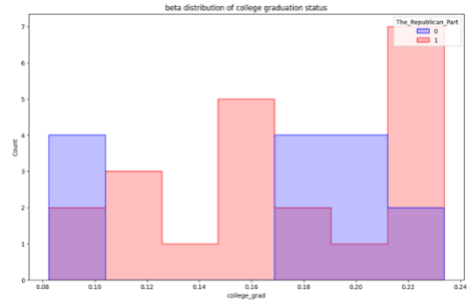

Figure 17. College graduation beta distribution of a linear regression model that infers log (hourly wages) according to the US ruling party

The distribution of college graduation beta in the linear regression model, predicting log (weekly earnings) within the high-income group, reveals noticeable differences based on the ruling party. Specifically, the Democratic Party exhibits a distribution of college graduation beta that spans both extremes. Conversely, for Republicans, the distribution of college graduation beta is relatively centered. In the linear regression model predicting log (hourly wages), the distribution of college graduation beta does not show significant differences between Republicans and Democrats.

Regarding the linear regression model predicting log (weekly earnings) within the high-income group, the college graduation beta demonstrates a skewness of approximately -0.946 and a kurtosis of 0.392 for Republicans. For Democrats, the skewness and kurtosis are approximately 0.342 and -1.471, respectively.

In the linear regression model predicting log (hourly wages) within the high-income group, the college graduation beta exhibits a skewness of approximately 0.805 and a kurtosis of 1.899 for Republicans. For Democrats, the skewness and kurtosis are approximately 0.199 and -0.474, respectively.

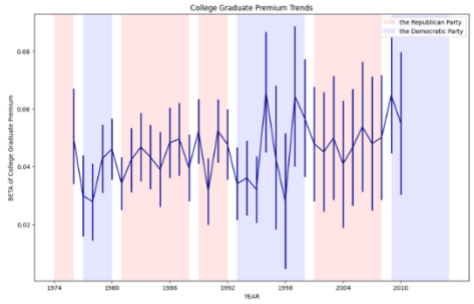

Figure 18. the US ruling party and Beta of the college graduates in a linear regression model inferring yearly log(weekly earns) in the high-income group (90 percentile)

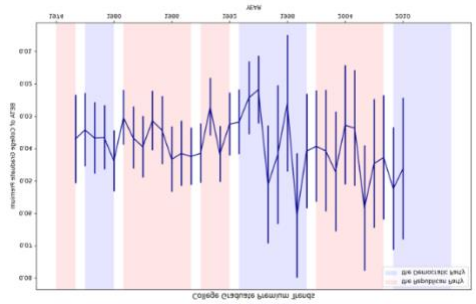

Figure 19. the US ruling party and Beta of the college graduates in a linear regression model inferring yearly log(hourly wages) in the high-income group (90 percentile)

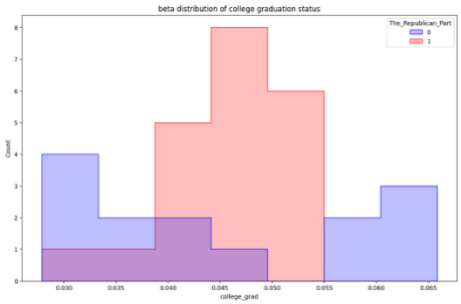

Figure 20. College graduation beta distribution of a linear regression model that infers log (weekly earns) in the high-income group (90 percentile) according to the US ruling party

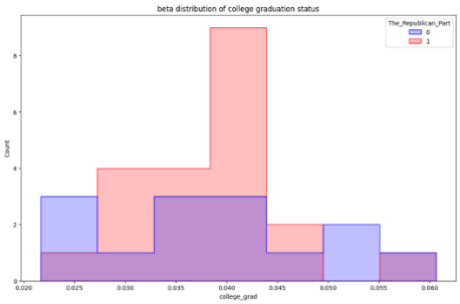

Figure 21. College graduation beta distribution of a linear regression model that infers log (hourly wages) in the high-income group (90 percentile) according to the US ruling party

The difference between the two models, with log (weekly earnings) and log (hourly wages) as dependent variables, lies in the distribution of college graduation beta. In the model with log (weekly earnings) as the dependent variable, the college graduation beta is primarily distributed between 0.005 and 0.10. On the other hand, in the model with log (hourly wages) as the dependent variable, the college graduation beta is mainly concentrated between 0 and 0.005.

Within the low-income group, the linear regression model predicting log (weekly earnings) yields a skewness of approximately -0.612 and a kurtosis of 0.097 for Republicans. For Democrats, the skewness and kurtosis are approximately 0.032 and -1.321, respectively.

