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INTERINDUSTRY WAGE DIFFERENCES: AN EMPIRICAL REVIEW

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INTERINDUSTRY WAGE DIFFERENCES: AN EMPIRICAL REVIEW

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Resumen

Bajo mercados competitivos, los trabajadores deberían ser compensados de acuerdo con su productividad, sin importar otras características individuales. Esto, sin embargo, no es el caso y ha sido extensamente reportado en la literatura. Este artículo revisa la evidencia empírica y los métodos de estimación de diferenciales sectoriales de salarios. Más aún, muestra estimaciones de dichos diferenciales para los Estados Unidos usando datos de la CPS entre 1968 y 2008. La presencia de diferenciales sectoriales de salarios es clara, aún cuando bajo ciertas técnicas econométricas, su magnitud se reduce en favor de características no observadas del trabajador y la firma.

Abstract

Under competitive labor markets, workers should be paid according to their productivity, regardless of other personal characteristics. This, however, is not the case and has been widely reported in the literature. This paper reviews empirical evidence and methods of estimation for sectoral wage differentials. Moreover, it shows estimates of such differentials for the United States using CPS data from 1968 to 2008. The presence of industry wage differentials is certain, although under certain econometric techniques, its magnitude is reduced in favor of unobserved worker and firm characteristics.

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1 Introduction

Under the assumption of perfectly competitive labor markets, workers should be compensated according to how productive they are. The neoclassical framework allows for wage dispersion as long as workers' productivity levels, and the productivity of the firms they work in, differ. Never-the-less, as early as sixty years ago Slichter (1950) and Weiss (1966) documented that wage differentials among workers are a prevalent feature of labor markets. These papers not only pointed at the presence of *raw* wage differences, but also showed that these differentials subsist even after observable individual differences are taken into account. In particular, characteristics such as education, age, and tenure on the workers' side, and size, profitability, and sales on the firms' side, play an important role in explaining wage differentials.

As a companion to Ricaurte (2008), this paper has three different purposes. First, it reviews the existing literature for empirical evidence on wage dispersion, with an emphasis on sectoral and industrial wage differences. To solve the puzzle of these types of wage premia, a number of theoretical explanations arose, ranging from search models, to the presence of collective bargaining schemes.[1] The first analysis concentrates on these qualitative results. The statistical and econometric strategies developed to empirically test the presence of wage dispersion are treated separately in the second review. It is important to note that these econometric techniques have advanced alongside the quality of data sets. In particular, modern methodologies require linked panel data sets, which became available beginning in the 1980s. Since the robustness of these methods has improved over time, it is important to discuss the literature and methodology in a chronological context. The final purpose of the paper is to present my own estimates of interindustry wage differentials for the United States using Current Population Survey (CPS) data.

I begin the empirical analysis by reporting first and second moments of the data and discussing raw group wage gaps (*e.g.*, gender, race, urban-rural). My findings are consistent with those discussed extensively in Katz and Autor (1999) and Lee and Wolpin (2006). I find that overall inequality in earnings has increased over the period studied, with the primary and service sectors showing the largest inequality. My econometric estimates allow me to conclude that a "true" wage gap exists. Moreover, when I aggregate industries into major sectors, I find that wage differentials favoring manufacturing over services are prevalent (and

[1] See Cahuc and Zylberberg (2004) for a discussion.

statistically significant) throughout the 1968-2008 period. Here, too, the gap is not constant. While the estimates for all workers grew from the early 1970s to the late 1980s and later decreased, the equivalent gap estimated for male workers only, monotonically decreases in the period studied. Explaining these observations requires attention beyond the scope of this paper.

The paper is structured as follows: In Section 2 I review the relevant literature on empirical evidence of intra-industry wage differentials. The discussion in this section concentrates on regularities reported in the data and their evolution over time; methodological considerations are discussed in section 3. These two sections lay the background for interindustry wage differential estimates based on CPS data for the United States from 1968 to 2008, presented in Section 4. This section includes a abridged description of the data, the (econometric) estimation strategy, and a discussion of the results. Details on the data as well as the estimates appear in the appendices. Finally, concluding remarks are presented in Section 5.

