

# **The Effects of Wage Inequality on Unemployment Duration: A Cross-State Case Study**

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Abstract: This research and paper examined the relationship that exists between wage rate inequality and the length of time that the unemployed will search for jobs. I found that there is a very strong relationship between wage rate inequality and unemployment duration in the 50-90 wage spread, and a lesser, but still significant relationship, in the 10-90 wage spread. These results are robust when analyzing wage inequality across, states, occupations, and marital status, and also when limiting the occupations.

## 1. Introduction

This paper analyzes the connection between wage inequality and the length of unemployment. There are several reasons why we would believe that the above relationship does, in fact, exist. One common reason is the case where an increase in wage inequality is mean-preserving. By increasing wage distribution offers but maintaining the mean often results in a potential employee searching longer for employment.

The goal of this paper is to determine if a causal relationship exists between wage rate inequality and the length of time that the unemployed will search for jobs within state borders. The strategy employed is to use across-state and across-occupation variation to quantify the choices of accepting a job offer versus turning down existing offers in favor of a continued job search. CPS data from the March 2011 release from [cps.ipums.org](http://cps.ipums.org) was utilized for the purposes of this study. With this data set, individual level data is used to account for personal characteristics and state level variables; helping characterize the statewide labor market. Age, sex, educational attainment, and marital status act as the controls and wage rate variability across states and occupations is used to identify the effect it has on wage offer decisions. I found that there is a very strong relationship between wage rate inequality and unemployment duration in the 50-90 wage spread. A lesser but still significant relationship was found in the 10-90 wage spread. These results are robust when analyzing wage inequality across, states, occupations, and marital status, and also when limiting the occupations to those with a sufficient number of observations (less than 20).

The results offer support to the hypothesis that states and occupations with a high wage inequality will have longer job search duration.

## 2. Literature Review

The theory for this paper, rooted in search modeling, can be found in the seminal paper by Pissarides and Mortensen (1994), which provides a working model for search theory detailing the effect that wage rates have on job search times. Applicants have a reservation wage whereby, if a job offer has a greater wage than their reservation wage, will lead to the applicant accepting the offer of employment. If the offered wage lies below the reservation wage then the applicant will decline and continue to search for employment. My paper uses the theoretical framework outlined in Gould and Paserman (2002): "Waiting for Mr. Right: rising inequality and declining marriage rates." Gould and Paserman use city-wide wage rates to find out if a causal relationship exists between male wage inequality and female marriage rates within a city. They find that there is a strong relationship between

these two variables, and that increased wage rate inequality may account for up to 25% of the overall decline in female marriage rates in the past few decades. In cities with higher male wage inequality, a lower marriage rate of women for their first and second marriage can be seen. Furthermore, these results are not limited to age or educational groups. Lippman and McCall (1976) outline a one-sided search model which will be analogously used in this paper. Burdett and Ondrich (1985) state that in a mean-preserving spread, an increase in variability leads to increased selectivity of offers. This finding directly affects the hypothesis put forth in this paper: does an increase in the wage inequality increase job search times. Thus theoretically it could be predicted that there is a positive relationship between the two variables of interest: wage rate inequality and duration of unemployment.

A paper using a similar framework, Toshihiko and Sahin (2008) employs a calibrative approach to a standard job-search model in quantifying the effect that within-group wage inequality has on the average duration of unemployment. Their model fits within the overall trend of the U.S. unemployment duration in the last few decades, but it fails to fit within the “cyclical variations” of average wage inequality and unemployment duration.

### **3. Theoretical Framework and the Data**

For the purposes of this paper, I will be using a simple one-sided search model where unemployed workers will be receiving a set of wage offers each period that they can either accept or reject. Each worker has a reservation wage, and if the offered wage is greater than this reservation wage, the offer will be accepted; otherwise the wage offer will be rejected. In the case of multiple wage offers being greater than the reservation wage, only the greatest will be considered. Upon acceptance, the worker will receive the wage offered for future periods. Upon rejection the worker will receive unemployment and another set of wage offers in the following period. Gould and Paserman state that as the offer distribution spreads out, it is no longer optimal to accept just any wage offer. By declining low wage offers in this period, there is a possibility to receive a higher wage offer in the next period. Thus “waiting has an option value, which increases with the variance of the offer distribution.” (pg. 260) In effect a higher wage distribution will lead to a lengthening of the job search process.

