# Earnings Inequality and the Gender Wage Gap

# in U.S. Metropolitan Areas

Zsuzsa Daczó

Maryland Population Research Center and
Department of Sociology
University of Maryland
2112 Art-Sociology
College Park, MD 20742

zdaczo@socy.umd.edu (301) 405-2442

**Abstract**

The gender wage gap has been narrowing since the late 1970s while earnings inequality has been growing over this same period. Thus, there is negative correlation between the two and the question is whether there is a causal relation. Some argued that income inequality and the gender wage gap should be positively correlated, and that in the last decades when women narrowed the gender wage gap in an environment of growing inequality they in fact swam against the inequality tide. Using data on individuals and on metropolitan areas in a multilevel model I show that there is an inverse relationship between labor market earnings inequality and the gender wage gap. Women do better relative to men where there is greater overall earnings inequality because high inequality decreases the wages of both men and women, but decreases men's wages more.

**Introduction**

In order to understand the relationship between overall earnings inequality and the gender wage gap, I will first briefly describe each and then turn to the relationship between them.

The growing earnings inequality of the last two decades is a puzzle because the trend in income inequality described by Kuznets has now reversed. According to Kuznets's theory, industrialization at first increases inequality, then inequality declines after the country has completed industrialization. The trend until the 1980s confirmed this theory but after that -especially in the US but in other industrialized countries too- inequality started to rise again. Since then it has kept increasing.

Many social scientists have tried to explain this new trend as it was not only unexpected but it is considered to be a problem for several reasons. Some argue that the trend means the hollowing out of the middle class. Others disagree with this finding and show that the trend is not greater polarization but simply greater return to higher education. One of the issues is whether workers with lesser education are losing out relative to their earlier position and relative to the middle class. Another concern is whether average wages are decreasing for many people as a result of the growing level of inequality. Increasing inequality can led to a higher percentage of people living in poverty both in relative and in absolute terms. Moreover, Kawachi and Kennedy (2002) argue that a greater disparity of income leads to worse social health for all, and worse physical health for the majority of people.

The gender wage gap is a concern first of all because it means that women on average are financially disadvantaged relative to men. Having a high gender wage gap (in

the last years it has been around 75%[1]) is not equitable as only part of the gap can be explained by human capital differentials. The issue also brings up worries about discrimination against women. And one of the consequences of the gap is the higher level of poverty among women than among men, especially among women raising children alone. In fact, women's poverty level affects a significant proportion of children. Although the gap has been narrowing since the 1980s the trend is not linear in spite of the fact that women have been continuously upgrading their human capital since the 1970s.

Blau & Kahn (1997) argued that as women managed to narrow the wage gap in recent years they had to swim upstream. It makes intuitive sense that as income inequality increases because the wage dispersion is more stretched out, the distance between the average wage of women and men will also grow some. That over time the relationship has been more negative than positive between these two measures may or may not be indicative of a positive relationship between them. To better understand the links between them let us briefly review what has been found to affect these measures, with a focus on what might be common causes to both.

**Theories on earnings inequality and the gender wage gap**

According to the literature, changes in income inequality are affected by several factors. On the macro level, it has been found that earnings inequality decreases as female labor force participation increases (Nielsen & Alderson 1997). The decline in certain manufacturing industries increased inequality (Nielsen & Alderson 1997). Several

[1] 'The Gender Wage Gap: 3/4 of a Dollar Doesn't Stretch Far Enough'
http://www.policymattersohio.org/wagegap1.htm

authors found that in fact the decline in manufacturing jobs across all industries increases inequality (Levy & Murnane 1992), (Nielsen & Alderson 1997), (Morris, Bernhardt & Handcock 1994). Urbanization also increases inequality (McCall 2000) and so does de-unionization (Freeman 1982).

On the micro level it has been shown that overall earnings inequality increased because returns to experience have increased (especially among highly educated people) (Card & Lemieux 1994). There has also been an increase in the pecuniary return to education which also increased inequality. On the other hand, declining opportunities for less skilled males also lead to rapid inequality growth (Juhn & Kim 1999) (Levy & Murnane 1992).

The gender wage gap narrowed among others because women's relative level of education increased (Nielsen & Alderson 1997) and their relative experience increased as well, as they stay in the labor force longer than before (Loury 1997) (Fortin &Lemieux 1997) (Sicilian & Grossberg 2001) (Juhn, Murphy & Pierce 1993). While these were changes on the supply side, there were changes on the demand size as well. Oppenheimer (1973) argued that changes in the economy lead to increased need for female labor force. As the value of physical work decreased relative to other jobs, the wages of more men than women declined (Loury 1997). Also, de-unionization has had a larger negative impact on men's wages than on women's (Blau & Kahn 1994). Moreover, inequality is higher and is increasing more among men than among women (Levy & Murnane 1992).

