



# Differences in Wage Levels Among Metropolitan Areas: Less-educated Workers in the United States

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EASTON T. and KING M. C. (2000) Differences in wage levels among metropolitan areas: less-educated workers in the United States, *Reg. Studies* 34, 21–27. This work investigates the causes of low wages for workers with a high school education or less in the US, using a sample of 241 metropolitan areas drawn from the 1990 Census. It examines the influence of five labour market characteristics on between-metropolitan area wage differences: labour demand, the minimum wage, unionization, industry mix and the race/gender composition of the labour force. The first four factors seem to affect both men's and women's wages, but the relative importance differs. For example, the evidence suggests that unionization is the most important influence on men's wages, while for women industry mix matters most.

Local labour market studies    Wage levels    Wage differentials by skill    Union strength    Industrial structure

EASTON T. et KING M. C. (2000) Des écarts de salaire dans les zones métropolitaines: les salariés moins instruits aux Etats-Unis, *Reg. Studies* 34, 21–27. A partir d'un échantillon de 241 zones métropolitaines tirées du recensement de 1990, cet article cherche à étudier les causes des bas salaires des travailleurs aux Etats-Unis dont le niveau d'éducation ne va pas au-delà du secondaire. On examine l'influence de cinq caractéristiques du marché du travail sur les écarts de salaire par zone métropolitaine: à savoir, offres d'emploi, salaire minimum, syndicalisation, structure industrielle, distribution de la main-d'oeuvre par nationalité et par sexe. Il semble que les quatre premiers facteurs influent sur les salaires et des hommes et des femmes, mais l'importance relative diffère. Par exemple, les preuves laissent supposer que la syndicalisation s'avère l'influence la plus importante sur les salaires des hommes alors que, pour ce qui est des femmes, c'est la structure industrielle qui est la plus importante.

Etudes des marchés du travail locaux  
Niveaux de salaire    Ecart de salaire par connaissances  
Pouvoir syndical    Structure industrielle

EASTON T. und KING M. C. (2000) Unterschiedliche Lohnhöhen in Großstadtgebieten: ungebildete Arbeiter in den Vereinigten Staaten, *Reg. Studies* 34, 21–27. Diese Arbeit untersucht die Ursachen der niedrigen Löhne für Arbeiter mit Oberschulabschluss oder weniger in den Vereinigten Staaten mittels Stichproben von 241 Großstadtgebieten, die der Volkszählung des Jahres 1990 entnommen wurden. Sie prüft den Einfluß von den fünf Arbeitsplatzmerkmalen: Stellennachfrage, Mindestlohn, gewerkschaftlicher Organisation, Industriemischung und Zusammensetzung der Arbeitnehmer nach Rasse und Geschlecht auf Lohnunterschiede in Großstädten. Die vier erstgenannten Faktoren scheinen sich auf Löhne von Männern und Frauen auszuwirken, doch die relative Bedeutung ist unterschiedlich. Die Befunde legen z.B. nahe, daß die gewerkschaftliche Organisation die Löhne der Männer am stärksten beeinflusst, während für Frauen die Mischung der vorhandenen Industrien am wichtigsten ist.

Studien des örtlichen Arbeitsmarktes    Lohnhöhen  
Lohnunterschiede nach Fähigkeiten  
Macht der Gewerkschaften    Struktur der Industrie

## INTRODUCTION

The decline in real earnings at the bottom of the earnings distribution is an important policy issue in the US, because of its effect on the living standards of low-income families. For example, DANZIGER and GOTTSCHALK, 1995, estimate that the poverty rate would have been 2 percentage points lower in 1991, had there been no decline in earnings at the bottom

between 1973 and 1991. This is a substantial contribution: the decline in earnings in the lowest part of the earnings distribution was the biggest contributor to rising poverty during this period, having a bigger impact on poverty rates than the rise in the proportion of families headed by a single parent.

For men, at least, the decline in real earnings at the bottom of the earnings distribution dates from the late 1960s. While a good deal of that decline appears

unrelated to known worker characteristics, levels of education played a substantial part, especially after 1979. For the years between 1979 and 1988, Juhn *et al.*, 1993, estimate that 46% of the widening in the differential between the 50th and the 10th percentiles of the men's wage distribution resulted from declining returns to low levels of education and experience, with education playing the larger role.