A mean preserving spread in our distribution of wage offers, consequently, will have two effects on the reservation wage; these effects will be working in opposite directions. The first, positive effect is the value added for holding out for a better offer. By rejecting an inferior wage offer this period, there is a possibility that a better opportunity will arise in the next. The reason for this is an increased upper tail which raises the reservation wage value. Conversely there is a negative effect of the mean-preserving

spread due to an increase of actually accepting an inferior offer despite that offer being above the mean. Gould and Paserman expect the first effect to outweigh the second and the results of this paper corroborate this hypothesis.

To accomplish the goal of the paper, I create a wage variability term by state and occupation using the 10<sup>th</sup>, 25<sup>th</sup>, 50<sup>th</sup>, 75<sup>th</sup>, and 90<sup>th</sup> percentiles. These will, in turn, be used to create the 10-90, 10-50, 50-90, 10-25, 50-75, 50-75, and 75-90 wage spreads. These wage spreads will be the variable of interest and are regressed on the dependent variable: continuous length of unemployment (in weeks). I limit the sample to unemployed, working aged adults, i.e. those aged between the ages of 25 and 65. This creates a sample of 6512 unemployed, work-force individuals.

One of the variables that bears explanation is the occ1990 variable. This is a three-digit occupation variable which I use to create different two-digit occupation variables using two differing methods. The first method is taking the floor of the three-digit code divided by 10 (floorocc) while the second method uses the CPS occupation categories and aggregates similar occupations under a main industry (myocc). I will then compare the results of these three variables in order to ascertain if there is any deviation among them.

## **4. The Results**

### **4.1 Basic Model and its improvements**

In order to begin understanding the connection between wage distribution and duration of unemployment, I run a “naïve” regression which is simply the various wage distributions on the ‘durunemp’ variable. The results are shown in Table 1.A. A clear connection at least with the upper end of the wage distribution becomes readily visible. The 10-90 distribution is significant at the 91<sup>st</sup> level, but when analyzed at the 10-50 and 50-90 wage distributions the lower wage distribution is not statistically significant while the upper wage distribution is significant with near certainty. Further splitting the wage distributions into the 10-25, 25-50, 50-75, 75-90 will help elucidate the underlying problems with significance. It can be shown from the table that the insignificance comes from the 10-25 spread. The coefficient is actually negative, meaning that increasing wage inequality will result in shortening the search time for the lower portion of wage earners. This conclusion is dubious at best since the p-value is so high ( $P > 0.369$ ).

The remaining distributions are statistically significant at the 99.9% confidence level and the coefficients are positive. Thus the 25-90 wage distribution conforms to the hypothesis that increasing wage inequality will increase search time. Another result that is noteworthy occurs when comparing the coefficient of the 25-50, 50-75, and 75-90 spreads. The 25-50 and 50-75 distributions are roughly the same but there is a rather large departure when comparing the upper end of the wage distribution. This increase of value indicates that the top earners are willing to search longer in hopes of receiving a higher wage offer.