As this list of the causes for the narrowing of the wage gap also shows, there is more than one link between earnings inequality and the gender wage gap. According to O'Neill

and Polachek (1993) women's earnings increased faster than men's within industries because their training and work experience improved, and not because they were in industries that grew faster. They argue that, accordingly, changes in the gender composition of industries did not contribute to the narrowing of the gender wage gap. It was women's education, experience and skill that improved, and returns to these improved as well. They also point out that decline of earnings of blue-collar workers reduced male wages and contributed to women's relative gains.

It is important to note that both the earnings inequality and gender wage gap have two components. They are influenced both by trends in women's wages and trends in men's wages. And men's median wages (or distribution) can be affected by economic developments in a different way than women's wages are influenced by the same changes in the economy.

**Hypotheses**

This paper aims to show a clear relationship between earnings inequality and the gender wage gap.

1. The relationship between earnings inequality and the wage gap is inverse and there is causal link: as earnings inequality increases, the gender wage gap narrows.
2. As earnings inequality increases, employees are generally worse off, but men loose more.

## Methods

### Design

The findings of this paper are based on a multilevel analysis (hierarchical linear modeling). This method allows us to estimate the effect of macro level, contextual variables on individual level variables. The main dependent variable is the log of hourly income. The individual level equation predicts the log of hourly wage for women (omitted category) and for men, controlling for human capital characteristics. This way the coefficient of the male dichotomous variable is an estimate of the wage gap, and it tells us what percent less (or more) women earn than men.

In the multilevel design the coefficients of the individual level analysis are used as dependent variables in the metropolitan area level equation. This allows us to evaluate the extent to which macro level variables affect individual outcomes. In this case we can see the effect of earnings inequality in metropolitan areas on the gender wage gap (the coefficient of the male variable). Earnings inequality is the main contextual variable, the micro level and macro level variables are described in the next pages.

### Micro level data sources and sample

The individual level data comes from the National Longitudinal Survey of Youth (NLSY79) which is a nationally representative sample of 12,686 young men and women who were 14-22 years old when they were first surveyed in 1979. These individuals were interviewed annually and the dataset contains very accurate records on earnings and on human capital variables that research on the gender wage gap usually controls for, such as education, training, work experience, tenure at current job, union membership and more.

For this study I chose data from 1990 because it is a census year which enables us to generate macro level variables on metropolitan areas. In 1990 the sample consisted of men and women between ages 25 to 33, which ensure that their wages are more affected by current conditions of the labor market in which they are than by past influences. My final N = 4,448[2]

Table 1. here

**Variables**

The dependent variable in this model is the natural log of hourly wage (in dollars). The main independent variable is a dummy variable for male; the coefficient of this variable is the measure of the gender wage gap. The other individual level demographic variable that I use is race. The control variables are indicators of a person's human capital: education, work experience, tenure at current job and a dummy for having been unemployed during the last year (because this is the year to which our wage refers). Descriptive statistics are shown in Table 2.

Table 2. here

The last column of Table 2.shows the results of OLS regression using only micro-level data. The results of this regression confirm earlier research on this topic. Men on average earn 20% more than women, whites earn 10% more than non-whites, education

[2] Because I had too many missing variables (13% of my universe) and because hlm didn't run with missing values, I substituted the means of each variable instead of the missing values and I created dummies to be able to track the changes.

increases wages by 7% per year, and so does tenure, by 3.3%, work experience and perhaps hours worked. Having been unemployed decreases one's wage.

The macro dataset

The macro level variables are derived from several sources, the main one being the Public Use Microdata Samples (PUMS) that is based on the census[3]. I also use variables derived from the Census of Population and Housing Summary Tape Files 3C (STF3C), from the Equal Employment Opportunity (ACLU).

The total number of metropolitan areas used in this study is 261. While the metropolitan area classifications are defined in 1993, their demarcations are established from conditions in 1990 so the figures here reflect the urban structure of 1990[4].

Variables from the macro dataset are used as control variables. I am most interested in the effect of earnings inequality, expressed as the Gini index calculated from the earnings of people between age 25 and 54.