This research explores the causes of low earnings, focusing on a population at risk for low earnings due to lesser levels of education, using hourly wages as an earnings measure. It focuses on two groups: workers who did not graduate from high school; and workers who received a high school degree, but went no further. We refer to these two groups, taken together, as less-educated workers. A third group, made up of people whose highest educational credential is a BA, is included as a point of comparison with the other two. The research seeks clues about the causes of low earnings for less-educated workers using a new, metropolitan-level methodology and a sample of 2.7 million people from the 1990 Census to compare wage levels across 241 metropolitan labour markets in the US. Specifically, it looks simultaneously at the role played by labour demand, the minimum wage, unionization, industry mix, and the racial and gender composition of a city's labour force, to find evidence of the relative importance of these possible influences on earnings.

Our empirical work suggests that all five factors influence the relative wages of less-educated workers, but that industry mix and unionization play the biggest roles. Unionization matters most for the men in this group, accounting for 7–21% of the between-city variation in their wages. This correlation is mostly due to rises in union strength increasing the proportion of workers in a city that benefit from the union wage premium. Industry mix matters the most for less-educated women, accounting for between 11% and 33% of the variation in their wage levels.

#### WHAT METROPOLITAN CHARACTERISTICS MATTER?

An enormous amount of research has studied possible causes of rising income inequality in the US. While this research does not look directly at the determinants of the earnings of less-educated workers, it does suggest the factors that have most influenced earnings at the bottom of the earnings distribution. Two surveys of this literature (LEVY and MURNANE, 1992; DANZIGER and GOTTSCHALK, 1995) agree that five causes contributed to declines in the earnings of less-educated workers: changes in labour demand, affecting production technology regardless of industry; declines in union strength; declines in the real minimum wage; declines in manufacturing employment; and increases in globalization.

The hypotheses that structure this study are partly drawn from this income inequality research. Two factors frequently discussed are relatively easy to measure at the metropolitan level: the minimum wage and unionization. Two other factors discussed (declines in manufacturing employment and increases in globalization) are hard to distinguish at a metropolitan scale. Rather than measuring them separately, we focus our attention on a single, related, dimension of metropolitan labour markets: the industry structure of employment.

Our first hypothesis, then, has to do with the minimum wage. We expect less-educated workers will earn relatively high wages in metropolitan areas with high minimum wages. Workers employed at the lowest wages in a labour market will be affected directly by the minimum wage there. Workers close to the minimum, but above, will also likely be affected as employers seek to maintain customary wage differentials when the minimum rises.

Second, we anticipate that less-educated workers will have higher wages in cities with relatively high levels of unionization. Rises in the proportion of workers in unions will extend union wage premiums to a larger share of the less educated. The premium may be substantial; research by FREEMAN and MEDOFF, 1984, suggests unions raise the wages of low-education, low-seniority workers most. In addition, increases in the proportion of workers represented may increase bargaining power and result in average wage premiums being larger in cities with high levels of unionization. Finally, high levels of unionization will likely raise non-union wages; NEUMARK and WACHTER, 1995, found that threat effects are stronger than spillover effects at the city level.

Third, we predict that relative earnings will be high for less-educated workers in labour markets with high levels of employment in industries that employ many less-educated workers and pay them relatively well. The existence of substantial, non-transitory wage differentials among industries has been recognized at least since the work of DUNLOP, 1957. In the presence of such differentials, changes in industry employment shares will affect relative earnings for the less educated; those shares could be influenced by the decline of manufacturing employment generally, by outsourcing, by trade (as found by BORJAS and RAMEY, 1995) and by other factors. A rise in employment shares in high-wage industries will raise earnings of less-educated workers directly, as individuals in those industries benefit. It might also raise wages of less-educated workers in other industries, to the extent that community norms about appropriate pay are affected or that strong employment in some industries leads to relative shortages of less-educated labour in others.

In addition to the first three hypotheses, this study utilizes two others. The first of these is drawn from research on economic growth. For example, BARTIK,

1993, surveys studies looking at the impact of economic growth on various groups; all the studies find greater benefits for the less educated. Based on that research, we expect that less-educated workers will have high earnings in labour markets where the unemployment rate is low and labour demand has been growing fast.

The last hypothesis is drawn from studies of occupational wages. A number of researchers found that, controlling for other characteristics, occupations with a larger representation of white, non-Hispanic males pay higher wages (SORENSEN, 1989; ENGLAND *et al.*, 1994). We hypothesize that these effects are strong enough to affect the metropolitan wage distribution; we anticipate higher wages for less-educated workers in cities where most such workers are white, non-Hispanic males.