2 Empirical evidence (literature review)

In this section, I review the relevant empirical literature and discuss the existing evidence on wage differentials across groups (industries and sectors, in particular), beginning in the second half of the twentieth century. Change in the qualitative aspects of the empirical evidence on wage differentials is due both to improvements in methodology as well as the availability of relevant data sets. I begin with research describing the basic descriptive statistics and work through the literature to conclude with a discussion of research employing sophisticated econometric techniques and employer-employee linked data sets. Although this section surveys a large body of the relevant research, it is not feasible to be exhaustive given the volume of the existing literature.

The issue of wage differentials was documented as early as 60 years ago by Slichter (1950) and Weiss (1966). These two papers pioneered this branch of labor economics relying on descriptive statistics analysis alone. As quantitative – statistical – tools were incorporated into economic analysis, researchers were able to control for worker and firm characteristics to explain wage differentials. Thus, two views regarding measured interindustry wage differentials appeared: (1) true wage differentials exist across industries; and (2) the measured

differentials simply reflect unmeasured differences in workers' productive abilities, in firm characteristics, and in the quality of the employer-employee match.

The quantification of income differences among individuals employs a basic framework first proposed by Jacob Mincer to study human capital and its impact on earnings (Mincer 1958; 1974). This framework, known as the *Mincer equation* or *regression*, relies on the simple idea proposed by Gary Becker (1964) that changes in individual characteristics through the life cycle contribute to higher income.[2] The original hypothesis was that income differs among individuals contingent on differences in qualities affecting labor productivity (*i.e.*, human capital stock). Never-the-less, early literature shows that even after controlling for these productivity-related individual characteristics, differences in income prevailed. In other words, wage discrimination seemed a reality.

The most commonly identified forms of group discrimination were those related to race and gender. The literature on discrimination is large, but will not be discussed here as it is beyond the scope of this review. However, two classical references at the foundation of group wage differentials deserve special attention. In separate papers, Blinder (1973) and Oaxaca (1973) proposed a simple way to decompose average wage differentials into two sources: differences in group characteristics and "true" discrimination (*i.e.*, different returns to similar characteristics). Using the *Survey of Economic Opportunity* for 1967, both authors find that even after controlling for observable human capital characteristics (*e.g.*, education, experience, class of worker) wage differences between male and female workers, as well as white males, black males, and white females, persisted. In other words, it is not the difference in human capital stock that explains wage differences across genders and race, but rather true discrimination. Moreover, the method of wage decomposition (described in Section 3 below) allowed the authors to isolate the characteristics that suffered discrimination.

The idea of group discrimination is closely related to sectoral (and industrial) wage gaps. Among the first studies to address this for the United States is Krueger and Summers (1988). Employing cross-sectional and longitudinal data from the *Current Population Survey* (CPS) and QES, they categorically reject the hypothesis that labor markets behave competitively. They find large differences in wage dispersion across sectors as well as evidence of wage differentials, as measured by statistically significant industry dummies in Mincer equations. The authors argue that this differences cannot be tied to unobserved individual characteristics

[2]For a detailed discussion on the evolution of Mincer regression methodology and applications, see Heckman et al. (2003).

or pecuniary motives for job compensation. Even controlling for unobserved characteristics, they find significant wage differentials similar to those obtained from an estimation with no individual fixed effects. The study also finds that firm size matters for wage structure and that worker turnover is negatively correlated to wage differentials. The authors argue that this is evidence that workers in high wage industries earn non-competitive rents.

These results are corroborated by Gibbons and Katz (1992), a study which employ CPS data. Here the authors assert that "true" wage differentials exist across industries based on two arguments. First, they find estimates that do not control for unmeasured abilities fit the data as well as those employing individual fixed effects. Second, their estimates show that wage gains of workers who switch industries are equivalent to differentials estimated in a cross-section. Thus, they conclude wage differences across industries cannot arise primarily from unobserved worker characteristics.

The evidence on interindustry wage differentials is consistent with the presence of wage dispersion in the United States. Whether this is a prevalent feature in all economies remains an open question. A number of studies address this issue by contrasting the United States labor market with its European counterparts. For example, Holmlund and Zetterberg (1991) report that wages are more dispersed in the United States than in Sweden, Norway, Finland, and Germany. From these findings they conclude that there is a higher sensitivity of wages to sectoral price and productivity changes in the United States. Never-the-less, they do not offer an explanation for the phenomenon.