In the linear regression model predicting log (hourly wages) within the low-income group, the college graduation beta exhibits a skewness of approximately -0.450 and a kurtosis of -0.108 for Republicans. For Democrats, the skewness and kurtosis are approximately -1.288 and 2.418, respectively.

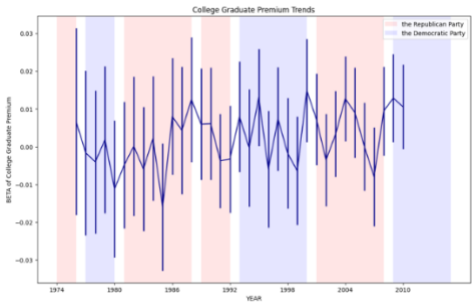

Figure 22. the US ruling party and Beta of the college graduates in a linear regression model inferring yearly log(weekly earns) in the low-income group (90 percentile)

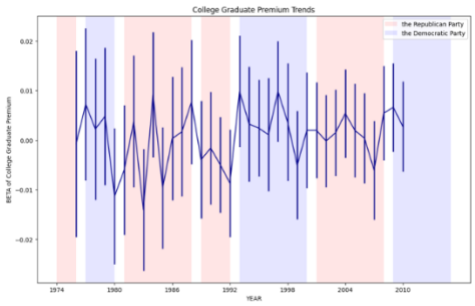

Figure 23. the US ruling party and Beta of the college graduates in a linear regression model inferring yearly log(hourly wages) in the low-income group (90 percentile)

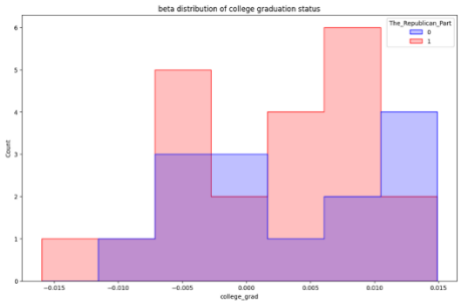

Figure 24. College graduation beta distribution of a linear regression model that infers log (weekly earns) in the low-income group (90 percentile) according to the US ruling party

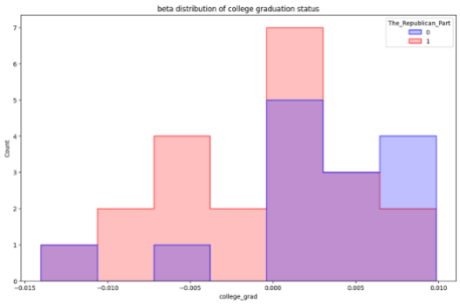

Figure 25. College graduation beta distribution of a linear regression model that infers log (hourly wages) in the low-income group (90 percentile) according to the US ruling party

4.4 Beta trend of other variables

Figures 26 to 31 depict the trend of the independent variable beta in the linear regression model based on the dependent variable and income level. Figures 26 and 27 reveal that the 'female * grad' interaction term consistently exhibits a higher beta throughout the entire period compared to the 'female' variable alone. Figures 28 and 29 illustrate that the beta of the 'female' variable and the 'female * grad' interaction term often intersect with each other in the high-income group. Specifically, in the model with log (weekly earnings) as the dependent variable, the 'female' and 'female * grad' variables cross each other 17 times, as seen in the plot. Similarly, in the model with log (hourly wages) as the dependent variable, the 'female' and 'female * grad' variables intersect 17 times. Moving on to Figures 30 and 31, in the low-income group, the beta of 'female' and 'female * grad' is generally larger than that of 'female', although there are instances of intersections. Shifting focus to Figures 28 and 29 again, within the high-income group, from 1980 to 1990, the 'veteran * grad' beta surpasses the 'veteran' beta, but from 1998 onward, they frequently intersect each other. Similarly, in Figures 30 and 31, the

'veteran * grad' beta is higher than the 'veteran' beta between 1980 and 1990, but they intersect frequently thereafter. Lastly, in Figures 21 and 22, contrary to the aforementioned figures, the 'veteran' beta and 'veteran * grad' beta consistently intersect within the low-income group.