The other variables used attempt to measure those phenomena that the literature links to income inequality or to the wage gap. The female share of labor force is not included but another variable which is highly correlated to it is which is the relative demand for female labor (calculated as the proportion of female occupations over the total labor force). This and the gender segregation measured with the D statistic are shown in a separate macro level regression to be inversely related to the wage gap. The measure of unemployment, the share of manufacturing in the local labor market, union coverage and gender equal pay laws decrease the wage gap as expected. Table 4. shows

[3] The PUMS are computer-accessible files containing records for a sample of housing units, with information on the characteristics of each housing unit and the people in it.
[4] Further, for data obtained from the PUMS sample, small MAs are merged together in order to protect respondents' confidentiality. This practice results in 5 fewer MAs than really exist.

the means and standard deviations of the macro variables. Table 5. contains the result of a regression on macro level variables only. This also contains regions which I did not include in the multilevel model, because it is difficult to find theoretical reasons for why some regions would affect income inequality or the gender wage gap in a way not captured by the other variables. Figure 1 is plot of the relationship between inequality and the gender wage gap across metropolitan areas (sorry, no MA names on this one).

Table 3. here

**Statistical analysis**

The multilevel model

The micro level equation is:

$$Y = B0 + B1*(TENURE) + B2*(GRADE) + B3*(WORKEXP) + B4*(MALE) + B5*(WHITE) + R$$

Where Y is log of hourly wages.

The level 2 equations are:

$$B0 = G00 + G01*(DSTATI9) + G02*(LOGPOP9) + G03*(UNEMPP9) + G04*(DURABLE9) + G05*(GINIHP9) + G06*(UNION90) + G07*(EQPSCAL8) + G08*(MIGNET9) + G09*(DEMANDR) + U0$$

$$B1 = G10 + U1$$

$$B2 = G20 + U2$$

$$B3 = G30 + U3$$

$$B4 = G40 + G41*(DSTATI9) + G42*(LOGPOP9) + G43*(UNEMPP9) + G44*(DURABLE9) + G45*(GINIHP9) + G46*(UNION90) + G47*(EQPSCAL8) + G48*(MIGNET9) + G49*(DEMANDR) + U4$$

$$B5 = G50 + U5$$

Results

Table 4. summarizes the results of the multilevel model. The micro level intercept tells us that had there been no inequality at all in the metropolitan area where they live,

women would earn ln(6.76) per hour. The coefficient of the income inequality variable being negative and statistically significant shows us that as earnings inequality increases, women's hourly wage decreases. This means that women on average are worse off in areas with a higher level of overall inequality than in areas with lower levels. Most of the rest of the metropolitan area characteristics are also statistically significant which means that they have an effect on women's earnings.

Table 4. here

The intercept of the gender dummy variable estimates that had men lived in a metropolitan area with no earnings inequality they would earn more than women. However the coefficient of income inequality is negative (and statistically significant) which means that where income inequality is higher men earn less and their earnings decrease comparative to women. Higher income inequality leads to lower wages for both men and women but lowers men's wages more than women's and thus decreases the wage gap. Figures 2 and 3 show the effect of inequality on log of wage and on wage by gender, respectively. The figures include the whole theoretically possible range of earnings inequality but inequality in the metropolitan areas of this sample only ranges from 0.33 to .45.

Figure 1. and 2. here

This multilevel model yielded a clear result about the relationship between earnings inequality and the gender wage gap[5]. The macro level variables which have been used to explain the trends in inequality have proved to be useful in this model, but mainly to affect overall income and not the gender wage gap. Two measures, net migration into the metropolitan area and the relative demand for female labor force affect the gender wage gap as well.

Growing cities reduce the gender gap probably because they have job opportunities with which they attract new people. They probably experience economic growth in at least some sectors if they manage to attract people from other areas. If

**Discussion**

Women have not been successfully "swimming against the tide" in the last decades as the gender wage gap narrowed and earnings inequality increased dramatically. The economic trends of the last two decades led to a wider dispersion of wages. This was the result probably both of increasing returns to education and work experience on the higher end of socio-economic status and a lowering of wages in the lower end as a result of the decreasing importance of manufacturing. The declining importance of manufacturing placed blue collar workers a disadvantage. Since unions were stronger in manufacturing, the decline of manufacturing led to 'de-unionization' and the growing service sector did not unionize. A higher percentage of men worked in manufacturing and unionized jobs than women, so this trend decreased the gender wage gap. Also, women have been closing the gap in education and work experience, improving by this their

[5] For some reason I was not able to use the available micro level weights in my hlm hierarchical level modeling . I ran the model using weight as a control variable and found that it had a coefficient of 0 and it was not statistically significant. I concluded that not using weights probably does not bias my results.

relative position. It is easier to see how these processes unfold over time than why is there such variance by metropolitan area. Clearly, the proportion of unionized jobs and the proportion of service sector jobs as opposed to manufacturing jobs have an affect on wages and this effect varies by gender.

According to McCall (2000) disparities in wages among workers with the same observable characteristics vary more across labor markets than across time. In this paper I analyzed metropolitan areas but the finding probably holds not only across labor markets but over time as well.