Kahn (1998) goes a step further by establishing a connection between collective bargaining (more prevalent in Europe than the United States) and wage dispersion. Employing microdata from several sources[3] and quantile regressions, he compares the wage experiences of the United States, Britain, West Germany, Austria, Sweden, and Norway in the 1980s. The paper reports high interindustry wage differentials and a union-wage premium in the United States than Europe. The author argues that the prevalence of collective bargaining in Europe has compressed wages there. In a related paper, Açikgöz and Kaymak (2008) study the process of de-unionization in the United States, arguing that wage compression arising from collective bargaining becomes a disincentive for workers to join a union.

It is clear that by the end of the 1990s, many scholars had embraced the presence of "true" wage differentials. Yet, Abowd et al. (1999) and Goux and Maurin (1999) disputed

[3]Data sources include, among others: PSID, CPS, and International Social Society Survey Program data. Details on the data sources can be found in the paper.

this hypothesis by use of employer-employee matched data for France and the United States. Goux and Maurin (1999) estimate Mincer regressions with no omitted variables (unobservable characteristics) and cannot reject the hypothesis of sectoral wage differentials in France between 1990 and 1995; this is consistent with Krueger and Summers (1988). Moreover, the industries with higher/lower wage markups are similar in both the United States and France, even though labor markets are considered to be different.

Next, Goux and Maurin (1999) estimate a model with individual fixed effects to control for unobserved individual characteristics. Their results support their claim that interindustry wage differentials are largely explained by unobservable characteristics. Unlike Gibbons and Katz (1992), they show that workers who switch industries experience small and time-unstable wage gains. Wage differentials are caused by unmeasured abilities that are not evenly distributed across industries. The authors also instrument the industry choice and find no strong evidence of endogeneity, thus reinforcing their finding of small "pure" interindustry wage differentials. Moreover, the authors explore the impact of firm-specific wage policies on interindustry wage differentials by estimating a model with worker and firm fixed effects. Unlike Abowd et al. (1999), Goux and Maurin (1999) find significant interfirm wage differences, although there is low correlation between the distribution of workers and firms' wage policies in France.

The correlation between workers and firms' wage policies discussed in the studies above is a branch of the literature in itself, and merits at least a brief discussion. Abowd et al. (1999) explored this margin for France; more recently, Arai (2003) used Swedish employer-employee matched data with the same goal. After controlling for worker quality, degree of effort supervision, job characteristics, local unemployment, firms' employment history, and employer size, the author finds that wages are positively correlated with profits and the capital-labor ratio of firms. He concludes that workers with more experience and education are sorted into more profitable firms. Moreover, the author estimates that between 12 and 24 percent of the mean wage in Sweden corresponds to rent sharing, similar to estimates for the United States and the United Kingdom. For the United States, Brown and Medoff (2003) use Survey Research Center's monthly Survey of Consumers from the University of Michigan, and find that the raw relationship between firm age and wages is positive. However, after controlling for individual characteristics, they conclude the relationship is insignificant.

Turning back to interindustry wage differentials, the work of Jean and Nicoletti (2002) addresses the issue of wage differentials for a sample of twelve OECD countries. Using

average statistics for 41 industrial groups, the authors find significant industry markups for OECD countries by estimating a two-step econometric procedure. The first step generates statistically significant sectoral wage differentials from Mincer equations for each country. These markups are then regressed against market and policy characteristics in each sector. The authors conclude that labor and good market regulations have an important impact on sectoral wage differentials. It should be also noted that, unlike Goux and Maurin (1999), this paper finds that industries which have the highest markups vary across countries.

A final paper is at the frontier in terms of methodology and the data set employed. Woodcock (2008) used the U.S. Census Bureau's Longitudinal Employer-Household Dynamics (LEHD) database which tracks workers and firms and therefore, employer-employee relationships over time. The author controls for observable and unobservable characteristics in these three dimensions to quantify interindustry wage differentials. By adding unobserved employer-employee match effects, this paper exposes the potential problems of excluding them. The authors argue that while a model *a la* Abowd et al. (1999) provides some information on worker and firm effects on wages, the interaction of these two is critical in explaining wage differentials. An application to linked employer-employee data shows that decompositions of interindustry earnings differentials and the male-female differential are misleading when unobserved heterogeneity is ignored.