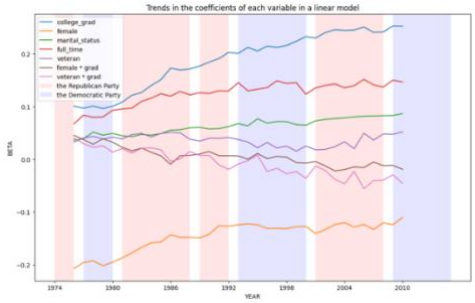

Figure 26. Trend of beta of the independent variables in a linear regression model with log(weekly earns) as the dependent variable

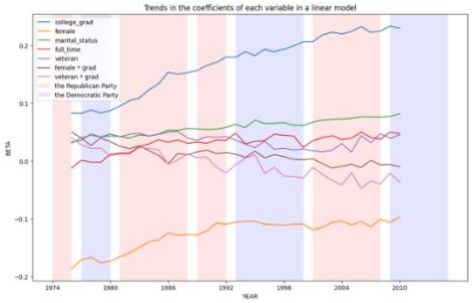

Figure 27. Trend of beta of the independent variables in a linear regression model with log(hourly wages) as the dependent variable

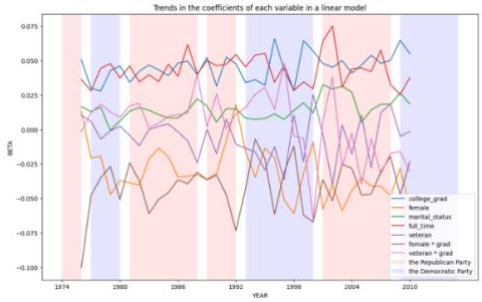

Figure 28. In the high-income group (90 percentile), Trend of beta of the independent variables in a linear regression model with log(weekly earns) as the dependent variable

Figure 29. In the high-income group (90 percentile), Trend of beta of the independent variables in a linear regression model with log(hourly wages) as the dependent variable

Figure 30. In the low-income group (90 percentile), Trend of beta of the independent variables in a linear regression model with log(weekly earns) as the dependent variable

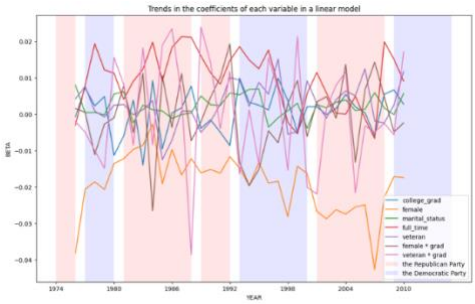

Figure 31. In the low-income group (90 percentile), Trend of beta of the independent variables in a linear regression model with log(hourly wages) as the dependent variable

5. Discussion and conclusions

The college premium is the term used to describe the difference in wages between individuals with a college degree and those without. This study focuses on examining the

changes in the college premium over a specific time period. Our analysis spans from 1976 to 2010, during which the proportion of college graduates in the U.S. labor market consistently increased, reaching approximately 58% by 2010. Additionally, we observed a widening wage gap between individuals with a college degree and those without as the years progressed.

We also aim to examine the college premium across various subgroups. Specifically, our analysis will focus on income groups (high income, low income) and political periods to determine if the college premium exhibits equal growth across these different groups and time periods. A time series t-test comparing wages between college graduates and non-graduates within the high-income group reveals a widening wage gap over time. These findings align with previous research indicating that the college wage premium is notably higher for individuals in the top quartile (high-income group), particularly as the level of educational attainment advances (Martins & Pereira, 2004). In occupations demanding advanced degrees and specialized skills, the college premium assumes greater significance, reflecting its strong correlation with job expertise (James, 2012).

On the contrary, the time series t-test conducted on wages between college graduates and non-graduates within the low-income group reveals a decreasing wage gap over time, with non-graduates earning higher wages in certain years. This finding can be understood in light of the earlier observation that the proportion of college graduates in the U.S. labor market has been steadily increasing. As the share of college graduates grows, the merit of the college wage premium may diminish as it becomes subject to the economic principles of supply and demand. This study found that this over-supply phenomenon was concentrated among low-income households.

When examining the time series regression analysis for the entire population, we observe a consistent association between being female and lower wages over the span of 35 years. However, the coefficient of the interaction term 'female * college graduation' tends to converge towards zero. This indicates that while women generally experience lower wages compared to other groups, the wage difference becomes statistically insignificant if they hold a college degree. In other words, being a college graduate mitigates the gender wage gap to a significant extent. On the contrary, this trend differs in the high-income and low-income groups. In the high-income group, there is no observable wage gap between men and women. However, in the low-income group, women tend to earn lower wages compared to men, although this gap is mitigated by the presence of a college degree. In other words, for women in the low-income

group, obtaining a college degree helps to offset the wage disparity they experience.