Table 1.A: Naive Regressions

|                | (1)                 | (2)                 | (3)                   | (4)                 | (5)                  | (6)                  | (7)                  |
|----------------|---------------------|---------------------|-----------------------|---------------------|----------------------|----------------------|----------------------|
| VARIABLES      | 10-90               | 10-50               | 50-90                 | 10-25               | 25-50                | 50-75                | 75-90                |
| wagedist_10_90 | 0.0397*<br>(0.0230) |                     |                       |                     |                      |                      |                      |
| wagedist_10_50 |                     | 0.0902<br>(0.0603)  |                       |                     |                      |                      |                      |
| wagedist_50_90 |                     |                     | 0.0874***<br>(0.0235) |                     |                      |                      |                      |
| wagedist_10_25 |                     |                     |                       | -0.710<br>(0.789)   |                      |                      |                      |
| wagedist_25_50 |                     |                     |                       |                     | 0.163***<br>(0.0539) |                      |                      |
| wagedist_50_75 |                     |                     |                       |                     |                      | 0.157***<br>(0.0411) |                      |
| wagedist_75_90 |                     |                     |                       |                     |                      |                      | 0.323***<br>(0.0835) |
| Constant       | 21.79***<br>(0.506) | 21.75***<br>(0.519) | 29.36***<br>(0.444)   | 22.77***<br>(0.992) | 22.74***<br>(0.500)  | 29.30***<br>(0.448)  | 31.52***<br>(0.438)  |
| Observations   | 1,941               | 1,941               | 4,510                 | 1,941               | 2,394                | 4,510                | 5,271                |
| R-squared      | 0.002               | 0.001               | 0.003                 | 0.000               | 0.004                | 0.003                | 0.003                |

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

When we include fixed effects in the regressions, the results do not change greatly. The 10-25 spread is still highly insignificant while the 25-50, 50-75, and 75-90 are all highly significant. Moreover, the values of the coefficients are roughly identical to the naïve regression's coefficients.

Table 1.B: Regressions With Fixed Effects

|                | (1)                  | (2)                  | (3)                   | (4)                  | (5)                  | (6)                  | (7)                  |
|----------------|----------------------|----------------------|-----------------------|----------------------|----------------------|----------------------|----------------------|
| VARIABLES      | 10-90                | 10-50                | 50-90                 | 10-25                | 25-50                | 50-75                | 75-90                |
| wagedist_10_90 | 0.0402*<br>(0.0229)  |                      |                       |                      |                      |                      |                      |
| age            | 0.190***<br>(0.0471) | 0.191***<br>(0.0471) | 0.310***<br>(0.0406)  | 0.192***<br>(0.0471) | 0.213***<br>(0.0446) | 0.312***<br>(0.0406) | 0.337***<br>(0.0396) |
| sex            | 1.028<br>(1.004)     | 1.054<br>(1.004)     | -0.307<br>(0.870)     | 0.993<br>(1.006)     | -0.0510<br>(0.954)   | -0.277<br>(0.870)    | 0.472<br>(0.840)     |
| marst          | -0.0343<br>(0.238)   | -0.0346<br>(0.238)   | 0.696***<br>(0.203)   | -0.0273<br>(0.238)   | 0.335<br>(0.225)     | 0.695***<br>(0.203)  | 0.719***<br>(0.196)  |
| educ           | 0.0468**<br>(0.0215) | 0.0468**<br>(0.0216) | 0.0279<br>(0.0182)    | 0.0446**<br>(0.0216) | 0.0339*<br>(0.0197)  | 0.0270<br>(0.0182)   | 0.0161<br>(0.0177)   |
| wagedist_10_50 |                      | 0.0952<br>(0.0601)   |                       |                      |                      |                      |                      |
| wagedist_50_90 |                      |                      | 0.0819***<br>(0.0234) |                      |                      |                      |                      |
| wagedist_10_25 |                      |                      |                       | -0.499<br>(0.788)    |                      |                      |                      |
| wagedist_25_50 |                      |                      |                       |                      | 0.161***<br>(0.0538) |                      |                      |
| wagedist_50_75 |                      |                      |                       |                      |                      | 0.152***<br>(0.0408) |                      |
| wagedist_75_90 |                      |                      |                       |                      |                      |                      | 0.319***<br>(0.0829) |
| Constant       | 8.687***<br>(3.013)  | 8.576***<br>(3.018)  | 12.57***<br>(2.603)   | 9.585***<br>(3.195)  | 10.24***<br>(2.846)  | 12.44***<br>(2.603)  | 13.27***<br>(2.557)  |
| Observations   | 1,941                | 1,941                | 4,510                 | 1,941                | 2,394                | 4,510                | 5,271                |
| R-squared      | 0.015                | 0.014                | 0.017                 | 0.013                | 0.015                | 0.017                | 0.017                |

Standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

The naïve regression presents a few issues that must be addressed prior to examining the extended model. Firstly, interaction terms can be added to the model but an education quadratic term is the only one identified that will add explanatory power to the model. As such, the square of education will be added to the model in future regressions. Secondly, occupations with few observations in the data cause distortionary effects in the regression. To mitigate this effect, I drop occupations which have

a frequency below 20. Finally, there is an issue with the number of observations that do not remain identical across regressions. This, unfortunately, will have to be addressed in a later paper.

## 4.2 The Extended Model

As aforementioned, an education quadratic term is the only identified term that adds explanatory power, and as such, will be added to the model in all future regressions. Additionally, due to the distortionary effects presented by occupations with few observations in the regression, all occupations with a frequency below 20 have been removed from the extended model.

Below are the Summary Statistics for the main model:

| Variable       | Obs  | Mean     | Std. Dev. | Min | Max      |
|----------------|------|----------|-----------|-----|----------|
| Wagedist_10_90 | 1345 | 6.659482 | 25.48544  | 1   | 346.6667 |
| Wagedist_10_50 | 1345 | 3.35268  | 9.701601  | 1   | 140.5    |
| Wagedist_50_90 | 3721 | 5.8208   | 19.59122  | 1   | 420      |
| Wagedist_10_25 | 1345 | 1.098866 | .5130326  | 1   | 7.566667 |
| Wagedist_25_50 | 1779 | 3.894636 | 9.952964  | 1   | 140.5    |
| Wagedist_50_75 | 3721 | 3.575485 | 11.26418  | 1   | 219      |
| Wagedist_75_90 | 4445 | 1.799234 | 5.40762   | 1   | 133.3333 |
| Age            | 5331 | 41.76665 | 10.90045  | 25  | 65       |
| Sex            | 5331 | 1.443819 | .4968803  | 1   | 2        |
| Marital Status | 5331 | 3.14969  | 2.193994  | 1   | 6        |
| Education      | 5331 | 77.04352 | 23.00145  | 2   | 125      |
| Education^2    | 5331 | 6464.671 | 3417.44   | 4   | 15625    |