3 Methodological review

Having discussed the main empirical regularities reported in the literature, in this section I review the evolution of the methods employed to reach those conclusions. I argue that the data available (in particular, cross sections vs. panel data sets) play a determinant role in the application of each methodology. The challenge is to understand the source of the difference in a measure of average income (*e.g.*, wages) between some group j of individuals and a reference group 0. The **raw wage differential** between such groups can be written as: $\log \overline{w}_j - \log \overline{w}_0$. Groups identify specific characteristics such as race, gender, or industry; examining this last factor is the concern of this paper.

When the data available corresponds to a cross section of individual observations, the simplest way to address income differences is to assume there are different income outcomes depending on the group membership. In particular, let the income outcome for individual i

in the reference sector 0 be:

$$\log w_{i,0} = \mathbf{x}_i'\mathbf{B} + \epsilon_i,$$

where $\mathbf{x}_i$ is a vector of the observable or measured characteristics of individual i, and the outcome in sectors $j \neq 0$:

$$\log w_{i,j} = \log w_{i,0} + \theta_j.$$

In the expressions above I have assumed that there are constant, but potentially different, wage differences (θ_j) between sectors j and the reference sector 0, but returns to individual characteristics are common across them. The combination of these expressions gives the regression estimated for individual i:

$$\log w_i = \mathbf{x}_i'\mathbf{B} + \gamma_i'\Theta + \epsilon_i, \tag{3.1}$$

where γ_i is a vector of indicator variables for group membership, Θ is a vector composed of θ_j's, and ϵ_i is an independent and identically distributed error term with variance σ_ϵ^2. In the case of sectoral wage differentials, the vector γ_i identifies the industry or sector of the economy where the individual works. To test the hypothesis that labor markets are competitive under this formulation, I test whether the coefficients in $\mathbf{\Theta}$ are simultaneously zero.

The average wage differential between sector j and reference sector 0 can be written as:

$$\log \overline{w}_j - \log \overline{w}_0 = \underbrace{(\overline{\mathbf{x}}_j - \overline{\mathbf{x}}_0)'\hat{\mathbf{B}}}_{(1)} + \underbrace{(\hat{\theta}_j - \hat{\theta}_0)}_{(2)}, \tag{3.2}$$

where the overbars indicate group averages and the hats denote estimated parameters. Equation (3.2) decomposes wage differentials into (1) the difference in average individual characteristics and (2) differences intrinsic to group membership. Krueger and Summers (1988) and Katz and Autor (1999) study interindustry wage differentials under this formulation, as do the benchmark models of Goux and Maurin (1999) and Abowd et al. (2008), among others. The review of the importance of firm-size on wage differentials by Oi and Idson (1999) shows that this is a popular econometric approach in this branch of the literature, echoed by Abowd et al. (1999), among others.

A generalized version of equations (3.1) and (3.2), known as the Blinder-Oaxaca decomposition method (Blinder 1973 and Oaxaca 1973), allows all parameters, *i.e.*, the constant

as well as the returns to worker characteristics, to differ across sectors. To see the difference between the Blinder-Oaxaca decomposition and the model represented by equation (3.2), I write wage differentials between sector j and reference sector 0 as:

$$\log \overline{w}_j - \log \overline{w}_0 = \underbrace{(\overline{\mathbf{x}}_j - \overline{\mathbf{x}}_0)'\hat{\mathbf{B}}_\mathbf{0}}_{(1)} + \underbrace{\overline{\mathbf{x}}'_j(\hat{\mathbf{B}}_\mathbf{j} - \hat{\mathbf{B}}_\mathbf{0})}_{(2)}, \tag{3.3}$$

where the vector $\mathbf{B}$ now contains the constant term in the regression (term θ in (3.2)) and vector $\mathbf{x}$, the group the individual works in. The righthand side of equation (3.3) shows (1) the sectoral differences in average characteristics, and (2) differences in returns to those characteristics across sectors. In the labor economics literature, the first term is referred to as the "explained component" of wage differentials, since it comes from variations in observable worker characteristics across sectors.