This study is meaningful in examining changes in college premium over time and demonstrating the factors affecting high and low income groups. However, there are also studies (Federal Researve Bank of Cleveland, 2012; Martins and Pereira, 2004; James, 2012) that show that the advanced degree premium occurs in jobs that require specialized skills in a rapidly changing society. Therefore, it is necessary to go beyond the possession of a college degree and further distinguish between advanced degrees. Furthermore, given the temporal scope of this study, from 1976 to 2010, there are limitations in terms of policy implications. The results of this study can be used as a reference for policy discovery, and it is necessary to continue research by updating the latest data and adding detailed variables on degrees.

References

Borchardt, K. (1991). *Perspectives on modern German economic history and policy*: Cambridge University Press.

Charles, M., & Grusky, D. B. (1995). Models for describing the underlying structure of sex segregation. *American Journal of Sociology, 100*(4), 931-971.

Crivellaro, E. (2016). The College Wage Premium over Time: Trends in Europe in the Last 15 Years ☆. In *Inequality: Causes and consequences*: Emerald Group Publishing Limited.

Frey, B. S., & Weck, H. (1983). A statistical study of the effect of the Great Depression on elections: The Weimar Republic, 1930–1933. *Political Behavior, 5*, 403-420.

Givens, T. E. (2005). *Voting radical right in Western Europe*: Cambridge University Press.

Golder, M. (2003). Explaining variation in the success of extreme right parties in Western Europe. *Comparative political studies, 36*(4), 432-466.

Gurr, T. R. (1970). Why men rebel, princeton (nj) princeton univ. In: Press.

Humensky, J. L., Jordan, N., Stroupe, K. T., & Hynes, D. M. (2013). How are Iraq/Afghanistan-era veterans faring in the labor market? *Armed Forces & Society, 39*(1), 158-183.

James, J. (2012). The College Wage Premium. *Economic Commentary (Federal Reserve Bank of Cleveland)*, 1-4. doi:10.26509/frbc-ec-201210

Kleykamp, M. (2013). Unemployment, earnings and enrollment among post 9/11 veterans. *Social science research, 42*(3), 836-851.

Leighley, J. E., & Nagler, J. (1992). Socioeconomic class bias in turnout, 1964–1988: The voters remain the same. *American Political Science Review, 86*(3), 725-736.

Lijphart, A. (1997). Unequal participation: Democracy's unresolved dilemma presidential address, American Political Science Association, 1996. *American Political Science Review, 91*(1), 1-14.

London, A. S., Heflin, C. M., & Wilmoth, J. M. (2011). Work-related disability, veteran status, and poverty: Implications for family well-being. *Journal of Poverty, 15*(3), 330-349.

Mani, B. G. (2013). The human capital model and federal employees' pay: Gender, veteran status, and occupation. *Gender Issues, 30*, 15-38.

Martins, P. S., & Pereira, P. T. (2004). Does education reduce wage inequality? Quantile regression evidence from 16 countries. *Labour Economics, 11*(3), 355-371. doi:10.1016/j.labeco.2003.05.003

Mechaber, E. (2011). Staying competitive through education: The president and American business leaders announce new commitments. *The White House Blog*.

Midi, H., Sarkar, S. K., & Rana, S. (2010). Collinearity diagnostics of binary logistic regression model. *Journal of Interdisciplinary Mathematics, 13*(3), 253-267. doi:10.1080/09720502.2010.10700699

Mitra, A. (2003). Breaking the glass ceiling: African-American women in management positions. *Equal Opportunities International, 22*(2), 67-79.

Norris, P. (2005). *Radical right: Voters and parties in the electoral market*: Cambridge University

Press.

Payne, S. G. (1996). *A history of fascism, 1914–1945*: University of Wisconsin Pres.

Pelta, R. (2023, May 11). Education vs experience: What do employers want more? Retrieved from https://www.flexjobs.com/blog/post/education-vs-experience/

Polachek, S. W., Tatsiramos, K., & Cappellari, L. (2016). *Inequality: Causes and Consequences*: Emerald Group Publishing.

Slemrod, J. (1996). High-income families and the tax changes of the 1980s: the anatomy of behavioral response. In *Empirical foundations of household taxation* (pp. 169-192): University of Chicago Press.

Tennant, J. (2012). Disability, employment, and income: Are Iraq/Afghanistan-era US veterans unique. *Monthly Lab. Rev., 135*, 3.

Van Der Velden, R., & Bijlsma, I. (2016). College wage premiums and skills: a cross-country analysis. *Oxford Review of Economic Policy, 32*(4), 497-513.

Vedder, R., Denhart, C., & Robe, J. (2013). Why Are Recent College Graduates Underemployed? University Enrollments and Labor-Market Realities. *Center for College Affordability and Productivity (NJ1)*.