Larger metropolitan areas with positive net migration have relatively larger educational dispersion, leading to higher wage inequality. It is possible that they attract a relatively high percentage of educated women, whose presence reduces the overall gender wage gap. An important macro level variable is the size of the metropolitan area, but other variables such as the proportion of manufacturing in the local market and other variables that the literature on inequality points to are also important.

Returns to education increased, and younger women have higher average education than men. These changes in education probably reduce the gender wage gap while increasing income inequality. Returns to experience have also increased over time. Women's experience tends to be less than men's so this widens the gender gap. But women's average experience grew faster than men's (from a lower base) so that if returns to experience had been constant, women's experience gains would have narrowed the wage gap with men. It is possible, that women's gains in experience helped them more than increasing returns to experience hurt them.

One possible macro change is that if it is true that the U.S. economy became more competent, then employers feel increasingly more willing to hire women into jobs

formerly filled by men. Thus, men's wages are driven down by the competition while women move into (relatively) better paying male labor.

One of the limitations of this study is that it does not control for self-selection into metropolitan areas. Also, I expected a clear inverse relationship even without controlling for other macro effects. I found however, that I not only need to control for individual human capital characteristics (obviously) but metropolitan area characteristics as well in order to achieve statistical significance. I expected to be able to 'explain away' the effect of earnings inequality away by adding such variables. This however did not happen because these macro variables are correlated with each other.

**Further research**

This is first draft that needs further empirical work and more theoretical consideration. In terms of theory, I wish to think it over (plus read more) and give a better explanation for the relationship between the gender wage gap and earnings inequality.

I will try to show that this relationship across time also inverse (for example using 1980, 1990, 2000 data so that I have macro variables from Census). I also need more empirical work to distinguish the effects of these correlated variables and to be able to explain the mechanism behind this relationship. I will try to achieve a more robust result. I will look at different years which will permit me to ask not only whether the gender earnings gap is higher in metropolitan areas with higher earnings inequality, but also, whether earnings gap declines where inequality is growing. However, inequality might not vary much over time, so I might have too little variance to explain. A second possibility is to use another inequality variable, for example use earnings inequality

within one gender. Blau and Kahn argue that the gender wage gap is a part of the overall earnings inequality, because when wages are more dispersed, women's and men's wages move further apart. I am arguing against this finding, but it would be interesting to see how much of the change in the gender gap is due to growing dispersion of men's, women's and overall wages. A quick look at the correlations suggests that male earnings inequality is more correlated with the gender gap than overall inequality. This is of course not surprising in light of my findings.

**Bibliography**


Bernhardt, Annette; Martina Morris; Mark S. Handcock.1995. 'Women's Gains or Men's Losses? A Closer Look at the Shrinking Gender Gap in Earnings' *American Journal of Sociology*, Vol. 101, No. 2. (Sep., 1995), pp. 302-328.

Blau, Francine D.; Lawrence M. Kahn. 1994. 'The Impact of Wage Structure on Trends in U.S. Gender Wage Differentials1975-1987' *NBER Working Paper* No. 4748.

Blau, Francine D.; Lawrence M. Kahn. 1997. 'Swimming Upstream: Trends in the Gender Wage Differential in the 1980s' *Journal of Labor Economics*, Vol. 15, No. 1, Part 1. (Jan., 1997), pp. 1-42.

Blau, Francine D.; Lawrence M. Kahn. 1999. 'Analyzing the gender pay gap' *The Quarterly Review of Review of Economics and Finance 39 (1999) 625-646.*

Card, David; Thomas Lemieux. 'Changing Wage Structure and Black-White Wage Differentials' (in Rising Wage Inequality in the United States: Causes and Consequences) *The American Economic Review*, Vol. 84, No. 2, Papers and Proceedings of the Hundred and Sixth Annual Meeting of the American Economic Association. (May, 1994), pp. 29-33.

DiNardo, John, Nicole M. Fortin, Thomas Lemieux 1995.'Labor Market Institutions and the Distribution of Wages, 1973-1992: A Semiparametric Approach' *NBER Working Paper* No. w5093* Issued in April 1995

Fields, Judith and Edward N. Wolff.1991. 'The Decline of Sex Segregation and the Wage Gap, 1970-80' *The Journal of Human Resources*, Vol. 26, No. 4. (Autumn, 1991), pp. 608-622.

Fortin, Nicole M.; Thomas Lemieux. 1998. 'Rank Regressions, Wage Distributions, and the Gender Gap' *The Journal of Human Resources*, Vol. 33, No. 3. (Summer, 1998), pp. 610-643.

Freeman, Richard B. 2002. "Union Wage Prectices and Wage Dispersion Within Establishemnts" *Industrial and Labor Relations Review* 36:3-21.