Statistically speaking, the estimation of models such as the ones described by equations (3.2) and (3.3) is correct under the assumption that the error term is uncorrelated with the vectors $\mathbf{B}$ and $\mathbf{\Theta}$ of parameters. This assumption is prone to fail when individual characteristics are omitted from the regression equation. Therefore, in the presence unobserved individual characteristics, the estimates of returns to individual characteristics or group membership will be biased. In particular, if workers of different abilities are not randomly (or evenly) distributed across firms or sectors, the parameter associated with the industry indicator variable will capture this difference in ability distribution.

The problem of unobserved individual characteristics has been extensively diagnosed and addressed in the literature when panel datasets are available. In particular, the classical solution exploits repeated individual observations to control for unobserved individual characteristics (see Angrist and Krueger 1999 for a complete survey). The correct specification is not equation (3.1), but rather an **individual fixed effects model**. This family of models is meant to control for unobserved, time invariant characteristics that affect the – dependent – income variable and which can be correlated to other independent, explanatory variables.

For example, when wages only differ through a constant term (*e.g.*, equation (3.1)), the regression to be estimated for every time t is:

$$\log w_{i,t} = \mathbf{x}'_{i,t}\mathbf{B} + \gamma'_{i,t}\Theta + \alpha_i + \varepsilon_{i,t}, \tag{3.4}$$

where α_i represents individual i's unobserved characteristics and $\varepsilon_{i,t}$ is uncorrelated with

$\mathbf{x}_{i,t}$. These characteristics (presumably related to ability) are assumed to be time invariant. Therefore, I can control for them taking the first difference of (3.4) to obtain:

$$\triangle \log w_{i,t} = (\mathbf{x}_{i,t} - \mathbf{x}_{i,t-1})'\mathbf{B} + (\gamma_{i,t} - \gamma_{i,t-1})'\Theta + \eta_{i,t}, \tag{3.5}$$

and $\eta_{i,t} \equiv \triangle\varepsilon_{i,t}$ is the uncorrelated error term. The possibility that industry choice is an endogenous decision poses a problem to estimating equation (3.5).

To address the endogeneity issue, Goux and Maurin (1999) apply a test proposed by Murphy and Topel (1987), that relies on the possibility of identifying workers in a panel dataset who have switched industries from those who have not. Then, they the compute interindustry wage differentials for "non-switchers," and estimate how much of this difference is gained by "switchers" (*i.e.*, workers who choose to switch).[4] The equation estimated is:

$$\triangle \log w_{i,t} = (\mathbf{x}_{i,t} - \mathbf{x}_{i,t-1})'\mathbf{B} + \delta(\gamma_{i,t} - \gamma_{i,t-1})'\Theta_0 + \eta_{i,t}, \tag{3.6}$$

where Θ_0 is the vector of cross-sectional interindustry wage differentials measured for non-switchers, and δ is the fraction of those differentials experienced by switchers. If this parameter is close to one, then wage differentials are pure "interindustry" differentials, whereas if it is closer to zero, all wage differences are due to labor quality. The authors estimate δ with OLS and instrumental variables (employing the pre-switch industry as instrument) and find that both procedures yield a low and statistically equivalent δ. They conclude that endogeneity of mobility does not constitute a major source of bias.

An alternative to the time differences approach (such as equations (3.5) and (3.6)) consists of estimating deviations from individual observation means. This approach can be applied when parameter vectors $\mathbf{B}$ and $\mathbf{\Theta}$ are time-invariant, such that individual unobserved characteristics α_i are eliminated when OLS is applied to the difference equation:

$$\log w_{i,t} - \log \overline{w}_i = (\mathbf{x}_{i,t} - \overline{\mathbf{x}}_i)'\mathbf{B} + (\gamma_{i,t} - \overline{\gamma}_i)'\Theta + (\varepsilon_{i,t} - \overline{\varepsilon}_i), \tag{3.7}$$

where overbars denote person averages. Angrist and Krueger (1999) argue that this model is preferable to time differences on efficiency grounds.

[4]This formulation resembles that of a **differences-in-differences** estimation procedure, which is applied in cases when certain groups are exposed to the influence of an event and other are not. This methodology is outside the scope of this paper as its main application is to measure the impact of policy or other economic environment changes. For more details, see Angrist and Krueger (1999).