### ESTIMATING METROPOLITAN WAGE LEVELS

Data for this study mostly come from the 1990 census 5% Public Use Microdata Set (PUMS). All 236 metropolitan areas with consistent boundaries between the 1980 and 1990 census were included in the sample.<sup>1</sup> In addition, five other large metropolitan areas (ones with inconsistent boundaries) were added, so that all metropolitan areas with a population bigger than 500,000 in 1990 are covered. To keep the sample manageable, sampling rates varied among metropolitan areas and racial/ethnic groups.

We estimate the relationship between metropolitan characteristics and metropolitan wage levels for less-educated workers in two steps. In the first step, we estimate individual log wages (separately for men and women) for members of each of our three education groups. These six estimations regress log wages on a measure of potential experience, on dummy variables measuring race/ethnicity and on dummy variables identifying the metropolitan areas in our sample. The coefficients of these dummy variables give us estimates of the wage levels in metropolitan areas for particular groups of workers (for example, for men who did not graduate from high school), correcting for between-metropolis differences in experience and ethnicity.

In the second step, we regress the metropolitan wage level estimates from step one on measures of metropolitan characteristics embodying our five hypotheses:<sup>2</sup>

$$\begin{aligned} \hat{M}_j = & a + b(LNMWG_j) + c(UNION_j) \\ & + d(HRSALL89_j) + e(INDMIX_j) \quad (1) \\ & + f(WMALE_j) + u_j \end{aligned}$$

where:

$\hat{M}_j =$  estimates of relative wages across each of 241 metropolitan areas, for men or women in a particular education group (people with (1) less than a high school

degree; (2) a high school degree; and (3) a college degree)

$LNMWG =$  the log of a measure of the level of the minimum wage (or wages) in the state in which the metropolitan area is located. The measure is the state minimum in 1989 if it exceeded the federal. Otherwise, a weighted average of the two minimums is used.

$UNION =$  the proportion of workers in the metropolitan area who were members of unions or covered by union contracts, estimated using the CPS Outgoing Rotation Groups for 1989 and 1990. For 30 smaller metropolitan areas not identified in the CPS, we created proxies using measures of regional union strength by industry and the areas' industrial employment shares.

$HRSALL89 =$  a measure of labour demand, the average number of hours worked during 1989 by all people in the metropolitan area between 18 and 65

$INDMIX =$  a measure of the extent to which the industry mix of employment in the metropolitan area favours high wages for less-educated men or women<sup>3</sup>

$WMALE =$  among people who worked for wages in 1989, the proportion who were white, non-Hispanic, males

$u =$  a randomly distributed error term.

This equation estimates nominal wages across metropolitan areas. Ideally, we would make comparisons among metropolitan areas using a measure of real wages, but public domain cost-of-living data are available for only 22 cities. Given this problem, we explore metropolitan wage differences using two measures of wages: nominal wages and the wage gaps between people with terminal BAs; and less-educated workers. If mean earnings respond to differences in living costs among cities, cities with large wage gaps between BAs and less-educated workers are likely to be cities where living standards for less-educated workers are low.<sup>4</sup>

### EMPIRICAL RESULTS

This section examines, in turn, evidence for wage impacts due to each of the five factors discussed above: the minimum wage, unionization, the strength of labour demand, industry composition and demographic composition. Most of this discussion reviews the results from two pairs of regressions presented in Tables 2–5. Table 2 displays results from estimates of nominal wage levels for men in all three education groups, while Table 3 does the same for women. Table 4 displays results from estimates of the wage gap between men with a BA and less-educated male workers; Table 5



Table 1. Variable definitions, means and standard deviations<sup>1</sup>

	Mean	Standard deviation
<i>A. Wage measures: estimated wage levels for the six groups of interest<sup>2</sup></i>		
Men with less than a high school degree	-0.12	0.13
Men with a high school degree	-0.17	0.12
Men with a college degree	-0.25	0.13
Women with less than a high school degree	-0.16	0.13
Women with a high school degree	-0.32	0.14
Women with a college degree	-0.35	0.12
<i>B. Measures of metropolitan characteristics</i>		
<i>LNMWG</i> Log of the average minimum wage prevailing in the state in which the metropolitan area is located	1.22	0.11
<i>UNION</i> An estimate of the proportion of the people with wages for 1989 that were covered by collectively bargained contracts	0.17	0.06
<i>HRSALL89</i> (in 100s) The average number of hours worked during 1989 by all people in the metropolitan area between 18 and 65, divided by 100	14.50	1.08
<i>INDMIXM</i> (for men) A weighted average of industry coefficients from a regression estimating individual wages for men nationally, with weights corresponding to the industry employment shares in the metropolitan area (see endnote 3)	0.10	0.03
<i>INDMIXW</i> (for women) Same as the above, except for women	0.04	0.02
<i>WMALE</i> The proportion of all less-educated workers in the metropolitan area who are white, non-Hispanic males	0.40	0.01