Juhn, Chinhui; Dae Il Kim. 1999. 'The Effects of Rising Female Labor Supply on Male Wages' *Journal of Labor Economics*, Vol. 17, No. 1. (Jan., 1999), pp. 23-48.

Kawachi, Ikiro and Bruce P. Kennedy. 2002. *The Health of Nations: Why Inequality is Harmful to Your Health.* New York: The New York Press.

Levy, Frank; Richard J. Murnane.1992. 'U.S. Earnings Levels and Earnings Inequality: A Review of Recent Trends and Proposed Explanations' *Journal of Economic Literature*, Vol. 30, No. 3. (Sep., 1992), pp. 1333-1381.

Loury, Linda Datcher 1997. 'The gender earnings gap among college-educated workers' *Industrial and Labor Relations Review* v. 50 p. 580-93.

McCall, Leslie. 2000. 'Explaining Levels of Within-Group Wage Inequality in U.S. Labor Markets (in Structural and Spatial Inequality)' *Demography*, Vol. 37, No. 4. (Nov., 2000), pp. 415-430.

Morris, Martina; Annette D. Bernhardt; Mark S. Handcock. 1994.'Economic Inequality: New Methods for New Trends' *American Sociological Review*, Vol. 59, No. 2. (Apr., 1994), pp. 205-219.

Nielsen, Francois; Arthur S. Alderson. 1997. 'The Kuznets Curve and the Great U-Turn: Income Inequality in U.S. Counties, 1970 to 1990 (in Macro-Level Studies of Inequality)' *American Sociological Review*, Vol. 62, No. 1. (Feb., 1997), 12-33.

Oppenheimer, Valerie K. 1973. "Demographic Influence on Female Employment and the Status of Women." *American Journal of Sociology* 78(January): 946-961.

O'Neill, June & Solomon Polachek 1993. 'Why the Gender Gap in Wages Narrowed in the 1980s' *Journal of Labor Economics* vol. 11, no.1, part 1. p. 205-228.

Sicilian, Paul; Adam J. Grossberg. 2001. 'Investment in human capital and gender wage differences: evidence from NLSY' *Applied Economics,* 2001. 33, 463-471.

**Table 1. The NLSY sample with the individual level variables.**

| Universe / variables | Number of variables |
|---|---|
| Original NLSY | 12,686 |
| | |
| My Universe | |
| Respondents in MA in 1990 | 7,516 |
| In labor force working > 200 hours | 6,327 |
| Non-Hispanics | 5,175 |
| | |
| Missing Data | |
| Hourly wage | 295 |
| Work experience | - |
| Tenure | 187 |
| Weeks unemployed last year | 118 |
| Gender | - |
| Race | - |
| Age | - |
| Education | 12 |
| | |
| Analysis | 4448 (87%) |

Source: NLSY79, year 1990.

**Table 2. Means and standard deviations of the micro level variables as well as coefficients from the micro level regression on log of hourly wage**

| Variable | Mean | Standard deviation | Coefficient estimate | |
|---|---|---|---|---|
| Log of hourly wage | 2.17 | 0.7 | | |
| Male | 0.52 | 0.5 | 0.2 | *** |
| White | 0.66 | 0.47 | 0.102 | *** |
| Highest grade completed | 13.31 | 2.36 | 0.071 | *** |
| Tenure (years employed in current job) | 3.26 | 3.21 | 0.033 | *** |
| Work experience (years '79-'90) | 37.84 | 11.84 | 0.006 | *** |
| Any time unemployed during last year | 0.11 | 0.31 | -0.088 | ** |
| Hours worked per week last year | 37.99 | 13.87 | 0.001 | † |
| Intercept | | | 0.727 | *** |
| N=5,170 | | | | |

Source: NLSY79, year 1990.

† $p < 0.1$ *** $p < 0.001$.

**Table 3. Means and standard deviations of the macro level variables**

| Variable | Mean | Standard deviation |
|---|---|---|
| Gender wage gap | 0.67 | 0.05 |
| Hourly wage inequality (Gini) | 0.38 | 0.02 |
| Relative demand for female labor | 0.45 | 0.02 |
| DSTAT gender segregation | 0.50 | 0.03 |
| Unemployment | 0.06 | 0.02 |
| Union coverage | 0.18 | 0.05 |
| Female share of the labor force | 0.46 | 0.02 |
| Expected female/male ratio | -0.17 | 0.08 |
| Northeast region | 0.13 | 0.34 |
| North central region | 0.25 | 0.43 |
| South region | 0.46 | 0.50 |
| West region | 0.16 | 0.37 |
| Percent of LF manufacturing durable goods | 0.10 | 0.06 |
| Equal pay law scale | 1.86 | 1.34 |
| N = 261 | | |