Table 2.A: Full Regressions using occ1990

|                | (1)                   | (2)                   | (3)                   | (4)                   | (5)                   | (6)                   | (7)                   |
|----------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| VARIABLES      | 10-90                 | 10-50                 | 50-90                 | 10-25                 | 25-50                 | 50-75                 | 75-90                 |
| wagedist_10_90 | 0.0451**<br>(0.0225)  |                       |                       |                       |                       |                       |                       |
| age            | 0.1635***<br>(0.0551) | 0.1642***<br>(0.0551) | 0.3170***<br>(0.0453) | 0.1661***<br>(0.0551) | 0.2117***<br>(0.0519) | 0.3191***<br>(0.0453) | 0.3466***<br>(0.0437) |
| sex            | 0.9682<br>(1.1717)    | 1.0090<br>(1.1724)    | -0.6438<br>(0.9709)   | 0.8724<br>(1.1777)    | -0.6903<br>(1.1097)   | -0.6174<br>(0.9707)   | 0.3362<br>(0.9271)    |
| marst          | -0.2152<br>(0.2774)   | -0.2154<br>(0.2774)   | 0.6462***<br>(0.2260) | -0.1969<br>(0.2777)   | 0.3114<br>(0.2613)    | 0.6441***<br>(0.2260) | 0.6189***<br>(0.2161) |
| educ           | 0.0087<br>(0.1063)    | 0.0061<br>(0.1063)    | 0.1252<br>(0.0774)    | -0.0013<br>(0.1063)   | 0.1069<br>(0.0900)    | 0.1266<br>(0.0774)    | 0.1405*<br>(0.0748)   |
| educ2          | 0.0004<br>(0.0007)    | 0.0004<br>(0.0007)    | -0.0006<br>(0.0005)   | 0.0004<br>(0.0007)    | -0.0004<br>(0.0006)   | -0.0006<br>(0.0005)   | -0.0008<br>(0.0005)   |
| wagedist_10_50 |                       | 0.1092*<br>(0.0592)   |                       |                       |                       |                       |                       |
| wagedist_50_90 |                       |                       | 0.0668***<br>(0.0242) |                       |                       |                       |                       |
| wagedist_10_25 |                       |                       |                       | -0.7941<br>(1.1242)   |                       |                       |                       |
| wagedist_25_50 |                       |                       |                       |                       | 0.1590***<br>(0.0546) |                       |                       |
| wagedist_50_75 |                       |                       |                       |                       |                       | 0.1252***<br>(0.0421) |                       |
| wagedist_75_90 |                       |                       |                       |                       |                       |                       | 0.2940***<br>(0.0842) |
| Constant       | 10.5258**<br>(5.1100) | 10.4533**<br>(5.1145) | 9.9657***<br>(3.8053) | 12.0606**<br>(5.3123) | 8.4599*<br>(4.4470)   | 9.7813**<br>(3.8058)  | 9.5941***<br>(3.6927) |
| Observations   | 1,345                 | 1,345                 | 3,721                 | 1,345                 | 1,779                 | 3,721                 | 4,445                 |
| R-squared      | 0.0182                | 0.0177                | 0.0174                | 0.0156                | 0.0172                | 0.0177                | 0.0181                |

Standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

Table 2.A is the first regression that illustrates the full model which includes the aforementioned improvements and model adjustments. This model performs slightly better than the previous ones. The 10-90 wage spread is now significant at the 95% level but the 10-25 spread remains insignificant. The upper three wage distributions are still highly significant, but the values of the coefficients are slightly



smaller. For example, the 25-50 spread drops from 0.161 to 0.1590 and the 75-50 spread drops from 0.319 to 0.2940. This implies that the coefficients were biased upwards due to an omitted interaction term and distortion due to occupations with too few observations.

By comparing this model, which uses the CPS three-digit occupation codes, to a two-digit occupation coding using the floor calculations, it quickly becomes apparent that the 10-90 distribution is not significant nor is the 10-25 or 75-90 distributions.