The models discussed so far assume that only individuals have unobserved characteristics; in many papers reviewed, this is the result of data restrictions. However, these **individual fixed effects** models can be extended to include **firm fixed effects** and **match fixed effects** when employer-employee matched panel data are available. Even though some effort was made in the 1960's and 1970's to generate these data sets, it was only in the 1980's that the French National Institute for Statistics and Economic Studies (INSEE) generated the first robust surveys (Abowd and Kramarz 1999). By the end of the 1990's, Abowd and Kramarz (1999) report the existence of 38 such data sets for 17 countries and just a handful of econometric papers using them. Representative studies employing French data are Goux and Maurin (1999), Abowd et al. (2006), and Abowd et al. (2008). For the United States, it was not until the beginning of the 2000's that the *Integrated Longitudinal Employer-Employee Data* were made available by the U.S. Census Bureau (as Abowd et al. 2004 document). A recent example employing the U.S. match data to estimate wage differentials is Woodcock (2008).

The idea behind extending the individual fixed effects model is that there are unobservable firm (*e.g.*, specific wage policies) or employer-employee pair (*e.g.*, match quality) characteristics that bias wage gap estimates. When employer-employee matched panel data are available, workers, establishments, and worker-establishment matches can be tracked over time; these unobservable characteristics can be then dealt with in the same manner as an individual fixed effects model. A general version of the model, following equation (3.4) and Woodcock (2008) is:

$$\log w_{i,k,t} = \mathbf{x}'_{i,t}\mathbf{B} + \mathbf{z}'_{k,t}\mathbf{C} + \gamma'_{i,t}\Theta + \alpha_i + \psi_k + \phi_{i,j} + \varepsilon_{i,k,t}, \tag{3.8}$$

where income of worker i in firm k at time t is assumed to depend on observable individual ($\mathbf{x}_{i,t}$) and firm ($\mathbf{z}_{k,t}$) characteristics, the sector the worker is employed in (θ_k), and unobserved individual (α_i), firm (ψ_k), and employer-employee match characteristics ($\phi_{i,j}$). Notice that observable match characteristics implicitly appear in vectors $\mathbf{x}_{i,t}$ and $\mathbf{z}_{k,t}$, and could appear as interaction terms as well.

Income in equation (3.8) can be decomposed in the same fashion as the preceding formulations. The general econometric strategy is to estimate the differenced equation, where match and firm effects appear as indicator variables. The effect of estimating a regression which omits unobserved firm, match, or both effects is discussed extensively in Woodcock

(2008).[5]

In addition to the fixed effects formulations described above, unobserved characteristics can be of two forms. First, regressions with **between effects** are employed to control for omitted variables that change over time but are constant between groups. This approach allows a researcher to use the variation between cases to estimate the effect of the omitted independent variables on the income. Moreover, when it is plausible that some omitted variables are constant over time but vary between groups (**fixed effects**), and others are fixed between groups but vary over time (**between effects**), then both types can be included by using a **random effects** model.

Choosing between the different formulations is done by running a Hausman test. Statistically, **fixed effects** are generally reasonable with panel datasets since they always give consistent results, but they may not be the most efficient model. On the other hand, a **random effects** model yields better p-values (*i.e.,* they are a more efficient estimator), so it should be used when it is statistically justifiable to do so. The Hausman test contrasts a more efficient model against a less efficient but consistent model to make sure that the latter also gives consistent results. For a detailed discussion on the topic, see Wooldridge (2002), chapters 10 and 11.

4 Wage differentials in the U.S.: CPS estimates

This section discusses the empirical aspects of interindustry wage differentials employing CPS data obtained from King et al. (2008). I begin by describing the data and presenting comparative statistics, and then evaluate the econometric estimates of wage differentials.

4.1 Data description

The estimates presented here employ data from the March Current Population Survey (CPS), as provided by the IPUMS-CPS project (King et al. 2008). The main advantage of employing the IPUMS-CPS version of the data is that variables have been integrated (*i.e.*, made comparable) across long periods of time. It is particularly important to note that despite of this

[5]This discussion is omitted from the paper due to its technical nature and the fact that this procedure will not be applied in the empirical estimates in Section 4.

obvious advantage, comparability issues may arise from question wording, the universe of individuals surveyed, and changes in group classifications. Data availability and the universe descriptions for the original variables used in this estimation exercise can be found in Table A.1, in Appendix A. Technical details on the CPS data, such as sampling procedure, weights, and other issues are available from IPUMS-CPS, at http://cps.ipums.org/cps/samples.shtml.