Source: Variables created from PUMS, ACLU, STF3C and EEO data

**Table 4. Multilevel model of the gender wage gap across metropolitan areas**

| Independent variables | Coefficients | |
|---|---|---|
| **Intercept** | 6.722 | *** |
| Earnings inequality (Gini) | -1.505 | † |
| *Other MA characteristics* | | |
| DSTAT gender segregation | -1.310 | * |
| Size of metropolitan area | 0.071 | *** |
| Unemployment | 2.005 | † |
| Percent of LF manufacturing durable goods | -0.565 | † |
| Union coverage | 0.473 | † |
| Equal pay law scale | 0.003 | |
| Net migration into MA | 0.491 | † |
| Relative demand for female labor | -3.063 | ** |
| **Gender** | | |
| Intercept | 0.207 | *** |
| Earnings inequality (Gini) | -1.573 | † |
| *Other MA characteristics* | | |
| DSTAT gender segregation | -0.892 | |
| Size of metropolitan area | 0.002 | |
| Unemployment | -0.039 | |
| Percent of LF manufacturing durable goods | -0.097 | |
| Union coverage | 0.220 | |
| Equal pay law scale | 0.007 | |
| Net migration into MA | -0.771 | † |
| Relative demand for female labor | -2.625 | † |
| *Individual-level Characteristics* | | |
| Tenure | 0.001 | *** |
| Grade | 0.066 | *** |
| Work experience | 0.001 | *** |
| Race (1 = white) | 0.103 | *** |

*Note*: † $p < 0.1$ * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$.
Sources: Variables created from PUMS, ACLU, STF3C and EEO data and NLSY79, year 1990