Table 2.B: Full Regressions Using floorocc

|                | (1)                   | (2)                   | (3)                   | (4)                   | (5)                   | (6)                   | (7)                   |
|----------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| VARIABLES      | 10-90                 | 10-50                 | 50-90                 | 10-25                 | 25-50                 | 50-75                 | 75-90                 |
| wagedist_10_90 | 0.0241<br>(0.0186)    |                       |                       |                       |                       |                       |                       |
| age            | 0.1009<br>(0.0646)    | 0.0977<br>(0.0647)    | 0.3321***<br>(0.0459) | 0.1048<br>(0.0646)    | 0.1910***<br>(0.0576) | 0.3341***<br>(0.0459) | 0.3644***<br>(0.0434) |
| sex            | 1.0431<br>(1.3841)    | 1.1374<br>(1.3797)    | -0.1168<br>(0.9792)   | 1.1912<br>(1.3817)    | 1.5231<br>(1.2285)    | -0.0154<br>(0.9790)   | 0.2762<br>(0.9173)    |
| marst          | -0.2261<br>(0.3220)   | -0.2179<br>(0.3219)   | 0.7265***<br>(0.2285) | -0.2232<br>(0.3224)   | 0.3541<br>(0.2872)    | 0.7301***<br>(0.2286) | 0.7511***<br>(0.2146) |
| educ           | -0.0201<br>(0.1259)   | -0.0262<br>(0.1257)   | 0.2098***<br>(0.0784) | -0.0269<br>(0.1259)   | 0.0993<br>(0.0955)    | 0.2133***<br>(0.0784) | 0.1733**<br>(0.0745)  |
| educ2          | 0.0005<br>(0.0008)    | 0.0005<br>(0.0008)    | -0.0011**<br>(0.0005) | 0.0005<br>(0.0008)    | -0.0004<br>(0.0007)   | -0.0011**<br>(0.0005) | -0.0010*<br>(0.0005)  |
| wagedist_10_50 |                       | 0.0931<br>(0.0618)    |                       |                       |                       |                       |                       |
| wagedist_50_90 |                       |                       | 0.0681***<br>(0.0177) |                       |                       |                       |                       |
| wagedist_10_25 |                       |                       |                       | 0.1554<br>(1.0075)    |                       |                       |                       |
| wagedist_25_50 |                       |                       |                       |                       | 0.1422***<br>(0.0504) |                       |                       |
| wagedist_50_75 |                       |                       |                       |                       |                       | 0.1328***<br>(0.0362) |                       |
| wagedist_75_90 |                       |                       |                       |                       |                       |                       | 0.0245<br>(0.0152)    |
| Constant       | 13.9258**<br>(5.8895) | 13.9727**<br>(5.8862) | 6.1189<br>(3.8675)    | 13.9485**<br>(6.0479) | 6.5058<br>(4.6987)    | 5.7801<br>(3.8693)    | 8.7539**<br>(3.6884)  |
| Observations   | 946                   | 946                   | 3,808                 | 946                   | 1,533                 | 3,808                 | 4,687                 |
| R-squared      | 0.0112                | 0.0119                | 0.0217                | 0.0095                | 0.0172                | 0.0213                | 0.0177                |

Standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

However, a few the fixed effects of the 50-90 wage distribution become significant. There is a fundamental flaw with using the floor calculations due to the overlapping of occupations. The codes put forth by the CPS, when converted to two-digit codes, present a potential overlap of occupations that may or may not be related. This puts distortion into the regressions which leads to skewed results. Thus, by design, this is an inferior method and leading to inferiority in the results. Furthermore, the significance of the fixed effects could be caused by these terms soaking up some of the explanatory power that was previously attributed to the three-digit occupation variable.

The final occupation variable converts the CPS three-digit codes into two-digit codes using their broad occupation categories. Essentially all the occupations that fall under the auspices of a broader occupation will be combined. For example legislators, postmasters, managers in education, etc... fall under the greater occupation of 'Executive, Administrative, and Managerial Occupations' and are combined. This is to prevent the error from the previous set of regressions and conform to the three-digit coding system. The idea behind this is to more easily be able to quantify the effects of industries as a whole, rather than occupation specific dynamics. Table 2.C lists the estimated coefficients when wage spreads are calculated by state and two-digit occupations. Due to aggregation, I would expect that the model would not perform as well as the three-digit occupation model and the results appear to agree with this. The 10-90 is not significant and that is a result of the 10-25 spread being so highly insignificant. The 25-50, 50-75, and 75-90 spreads are still significant but the 25-50 wage distribution seems to have lost a measure of its significance.

Now, it may appear as if this is also an inferior method, but there is a distinct advantage with using two-digit occupation codes rather than three. If we were considering the effects within individual occupations rather than across occupations the two-digit observation pool is larger than a three-digit observation pool. This larger pool of data will give a better picture of the trends within specific industries.