Notes: 1. Means and standard deviations are listed for the main metropolitan-level variables included in the study. Unless otherwise noted, they are computed for the full sample of 241 metropolitan areas.  
2. The mean and standard deviation for each group is calculated from the  $\hat{M}_j$  estimated with equation (1). Negative values for the means reflects the fact that the mean wage level is always below the wage level in the omitted metropolitan area.

Table 2. Male nominal wages by metropolitan areas, regressed on metropolitan characteristics

Variables	Education level					
	LTHS		HS		BA	
	Coefficients	<i>t</i> -statistic	Coefficients	<i>t</i> -statistic	Coefficients	<i>t</i> -statistic
Constant	-1.52*	13.21	-1.52*	13.26	-1.49*	11.54
<i>LNMWG</i>	0.53*	10.18	0.54*	10.83	0.44*	6.73
<i>UNION</i>	0.71*	6.96	0.57*	5.87	0.47*	4.18
<i>HRSALL89</i> (in 100s)	0.05*	9.38	0.05*	8.34	0.06*	9.97
<i>INDMIXM</i>	0.97*	5.93	1.38*	9.35	1.52*	7.27
<i>WMALE</i>	-0.50*	5.06	-0.46*	4.41	-0.88*	8.32
<i>R</i> <sup>2</sup>	0.57		0.57		0.46	
<i>F</i>	62.38		62.56		39.96	

Notes: In this and subsequent tables, asterisks mark coefficients whose *t*-statistics indicate statistical significance in a one-tailed test at the 5% level ( $t > 1.65$ ). Also, White's test for heteroscedasticity indicated heteroscedasticity may be present in most of these regressions. Consequently, all the *t*-statistics presented in this and subsequent tables are computed using White's method. Generally the correction made only a small difference, but a few *t*-statistics were increased or decreased by as much as 30%.

does the same for women. For most variables in the regressions reported, variable names and definitions, as well as standard deviations and means for variables, are reported in Table 1.

To begin with the discussion of the first factor, the results suggest that the minimum wage affects the wages of the less educated, but only weakly. While the coefficients in the nominal wage level estimations in Tables 2 and 3 are consistently significant, large and positive, the corresponding coefficients in the wage gap estimations (presented in Tables 4 and 5) are much smaller in absolute value. Since it is likely that the wages of workers with BAs are independent of the

minimum wage, this pattern suggests that a state's minimum wage is partly endogenous. It might be, for example, that average wage levels in a state affect the minima set; minimum wages that look reasonable to legislators in California, a high wage state, look too high to legislators in Mississippi, which has much lower wages.

If one assumes that the minimum wage has no impact on workers with a college degree, the results presented in Tables 4 and 5 suggest that the minimum's impact on wage levels accounts for a bit less than one-quarter of the value of coefficients reported. That would mean that a 10% rise in the minimum wage raises

Table 3. Female nominal wages by metropolitan areas, regressed on metropolitan characteristics

Variables	Education level					
	LTHS		HS		BA	
	Coefficients	t-statistic	Coefficients	t-statistic	Coefficients	t-statistic
Constant	-1.18*	10.91	-1.35*	11.67	-0.84*	9.11
LNMWG	0.56*	14.07	0.57*	13.48	0.43*	8.78
UNION	0.32*	2.66	0.20*	1.80	0.34*	3.50
HRSALL89 (in 100s)	0.03*	3.31	0.03*	4.18	0.02*	2.58
INDMIXW	2.62*	6.01	2.98*	7.38	2.18*	6.97
WMALE	-0.44*	5.30	-0.61*	6.19	-0.88*	10.50
R <sup>2</sup>	0.64		0.68		0.59	
F	82.63		97.73		68.40	

Note: See Table 2.