**Figure 1**

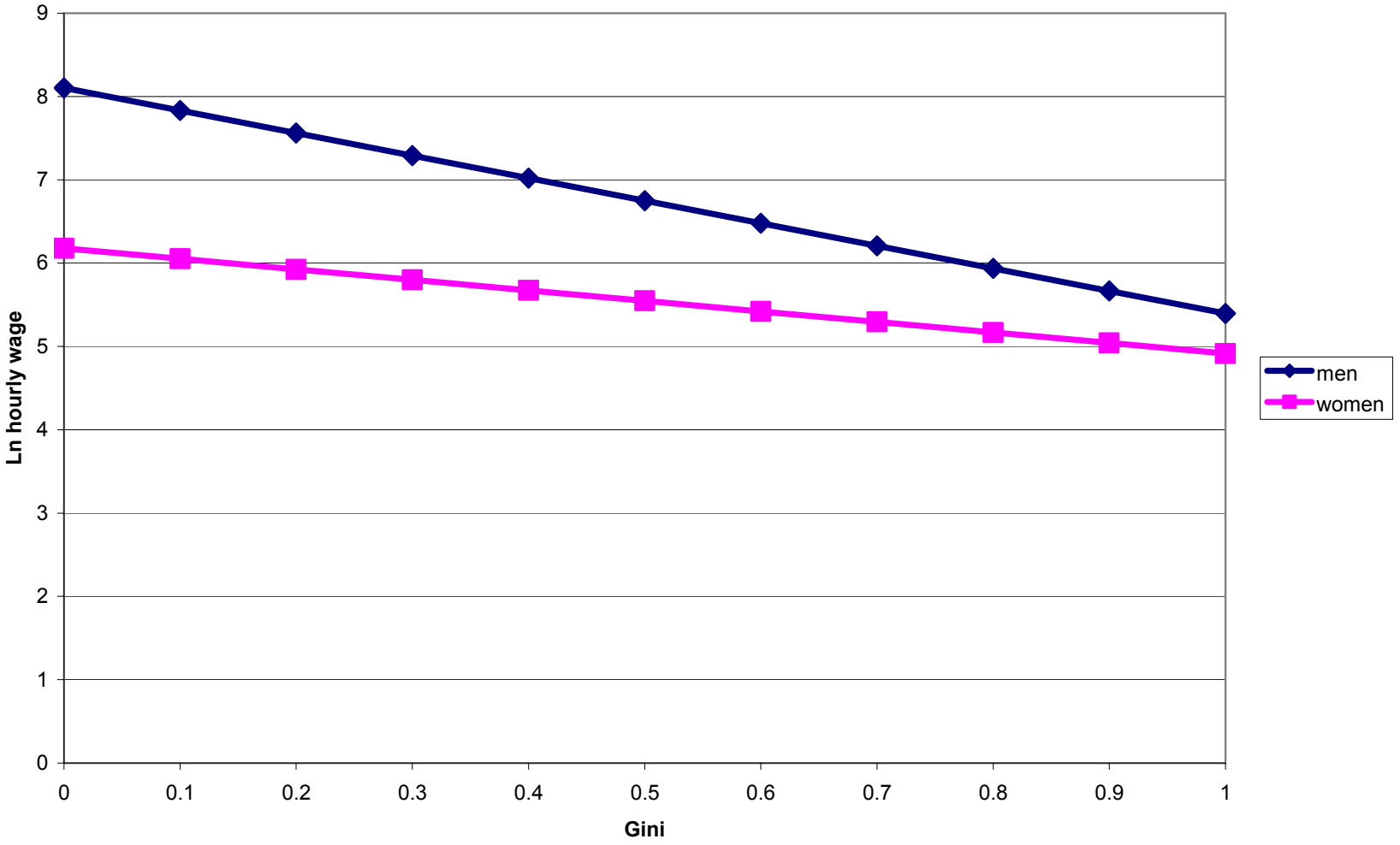
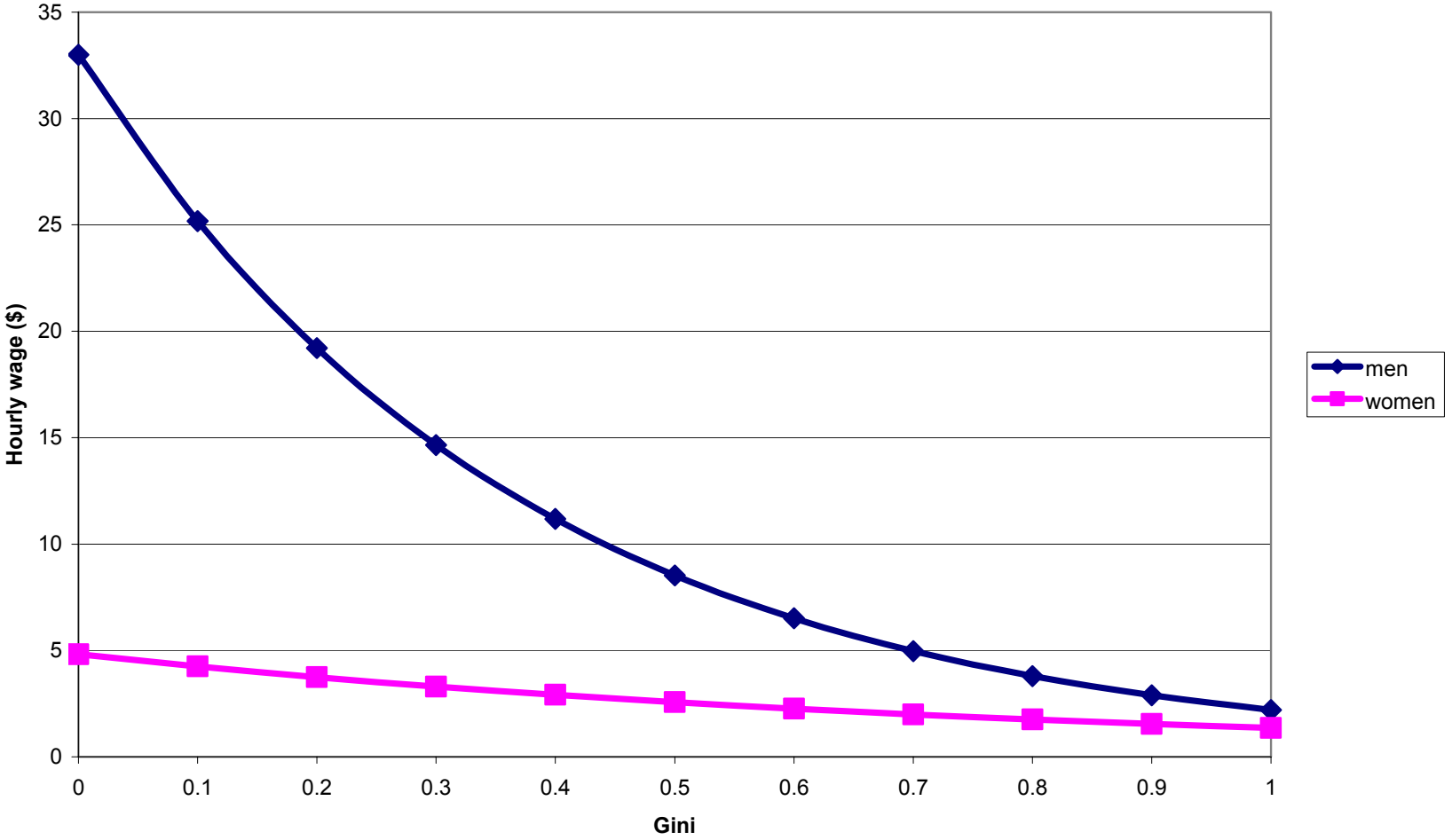