Table 2.C: Full Regressions Using myocc

|                | (1)                  | (2)                  | (3)                      | (4)                  | (5)                   | (6)                     | (7)                      |
|----------------|----------------------|----------------------|--------------------------|----------------------|-----------------------|-------------------------|--------------------------|
| VARIABLES      | 10-90                | 10-50                | 50-90                    | 10-25                | 25-50                 | 50-75                   | 75-90                    |
| wagedist_10_90 | 0.0120<br>(0.0157)   |                      |                          |                      |                       |                         |                          |
| age            | 0.1053<br>(0.0695)   | 0.1057<br>(0.0696)   | 0.320***<br>(0.0457)     | 0.1061<br>(0.0696)   | 0.2120***<br>(0.0585) | 0.323***<br>(0.0457)    | 0.368***<br>(0.0433)     |
| sex            | 1.2282<br>(1.4686)   | 1.2829<br>(1.4671)   | -0.516<br>(0.979)        | 1.2874<br>(1.4672)   | -0.6246<br>(1.2481)   | -0.439<br>(0.979)       | -0.151<br>(0.918)        |
| marst          | 0.0194<br>(0.3496)   | 0.0242<br>(0.3497)   | 0.784***<br>(0.227)      | 0.0266<br>(0.3496)   | 0.5125*<br>(0.2952)   | 0.793***<br>(0.227)     | 0.661***<br>(0.214)      |
| educ           | 0.0190<br>(0.1429)   | 0.0154<br>(0.1429)   | 0.181**<br>(0.0784)      | 0.0146<br>(0.1429)   | 0.1520<br>(0.0962)    | 0.187**<br>(0.0784)     | 0.176**<br>(0.0745)      |
| educ2          | 0.0002<br>(0.0009)   | 0.0003<br>(0.0009)   | -0.000975*<br>(0.000536) | 0.0003<br>(0.0009)   | -0.0008<br>(0.0007)   | -0.00102*<br>(0.000536) | -0.000971*<br>(0.000506) |
| wagedist_10_50 |                      | 0.0116<br>(0.0451)   |                          |                      |                       |                         |                          |
| wagedist_50_90 |                      |                      | 0.0812***<br>(0.0208)    |                      |                       |                         |                          |
| wagedist_10_25 |                      |                      |                          | -0.0032<br>(0.2640)  |                       |                         |                          |
| wagedist_25_50 |                      |                      |                          |                      | 0.0849*<br>(0.0494)   |                         |                          |
| wagedist_50_75 |                      |                      |                          |                      |                       | 0.141***<br>(0.0401)    |                          |
| wagedist_75_90 |                      |                      |                          |                      |                       |                         | 0.383***<br>(0.0821)     |
| Constant       | 11.4499*<br>(6.6607) | 11.6005*<br>(6.6644) | 8.196**<br>(3.849)       | 11.6991*<br>(6.7002) | 7.2574<br>(4.7559)    | 7.850**<br>(3.852)      | 8.902**<br>(3.689)       |
| Observations   | 821                  | 821                  | 3,807                    | 821                  | 1,478                 | 3,807                   | 4,749                    |
| R-squared      | 0.0089               | 0.0083               | 0.020                    | 0.0082               | 0.0149                | 0.019                   | 0.021                    |

Standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

### 4.3 Effects of Marital Status

The previous model used wage inequality across states and occupations. But another factor that would greatly influence the choices a person makes, when considering accepting or rejecting job offers, is marital status. Those with families may not have the luxury of waiting for extended periods of time in the hopes of receiving a better wage offer; therefore, I would expect that the duration of unemployment would increase. However, the regressions paint a slightly different story.