Table 4. Male wage gap by metropolitan area, regressed on metropolitan characteristics

Variables	Education level			
	BA to LTHS		BA to HS	
	Co-efficients	t-statistic	Co-efficients	t-statistic
Constant	0.03	0.24	0.03	0.37
LNMWG	-0.09	1.47	-0.10*	2.09
UNION	-0.24*	2.39	-0.10	1.25
HRSALL89 (in 100s)	0.01	1.10	0.01*	2.74
INDMIXM	0.54*	2.55	0.14	0.87
WMALE	-0.38*	4.11	-0.42*	5.28
R <sup>2</sup>	0.15		0.20	
F	8.41		11.91	

Note: See Table 2.

Table 5. Female wage gap by metropolitan area, regressed on metropolitan characteristics

Variables	Education level			
	BA to LTHS		BA to HS	
	Co-efficients	t-statistic	Co-efficients	t-statistic
Constant	0.34*	3.69	0.51*	5.63
LNMWG	-0.14*	2.98	-0.14*	3.13
UNION	0.02	0.20	0.13	1.56
HRSALL89 (in 100s)	-0.01	1.58	-0.02*	2.47
INDMIXW	-0.44	1.28	-0.80*	2.45
WMALE	-0.43*	5.07	-0.26*	3.29
R <sup>2</sup>	0.22		0.25	
F	13.15		15.94	

Note: See Table 2.

the wages of less-educated workers by a maximum of 1.4%. Changes in the minimum wage seem to have a limited effect on the wage distribution, affecting only wages close to the minimum.

The coefficients on the unionization variable in Tables 2 and 3 suggest unions have a sizable impact on

the metropolitan wage levels of less-educated workers, with substantially bigger impacts for men than for women.<sup>5</sup> The biggest implied impact is for men with less than a high school education; the coefficient for this group suggests that a 10 percentage point rise in the share of employees represented by unions in a metropolitan area raises their average wage by about 7 percentage points. This is nearly 80% bigger than unionization impacts one would predict using individual-level data.<sup>6</sup> This discrepancy (and the parallel one for men with a high school education) suggests that about 40% of the total effect of unionization on less-educated men's salary levels comes through increased bargaining power and/or increased threat effects, as opposed to the effect coming through rises in the proportion of these men benefiting from union wages.

As mentioned earlier, union strength seems to have a smaller impact on women's wages (at the city level) than it does on men's. However, only a small part of the substantial difference in strength is accounted for by individual-level bargaining effects; individual-level estimates of wage impacts are only slightly smaller for women than men. Lower levels of organization account for more of the difference for women; the proportion of less-educated women who are unionized or who are covered by union contracts is about 40% smaller than the corresponding proportion for men.<sup>7</sup> Finally, roughly 30% of the difference seems to result from bargaining power effects and/or threat effects. These channels have a noticeable impact on women's wages, but substantially smaller than they have on men's.

Coefficients on the labour demand variable in Tables 2 and 3 suggest that rises in demand have a substantial impact on wages, with the impact being consistent in size with that found by BOUND and HOLZER, 1996. Inconsistent with their results is the tendency for the gap between educated and less-educated men to widen as labour demand increases (see Table 4). These results should be viewed as suggestive only, given that labour supply differences among cities will affect our measure of labour demand and that high wage metropolitan



areas tend subsequently to have lower job growth, something which could weaken the cross-section relationship between labour demand and metropolitan wage levels.

Industry composition of employment in a metropolitan area has a strong association with wage levels, especially for women.<sup>8</sup> For women with a high school degree, a 5 percentage point rise in the industry composition measure (a 1.5 standard deviation increase) is associated with a 15 percentage point rise in their wage (see Table 3). Industry composition also appears to influence wage differences by education for women, with a statistically significant shrinking of the wage gap between women with BAs and women with lower levels of education as the representation of industries paying less-educated women well increases (see Table 5). This shrinking is absent for men.

Looking more carefully at the results for women, it appears that three two-digit industries, ones that pay relatively high wages and employ a large share of less-educated women, drive much of the relationship between industry mix and wage levels: finance, insurance and real estate; public administration; and transportation. In addition, we found some evidence that there is spillover from high paying industries to low paying industries. Low wage industries tend to pay women more in metropolitan areas that have a large share of women employed in high wage industries.