Verba, S., Schlozman, K. L., Brady, H., & Nie, N. H. (1993). Race, ethnicity and political resources: Participation in the United States. *British Journal of Political Science, 23*(4), 453-497.

Walker, J. A. (2010). Employment and earnings of recent veterans: Data from the CPS. *Monthly Lab. Rev., 133*, 3.

Weinberger, C. J. (2011). In search of the glass ceiling: Gender and earnings growth among US college graduates in the 1990s. *ILR Review, 64*(5), 949-980.

Wolfinger, R., & Steven, J. (1980). Rosenstone.(1980). Who Votes. In: New Haven: Yale University Press.

Appendix

R-square of the linear regression model

	log(weekly earns)	log(hourly wages)	high log(weekly earns)	high log(hourly wages)	low log(weekly earns)	low log(hourly wages)
1976	0.397	0.320	0.063	0.076	0.108	0.065
1977	0.365	0.282	0.046	0.075	0.113	0.034
1978	0.360	0.281	0.052	0.065	0.143	0.041
1979	0.359	0.281	0.081	0.093	0.095	0.032
1980	0.349	0.275	0.087	0.083	0.092	0.020
1981	0.347	0.271	0.089	0.081	0.072	0.009
1982	0.340	0.270	0.083	0.089	0.098	0.012
1983	0.336	0.264	0.075	0.091	0.094	0.013

1984	0.322	0.251	0.073	0.089	0.102	0.024
1985	0.329	0.258	0.054	0.086	0.105	0.017
1986	0.322	0.252	0.072	0.087	0.072	0.017
1987	0.323	0.254	0.086	0.088	0.116	0.033
1988	0.320	0.252	0.088	0.112	0.127	0.029
1989	0.322	0.251	0.095	0.101	0.128	0.028
1990	0.315	0.251	0.067	0.076	0.102	0.018
1991	0.306	0.242	0.082	0.097	0.130	0.020
1992	0.319	0.253	0.088	0.077	0.130	0.023
1993	0.330	0.261	0.073	0.072	0.112	0.038
1994	0.323	0.256	0.068	0.067	0.119	0.048
1995	0.312	0.249	0.056	0.050	0.113	0.033
1996	0.307	0.245	0.062	0.072	0.101	0.043
1997	0.306	0.243	0.047	0.055	0.108	0.043
1998	0.302	0.245	0.034	0.046	0.093	0.040
1999	0.309	0.249	0.065	0.074	0.088	0.011
2000	0.306	0.252	0.058	0.066	0.115	0.023
2001	0.324	0.268	0.055	0.056	0.116	0.044
2002	0.325	0.273	0.051	0.057	0.116	0.044
2003	0.330	0.278	0.048	0.057	0.119	0.044
2004	0.317	0.266	0.043	0.049	0.108	0.046
2005	0.327	0.277	0.043	0.046	0.109	0.048
2006	0.322	0.276	0.052	0.071	0.094	0.035
2007	0.312	0.266	0.038	0.045	0.086	0.071
2008	0.318	0.274	0.042	0.045	0.109	0.042
2009	0.336	0.287	0.056	0.054	0.127	0.031
2010	0.329	0.275	0.057	0.054	0.115	0.031

VIF of linear regression model independent variables

	Intercept	**college_grad**	**female**	**marital_status**	**full_time**	**veteran**	**female * grad**	**veteran * grad**
1976	19.743	2.931	2.395	1.066	1.074	2.287	2.560	2.535
1977	20.196	2.809	2.339	1.052	1.068	2.236	2.523	2.438
1978	19.442	2.683	2.274	1.055	1.079	2.134	2.519	2.302