I analyze income differentials using two alternative variables: total wage and salary income and hourly wages. The first variable reports the respondent's total pre-tax wage and salary income for the previous calendar year, hereafter referred to as wage/salary income. The second captures the amount the respondent earned per hour in the job she held at the time of the survey, for those workers who were paid an hourly wage. Besides the obvious differences between these two income measures, it should be noted that hourly wage data were not collected from self-employed workers and is only available starting in 1990, while wage income data is available starting in 1962.

It is also important to note that the industrial classification has evolved five times between 1962 and 2008, the longest stretch of time for which CPS data are available. To include as many years of data as possible in the analysis, minor industries are aggregated into sectors to avoid comparability issues across years. For this reason, and unless otherwise noted, I restrict analysis to the 1968-2008 period. During this time, industry-level data are comparable through the IPUMS-CPS harmonized variable IND1950. This variable uses the 1950 Census Bureau industrial classification system for all years.

Table 4.1: Data sets

Period	Income measure	Minor industries	Major sectors
1968-2008	Wage income	comparable	comparable
1990-2008	Hourly wage	comparable	comparable
1962-2008	Wage income	not comparable	comparable

Three data sets are available for this analysis, as described in Table 4.1. Notice that the first data set can be restricted to the 1990-2008 period for comparison with the second data set. Since alternate data sets present the opportunity for a more complete analysis, I will constantly compare estimates arising from them. Mincer equations ideally are estimated over hourly wages (as opposed to gross wage income), which makes the second data set empirically appealing. As a companion to Ricaurte (2008), one of the main objectives of this paper is to provide wage differential estimates for the longest stretch of time possible. This

implies using the second data set, which only allows me to compare major economic sectors. Data will be organized into the industrial sectors described in Table 4.2. [6]

Table 4.2: Major and minor industries

A	Agriculture, Forestry, and Fishing
B	Mining
C	Construction
D	Manufacturing
	D1 Durable Goods
	D2 Non-durable Goods
E	Transportation, Communication, and Other Utilities
	E1 Transportation
	E2 Telecommunications
	E3 Utilities and Sanitary Services
F	Wholesale and Retail Trade
	F1 Wholesale Trade
	F2 Retail Trade
G	Finance, Insurance, and Real Estate
H	Business and Repair Services
I	Personal services
J	Entertainment and Recreation Services
K	Professional and Related Services

Letters correspond to Table B.1.
Source: IND1950, IPUMS-CPS, King et al. (2008).

Table 4.3 shows descriptive statistics for selected years. These data are organized into four sectors: (1) primary, (2) manufacturing, (3) services, and (4) construction and utilities.[7]. Unless otherwise noted, the data correspond to fulltime workers either employed as wage/salary workers in the private sector or self employed workers. Panel A contains the distribution of workers across sectors and the number of observations for each year. Current-price wage and salary income appears in panel B. It is clear that in raw terms, average income in the manufacturing sector (2) is higher than in other sector. As discussed in the literature and methodology review sections, differences in the characteristics of workers are partially responsible for these wage differences.

It is noteworthy that the fraction of female workers is higher in services (3), as shown in panel C; this could account for the lower average income in this sector.[8] The average

[6]Estimates employing the third data set require a high level of industrial aggregation to be comparable across time. They are only discussed in Appendix **??** to this paper.

[7]For a detailed description, see Table 4.5, Option 4. Full details on sectoral composition can be found in Appendix B, Table B.1

[8]Moreover, these numbers are consistent with a lower female participation in the labor market compared

Table 4.3: Descriptive statistics, selected years

	A Sectoral composition (%)					B Wage/salary income, current $				
Year	(1)	(2)	(3)	(4)	Obs.	(1)	(2)	(3)	(4)	All
1968	2.81	41.16	47.94	8.09	35,395	4,761	6,453	5,629	6,869	6,044
1978	3.07	34.79	53.84	8.31	39,524	10,266	12,555	11,357	13,261	11,899
1988	3.00	27.69	60.59	8.72	45,282	18,589	24,321	21,755	23,466	22,520
1998	2.65	22.65	66.06	8.63	40,361	25,947	36,533	34,734	34,704	34,906
2008	2.89	16.08	71.09	9.94	60,521	37,721	53,233	49,493	44,485	49,257