The final independent variable in the wage regressions measures the share of white, non-Hispanic males among less-educated workers. In the regressions reported in Tables 2 and 3, the coefficients on this variable are statistically significant and uniformly have an unexpected negative sign. Less-educated men and women earn *less*, controlling for experience and demographic mix, as the proportion of white, non-Hispanic men in the less-educated labour force increases. Other metropolitan characteristics apparently offset the occupation-level effects of sex and race composition documented by other researchers.

## CONCLUSIONS

This paper examines differences in less-educated workers' wage levels among metropolitan areas in the US, seeking evidence that characteristics of metropolitan labour markets affect their wages. We examine the influences of five particular characteristics in a simultaneous context: the industry composition of employment for less-educated workers; union strength in the metropolitan labour market; the level of the minimum wage; the strength of labour demand; and the demographic composition of the labour market.

Of the five metropolitan characteristics investigated, industry composition and union strength appear to have the strongest impacts on the wages of the less educated, but the impacts are on different groups. Industry composition appears to be the single most

important influence on the wages of women, with three high-wage industries driving a substantial part of the effect: finance, insurance and real estate; public administration; and transportation. Industry effects on men are weaker. Union strength seems to matter a lot for the wages of less-educated men, while counting less for women's wages. A large share of the union impact on the wage levels of low education men appears to work through increases in threat effects or bargaining power as the level of organization increases.

Rises in labour demand appear to have a moderate, positive impact on wage levels. We anticipated that high levels of labour demand would tend to raise wages for less-educated workers, with rises in demand both increasing wages for particular jobs and creating opportunities for upward mobility. The evidence we found suggests this effect is substantial for men, but significantly smaller for women.

We expected that the minimum wage in a metropolitan area would have direct impacts on the lowest wage workers and some impacts on workers working near the minimum. While we found a substantial partial correlation between the level of minimum wages and the wage levels of less-educated workers, most of that correlation probably does not reflect a causal relationship. Rather, it appears that the level of the minimum wage in a state is influenced importantly by the level of wages in a state's metropolitan areas.

Contrary to our expectations, demographic composition appears to have no important impact on metropolitan wage levels. The dimension of demographic composition we focused on was the proportion of less-educated workers who are white, non-Hispanic males. Based on previous findings at the occupational level, we anticipated that the work of less-educated workers would be valued more highly in metropolitan areas where white, non-Hispanic males constituted a large share of this group. We found no evidence for this.

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## NOTES

1. Of the 187 metropolitan areas in the 1990 PUMS smaller than 500,000 in population, 151 are included in our sample. The population size distribution of the included areas is very close to that of the entire 187.
2. This two-step procedure avoids estimation problems that would result if metropolitan-level variables in the second step were included in the same regression with individual characteristics utilized in the first. Such an approach would likely bias the *t*-statistics of the metropolitan-level variables upwards (MOULTON, 1986). DICKENS and KATZ, 1987, suggest the sort of two-step estimation we adopt as a straightforward way to avoid this bias.

3. To develop this measure, we regress wages of less-educated individuals (for men and women separately) on measures of potential experience, education, race/ethnicity and industry. The industry measures are dummies identifying 34 industries; coefficients on those dummies measure industry wage levels. For each metropolitan area, *INDMIX* is a weighted average of these industry coefficients, with the weights corresponding to the industrial employment shares for that area.
4. We used two living cost measures to investigate this possibility. Using a public domain measure of living costs (for 22 metropolitan areas, see EBERTS and SCHWEITZER, 1994), we found no statistically significant correlation between wage gaps and real wages of low education workers in this sample. On the other hand, using a larger, proprietary data set (see BTA ECONOMIC RESEARCH INSTITUTE, 1989), we found statistically significant, negative correlation in three of four cases (the significant correlation coefficients range from  $-0.31$  for women with high school degrees to  $-0.43$  for women with less than a high school degree).
5. For both workers with less than a high school education and workers who are high school graduates with no college degree, the differences between the male unionization coefficients and the female ones are statistically significant.
6. The individual-level estimations are for less-educated workers 18–65, living in identified metropolitan areas, in the 1989 CPS.
7. For workers with less than a high school degree, 20% of men were unionized or worked under a union contract, while that was true of only 13% of women. For workers with a high school degree, 26% of men were unionized or worked under contract, while that was true for only 14% of women. These are estimates made with weighted tabulations of the CPS sample described in note 6.
8. For both high school educated women and for women with less than a high school education, the differences between the female and the corresponding male coefficients are statistically significant.

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