1979	18.645	2.605	2.201	1.039	1.070	2.101	2.496	2.287
1980	18.895	2.564	2.181	1.039	1.067	2.061	2.541	2.226
1981	18.107	2.500	2.154	1.037	1.069	2.021	2.524	2.149
1982	17.306	2.419	2.097	1.035	1.059	1.971	2.492	2.086
1983	16.675	2.404	2.148	1.033	1.058	1.978	2.580	2.050
1984	16.709	2.402	2.143	1.027	1.057	1.972	2.647	2.055
1985	17.148	2.355	2.104	1.028	1.056	1.941	2.638	2.034
1986	16.639	2.295	2.094	1.027	1.052	1.873	2.654	1.920
1987	16.557	2.286	2.096	1.023	1.057	1.870	2.693	1.922
1988	16.855	2.223	2.029	1.019	1.056	1.781	2.628	1.818
1989	17.035	2.203	2.022	1.015	1.057	1.749	2.627	1.776
1990	16.924	2.143	1.995	1.016	1.054	1.747	2.627	1.803
1991	16.063	2.144	1.992	1.014	1.048	1.714	2.677	1.755
1992	16.409	2.156	2.054	1.012	1.051	1.751	2.782	1.795
1993	16.085	2.143	2.105	1.011	1.052	1.814	2.812	1.851
1994	15.560	2.105	2.141	1.012	1.054	1.842	2.855	1.890
1995	16.178	2.067	2.190	1.010	1.053	1.791	2.874	1.806
1996	15.891	2.081	2.172	1.010	1.054	1.755	2.910	1.769
1997	16.543	2.051	2.127	1.009	1.048	1.682	2.883	1.686
1998	16.881	2.033	2.153	1.008	1.043	1.633	2.924	1.621
1999	17.831	1.997	2.153	1.009	1.041	1.661	2.917	1.659
2000	17.186	1.979	2.122	1.008	1.040	1.663	2.917	1.671
2001	17.282	1.965	2.149	1.017	1.048	1.704	2.891	1.713
2002	17.217	1.970	2.183	1.016	1.047	1.756	2.954	1.774
2003	16.669	1.978	2.192	1.019	1.049	1.736	2.960	1.746
2004	16.453	1.967	2.204	1.022	1.042	1.710	2.980	1.711
2005	16.721	1.951	2.237	1.019	1.043	1.746	3.046	1.756
2006	16.805	1.937	2.250	1.019	1.042	1.741	3.074	1.754
2007	17.254	1.947	2.309	1.018	1.043	1.803	3.150	1.816
2008	17.246	1.937	2.404	1.018	1.043	1.834	3.262	1.846
2009	16.197	1.941	2.466	1.017	1.041	1.894	3.336	1.906
2010	14.752	1.959	2.547	1.018	1.040	1.925	3.459	1.934

Independent variable beta of linear regression model with log(weekly earns) set as dependent variable

year	Intercept	college_grad	female	marital_status	full_time	veteran	female * grad	veteran * grad
1976	2.260	0.101	-0.207	0.037	0.067	0.033	0.046	0.041
1977	2.264	0.097	-0.196	0.039	0.084	0.040	0.037	0.030
1978	2.288	0.101	-0.192	0.052	0.080	0.044	0.029	0.023
1979	2.325	0.096	-0.202	0.046	0.080	0.039	0.039	0.026
1980	2.344	0.101	-0.195	0.049	0.093	0.042	0.032	0.014
1981	2.378	0.108	-0.187	0.045	0.096	0.039	0.023	0.020
1982	2.405	0.122	-0.177	0.043	0.097	0.047	0.016	0.012
1983	2.410	0.127	-0.167	0.047	0.110	0.049	0.021	0.021
1984	2.413	0.140	-0.158	0.046	0.116	0.042	0.013	0.022
1985	2.425	0.151	-0.157	0.049	0.125	0.049	0.007	0.018
1986	2.433	0.173	-0.143	0.055	0.120	0.051	-0.009	-0.004
1987	2.441	0.169	-0.148	0.056	0.129	0.050	0.007	0.001
1988	2.460	0.172	-0.148	0.060	0.122	0.038	0.008	0.015
1989	2.468	0.177	-0.149	0.061	0.126	0.035	0.010	0.007
1990	2.486	0.184	-0.142	0.058	0.125	0.040	0.015	0.008
1991	2.487	0.191	-0.126	0.058	0.130	0.040	0.007	-0.011
1992	2.492	0.203	-0.127	0.062	0.130	0.041	0.007	-0.019
1993	2.487	0.201	-0.124	0.068	0.146	0.038	0.006	-0.009
1994	2.513	0.212	-0.123	0.063	0.130	0.033	0.000	-0.002
1995	2.517	0.206	-0.124	0.077	0.133	0.022	0.011	0.008
1996	2.530	0.215	-0.131	0.069	0.136	0.032	0.001	-0.023
1997	2.531	0.212	-0.131	0.072	0.149	0.021	0.006	-0.017
1998	2.554	0.216	-0.132	0.071	0.144	0.025	0.004	-0.027
1999	2.568	0.224	-0.128	0.066	0.146	0.016	-0.006	-0.023
2000	2.597	0.233	-0.127	0.065	0.123	0.025	-0.007	-0.036
2001	2.616	0.230	-0.141	0.073	0.136	0.018	-0.004	-0.013
2002	2.616	0.240	-0.133	0.076	0.140	0.019	-0.012	-0.021
2003	2.619	0.246	-0.124	0.077	0.143	0.024	-0.022	-0.038
2004	2.633	0.244	-0.120	0.079	0.136	0.033	-0.019	-0.047
2005	2.635	0.245	-0.128	0.081	0.140	0.020	-0.014	-0.023
2006	2.630	0.251	-0.124	0.082	0.152	0.050	-0.016	-0.056
2007	2.658	0.241	-0.133	0.082	0.141	0.036	-0.005	-0.040