Table 3.A: Full Regressions by State  
Occupation  
and Marital Status

|                | (1)                 | (2)                 | (3)                  | (4)                  | (5)                 | (6)                  | (7)                  |
|----------------|---------------------|---------------------|----------------------|----------------------|---------------------|----------------------|----------------------|
| VARIABLES      | 10-90               | 10-50               | 50-90                | 10-25                | 25-50               | 50-75                | 75-90                |
| wagedist_10_90 | 0.025<br>(0.022)    |                     |                      |                      |                     |                      |                      |
| age            | 0.186***<br>(0.046) | 0.186***<br>(0.046) | 0.279***<br>(0.043)  | 0.186***<br>(0.046)  | 0.217***<br>(0.045) | 0.285***<br>(0.043)  | 0.274***<br>(0.042)  |
| sex            | 0.121<br>(1.012)    | 0.127<br>(1.012)    | -0.947<br>(0.949)    | 0.052<br>(1.013)     | 0.041<br>(0.986)    | -0.902<br>(0.950)    | -0.237<br>(0.928)    |
| educ           | 0.034<br>(0.091)    | 0.034<br>(0.091)    | 0.118<br>(0.076)     | 0.033<br>(0.091)     | 0.096<br>(0.082)    | 0.128*<br>(0.076)    | 0.118<br>(0.073)     |
| educ2          | 0.000<br>(0.001)    | 0.000<br>(0.001)    | -0.001<br>(0.001)    | 0.000<br>(0.001)     | -0.000<br>(0.001)   | -0.001<br>(0.001)    | -0.001<br>(0.001)    |
| wagedist_10_50 |                     | 0.053<br>(0.044)    |                      |                      |                     |                      |                      |
| wagedist_50_90 |                     |                     | 0.248***<br>(0.044)  |                      |                     |                      |                      |
| wagedist_10_25 |                     |                     |                      | -1.218<br>(1.864)    |                     |                      |                      |
| wagedist_25_50 |                     |                     |                      |                      | 0.029<br>(0.035)    |                      |                      |
| wagedist_50_75 |                     |                     |                      |                      |                     | 0.392***<br>(0.080)  |                      |
| wagedist_75_90 |                     |                     |                      |                      |                     |                      | 0.887***<br>(0.152)  |
| Constant       | 10.742**<br>(4.242) | 10.738**<br>(4.241) | 12.174***<br>(3.610) | 12.261***<br>(4.723) | 8.582**<br>(3.926)  | 11.543***<br>(3.620) | 13.730***<br>(3.543) |
| Observations   | 1,821               | 1,821               | 3,642                | 1,821                | 2,077               | 3,642                | 4,132                |
| R-squared      | 0.012               | 0.013               | 0.022                | 0.012                | 0.014               | 0.020                | 0.019                |

Standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

For the sake of simplicity I created a new marital status variable that converts the CPS 'marst' variable into a married/unmarried dummy variable. This is in turn used to create the wage spreads across states, occupations, and marital status. Table 3.A lists the results using the new wage distribution variables. When comparing this table with Table 2.A a few major differences become apparent. First the 10-50 wage spread is no longer significant, even though the 25-50 spread is significant at the 90% level. A second major difference is that in the still highly significant 50-75 and 75-90 spreads have increased by very large margins. Thus, those who are married will actually be willing to search longer than previously calculated. My thinking on this is due to the fact that in a shared income household, the stress to find a job for both parties may be mitigated through the sharing of income. This would allow the second partner to spend more time searching for a higher paying job than if they were otherwise single. Thus the option of waiting for a better, higher quality job increases. This analysis is complicated when children are put into the mix, since children do not earn income and makes the lives of households more expensive. This is a possible extension for future research.

## **Possible Extensions and Conclusion**

This research and paper examined the relationship that exists between wage rate inequality and the length of time that the unemployed will search for jobs. I found that there is a very strong relationship between wage rate inequality and unemployment duration in the 50-90 wage spread, and a lesser, but still significant relationship, in the 10-90 wage spread. These results are robust when analyzing wage inequality across, states, occupations, and marital status, and also when limiting the occupations.

There are a few extensions proposed for future research in order to strengthen the model and provide a better examination of the data. Firstly, when running the naïve regression, there was an issue with the number of observations that do not remain identical across regressions. These inconsistencies could be skewing the current data, and a greater analysis of the causes of these changes would be necessary for future research. Secondly, while the extended model includes an analysis of marital status, it does not include an analysis of marital status with children. Therefore, all married households, both those with children and those without, are considered equally in the current model. While marital status was shown to be significant and actually increased the search duration for married individuals, this may not be the case for married individuals that have children. Adding a better variable that encapsulates marital status with children would greatly increase the significance of this research. Both of the

proposed extensions would better strengthen the explanatory power of this model, and provide more in-depth analysis of the potential causal relationship between wage rate inequality and the search duration for the unemployed.

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