9
8
7
6
5
4
3
2
1
0
Ln hourly wage
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Gini
men
women

**Figure 2**


35
30
25
20
15
10
5
0
Hourly wage ($)
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Gini
men
women

## Annex 1. The hlm output

The outcome variable is LNPAY

Final estimation of fixed effects (with robust standard errors)

| Fixed Effect | Coefficient | Standard Error | T-ratio | Approx. d.f. | P-value |
|---|---|---|---|---|---|
| For INTRCPT1, B0 | | | | | |
| INTRCPT2, G00 | 6.722459 | 0.013726 | 489.773 | 205 | 0.000 |
| DSTATI9, G01 | -1.310138 | 0.605364 | -2.164 | 205 | 0.030 |
| LOGPOP9, G02 | 0.070831 | 0.009461 | 7.486 | 205 | 0.000 |
| UNEMPP9, G03 | 2.005440 | 1.085463 | 1.848 | 205 | 0.064 |
| DURABLE9, G04 | -0.565480 | 0.340253 | -1.662 | 205 | 0.096 |
| GINIHP9, G05 | -1.504834 | 0.797293 | -1.887 | 205 | 0.059 |
| UNION90, G06 | 0.473295 | 0.253222 | 1.869 | 205 | 0.061 |
| EQPSCAL8, G07 | 0.002986 | 0.011803 | 0.253 | 205 | 0.800 |
| MIGNET9, G08 | 0.490798 | 0.279826 | 1.754 | 205 | 0.079 |
| DEMANDR, G09 | -3.062788 | 1.188992 | -2.576 | 205 | 0.010 |
| For TENURE slope, B1 | | | | | |
| INTRCPT2, G10 | 0.000648 | 0.000055 | 11.684 | 214 | 0.000 |
| For GRADE slope, B2 | | | | | |
| INTRCPT2, G20 | 0.065697 | 0.004659 | 14.102 | 214 | 0.000 |
| For WORKEXP slope, B3 | | | | | |
| INTRCPT2, G30 | 0.000499 | 0.000060 | 8.279 | 214 | 0.000 |
| For MALE slope, B4 | | | | | |
| INTRCPT2, G40 | 0.206877 | 0.024205 | 8.547 | 205 | 0.000 |
| DSTATI9, G41 | -0.891945 | 0.824459 | -1.082 | 205 | 0.280 |
| LOGPOP9, G42 | 0.001996 | 0.012665 | 0.158 | 205 | 0.875 |
| UNEMPP9, G43 | -0.039257 | 1.619510 | -0.024 | 205 | 0.981 |
| DURABLE9, G44 | -0.096940 | 0.411717 | -0.235 | 205 | 0.814 |
| GINIHP9, G45 | -1.573038 | 0.922959 | -1.704 | 205 | 0.088 |
| UNION90, G46 | 0.220349 | 0.301794 | 0.730 | 205 | 0.465 |
| EQPSCAL8, G47 | 0.006968 | 0.014950 | 0.466 | 205 | 0.641 |
| MIGNET9, G48 | -0.771494 | 0.446863 | -1.726 | 205 | 0.084 |
| DEMANDR, G49 | -2.625354 | 1.490095 | -1.762 | 205 | 0.078 |
| For WHITE slope, B5 | | | | | |
| INTRCPT2, G50 | 0.103151 | 0.020918 | 4.931 | 214 | 0.000 |

Final estimation of variance components:

| Random Effect | | Standard Deviation | Variance Component | df | Chi-square | P-value |
|---|---|---|---|---|---|---|
| INTRCPT1, | U0 | 0.08853 | 0.00784 | 69 | 145.56383 | 0.000 |
| TENURE slope, | U1 | 0.00017 | 0.00000 | 78 | 58.93905 | >.500 |
| GRADE slope, | U2 | 0.02602 | 0.00068 | 78 | 119.89696 | 0.002 |
| WORKEXP slope, | U3 | 0.00018 | 0.00000 | 78 | 55.15378 | >.500 |
| MALE slope, | U4 | 0.05411 | 0.00293 | 69 | 64.44636 | >.500 |
| WHITE slope, | U5 | 0.09644 | 0.00930 | 78 | 66.62522 | >.500 |
| level-1, | R | 0.61935 | 0.38359 | | | |

Note: The chi-square statistics reported above are based on only 79 of 215 units that had sufficient data for computation. Fixed effects and variance components are based on all the data.

Statistics for current covariance components model

Deviance = 9871.986195
Number of estimated parameters = 22