2008	2.670	0.242	-0.120	0.083	0.137	0.048	-0.012	-0.040
2009	2.667	0.253	-0.124	0.083	0.150	0.048	-0.011	-0.029
2010	2.666	0.253	-0.110	0.087	0.147	0.052	-0.019	-0.045

Independent variable beta of linear regression model with log(hourly wages) set as dependent variable

year	Intercept	college_grad	female	marital_status	full_time	veteran	female * grad	veteran * grad
1976	0.708	0.083	-0.186	0.033	-0.012	0.031	0.050	0.041
1977	0.710	0.082	-0.171	0.036	0.002	0.040	0.040	0.028
1978	0.732	0.089	-0.166	0.047	-0.002	0.045	0.027	0.022
1979	0.769	0.083	-0.176	0.042	-0.002	0.042	0.040	0.022
1980	0.790	0.087	-0.173	0.047	0.012	0.044	0.034	0.009
1981	0.826	0.095	-0.165	0.043	0.014	0.042	0.025	0.013
1982	0.858	0.105	-0.159	0.040	0.014	0.046	0.022	0.012
1983	0.863	0.109	-0.149	0.045	0.026	0.048	0.027	0.024
1984	0.868	0.123	-0.139	0.044	0.030	0.043	0.018	0.022
1985	0.878	0.134	-0.137	0.047	0.037	0.046	0.010	0.020
1986	0.887	0.154	-0.124	0.053	0.033	0.050	-0.005	-0.005
1987	0.897	0.150	-0.128	0.053	0.037	0.051	0.013	0.002
1988	0.915	0.153	-0.127	0.056	0.031	0.040	0.011	0.013
1989	0.924	0.157	-0.128	0.056	0.033	0.036	0.016	0.006
1990	0.942	0.166	-0.121	0.054	0.031	0.042	0.019	0.007
1991	0.943	0.171	-0.107	0.055	0.037	0.041	0.013	-0.011
1992	0.951	0.180	-0.109	0.059	0.036	0.043	0.015	-0.020
1993	0.949	0.180	-0.106	0.063	0.048	0.036	0.012	-0.006
1994	0.975	0.189	-0.104	0.058	0.030	0.029	0.006	0.005
1995	0.977	0.182	-0.104	0.071	0.034	0.023	0.017	0.011
1996	0.988	0.193	-0.109	0.065	0.036	0.035	0.006	-0.022
1997	0.994	0.189	-0.110	0.066	0.047	0.020	0.011	-0.011
1998	1.014	0.194	-0.111	0.067	0.045	0.022	0.008	-0.026
1999	1.032	0.199	-0.109	0.062	0.043	0.019	0.003	-0.027
2000	1.059	0.206	-0.109	0.061	0.024	0.021	0.002	-0.029
2001	1.078	0.207	-0.119	0.068	0.035	0.018	0.004	-0.011
2002	1.079	0.219	-0.115	0.071	0.040	0.016	-0.005	-0.023

2003	1.083	0.223	-0.106	0.072	0.044	0.019	-0.012	-0.034
2004	1.098	0.220	-0.104	0.073	0.037	0.030	-0.009	-0.041
2005	1.101	0.224	-0.110	0.074	0.040	0.016	-0.006	-0.020
2006	1.095	0.233	-0.105	0.076	0.050	0.044	-0.011	-0.047
2007	1.122	0.223	-0.114	0.076	0.041	0.032	0.001	-0.034
2008	1.134	0.225	-0.101	0.076	0.038	0.048	-0.007	-0.040
2009	1.133	0.234	-0.106	0.077	0.050	0.039	-0.006	-0.021
2010	1.136	0.230	-0.097	0.082	0.048	0.046	-0.009	-0.036

Independent variable p-value of linear regression model with log(weekly earns) set as dependent variable

	Intercept	**college_grad**	**female**	**marital_status**	**full_time**	**veteran**	**female * grad**	**veteran * grad**
1976	0.000	0.000	0.000	0.000	0.009	0.000	0.000	0.000
1977	0.000	0.000	0.000	0.000	0.711	0.000	0.000	0.000
1978	0.000	0.000	0.000	0.000	0.672	0.000	0.000	0.001
1979	0.000	0.000	0.000	0.000	0.656	0.000	0.000	0.001
1980	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.161
1981	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.049
1982	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.071
1983	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
1984	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.003
1985	0.000	0.000	0.000	0.000	0.000	0.000	0.066	0.008
1986	0.000	0.000	0.000	0.000	0.000	0.000	0.395	0.475
1987	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.797
1988	0.000	0.000	0.000	0.000	0.000	0.000	0.039	0.110
1989	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.449
1990	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.373
1991	0.000	0.000	0.000	0.000	0.000	0.000	0.012	0.191
1992	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.017
1993	0.000	0.000	0.000	0.000	0.000	0.000	0.025	0.469
1994	0.000	0.000	0.000	0.000	0.000	0.000	0.245	0.601
1995	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.258
1996	0.000	0.000	0.000	0.000	0.000	0.000	0.356	0.045
1997	0.000	0.000	0.000	0.000	0.000	0.002	0.065	0.343

1998	0.000	0.000	0.000	0.000	0.000	0.001	0.202	0.026
1999	0.000	0.000	0.000	0.000	0.000	0.008	0.620	0.023
2000	0.000	0.000	0.000	0.000	0.000	0.004	0.694	0.014
2001	0.000	0.000	0.000	0.000	0.000	0.003	0.398	0.259
2002	0.000	0.000	0.000	0.000	0.000	0.011	0.335	0.019
2003	0.000	0.000	0.000	0.000	0.000	0.003	0.011	0.001
2004	0.000	0.000	0.000	0.000	0.000	0.000	0.068	0.000
2005	0.000	0.000	0.000	0.000	0.000	0.021	0.263	0.058
2006	0.000	0.000	0.000	0.000	0.000	0.000	0.029	0.000
2007	0.000	0.000	0.000	0.000	0.000	0.000	0.814	0.002
2008	0.000	0.000	0.000	0.000	0.000	0.000	0.179	0.000
2009	0.000	0.000	0.000	0.000	0.000	0.000	0.242	0.066
2010	0.000	0.000	0.000	0.000	0.000	0.000	0.069	0.002

Independent variable p-value of linear regression model with log(hourly wages) set as dependent variable

	Intercept	**college_grad**	**female**	**marital_status**	**full_time**	**veteran**	**female * grad**	**veteran * grad**
1976	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1977	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1978	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
1979	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.032
1981	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
1982	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.092
1983	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004
1984	0.000	0.000	0.000	0.000	0.000	0.000	0.019	0.004
1985	0.000	0.000	0.000	0.000	0.000	0.000	0.234	0.015
1986	0.000	0.000	0.000	0.000	0.000	0.000	0.089	0.622
1987	0.000	0.000	0.000	0.000	0.000	0.000	0.218	0.911
1988	0.000	0.000	0.000	0.000	0.000	0.000	0.162	0.064
1989	0.000	0.000	0.000	0.000	0.000	0.000	0.070	0.372
1990	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.355
1991	0.000	0.000	0.000	0.000	0.000	0.000	0.193	0.207
1992	0.000	0.000	0.000	0.000	0.000	0.000	0.213	0.031

1993	0.000	0.000	0.000	0.000	0.000	0.000	0.241	0.309
1994	0.000	0.000	0.000	0.000	0.000	0.000	0.985	0.803
1995	0.000	0.000	0.000	0.000	0.000	0.000	0.051	0.406
1996	0.000	0.000	0.000	0.000	0.000	0.000	0.855	0.038
1997	0.000	0.000	0.000	0.000	0.000	0.002	0.373	0.141
1998	0.000	0.000	0.000	0.000	0.000	0.000	0.528	0.024
1999	0.000	0.000	0.000	0.000	0.000	0.035	0.310	0.056
2000	0.000	0.000	0.000	0.000	0.000	0.001	0.245	0.004
2001	0.000	0.000	0.000	0.000	0.000	0.004	0.388	0.205
2002	0.000	0.000	0.000	0.000	0.000	0.004	0.011	0.038
2003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2005	0.000	0.000	0.000	0.000	0.000	0.004	0.005	0.037
2006	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000
2007	0.000	0.000	0.000	0.000	0.000	0.000	0.344	0.001
2008	0.000	0.000	0.000	0.000	0.000	0.000	0.019	0.001
2009	0.000	0.000	0.000	0.000	0.000	0.000	0.029	0.013
2010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000