	C Female workers (%)					D Average age				
Year	(1)	(2)	(3)	(4)	All	(1)	(2)	(3)	(4)	All
1968	7.95	26.74	41.52	5.38	31.57	40.09	39.85	39.68	39.27	39.73
1978	13.50	28.97	43.50	7.03	34.50	36.05	38.32	36.81	36.64	37.29
1988	16.69	31.27	48.09	9.10	39.09	36.64	38.26	36.71	36.35	37.11
1998	17.67	30.79	48.62	9.66	40.40	38.18	39.92	38.76	38.44	38.98
2008	16.73	28.75	48.83	9.59	40.77	40.10	42.91	40.99	39.95	41.17

	E Black workers (%)					F College graduates (%)				
Year	(1)	(2)	(3)	(4)	All	(1)	(2)	(3)	(4)	All
1968	14.26	8.75	10.53	9.76	9.84	4.19	7.83	10.82	4.16	8.86
1978	8.09	10.04	9.07	6.95	9.20	9.52	11.10	17.81	7.95	14.40
1988	5.94	10.15	10.18	7.89	9.84	15.06	18.07	24.83	10.41	21.41
1998	4.25	10.92	11.74	7.72	11.01	12.79	20.26	29.03	11.35	25.09
2008	3.97	9.31	11.87	5.27	10.57	12.13	27.49	34.62	12.92	30.67

Sectors are: (1) primary, (2) manufacturing, (3) services, and (4) construction and utilities. For detailed composition, see Table 4.5.
Statistics for all years available in Appendix C, Table C.1.
Source: Author's calculations, IPUMS-CPS, King et al. (2008).

age across sectors does not differ significantly (panel D). The presence of African-American workers is higher in manufacturing (2) and services (3) than in the other sectors (panel E). Finally, from panel F it is clear that the fraction of workers with a college degree or higher has been historically higher in services (4) than in any other sector; this gap has remained fairly stable over the 41-year period. It is not immediately clear why income in manufacturing is higher than services.

When analyzing hourly wage, the universe of workers includes those wage/salary workers

to males. Likewise, the figures reported here indicate that female participation increased in the 41-year time period studied.

Table 4.4: Descriptive statistics, 1990-2008

	A Hourly wage, current $					B Union coverage (%)⋆				
Year	(1)	(2)	(3)	(4)	All	(1)	(2)	(3)	(4)	All
1990	6.86	9.40	7.35	11.07	8.16	11.50	31.24	10.44	27.08	16.96
1991	8.82	9.65	7.66	11.85	8.50	*22.04*	30.02	10.94	33.47	17.63
1992	7.50	9.97	7.98	11.82	8.70	11.73	29.02	10.86	29.71	16.38
1993	7.93	10.00	8.31	11.93	8.95	10.30	26.89	10.85	27.84	15.71
1994	9.35	10.50	8.71	12.11	9.36	12.01	27.88	11.17	28.07	16.14
1995	8.49	10.64	8.82	12.57	9.49	10.95	26.75	9.50	27.51	14.62
1996	8.36	10.84	8.87	12.02	9.55	11.11	25.86	10.04	23.26	14.64
1997	9.77	10.97	9.02	13.09	9.79	4.72	24.19	9.16	25.99	13.71
1998	9.54	11.75	9.66	14.03	10.45	6.48	23.03	9.33	25.64	13.45
1999	9.21	12.27	10.25	13.81	10.93	5.14	22.30	10.18	25.48	13.78
2000	8.61	12.69	10.69	14.25	11.37	4.32	20.29	9.41	25.08	12.89
2001	9.92	12.94	11.03	15.06	11.75	*10.21*	20.78	9.25	26.79	13.02
2002	10.09	13.48	11.39	15.29	12.06	5.36	23.12	9.37	25.84	13.17
2003	10.64	13.85	11.87	16.02	12.51	4.37	19.29	8.91	24.54	11.86
2004	10.81	14.30	12.03	16.55	12.76	4.73	19.33	8.59	23.42	11.55
2005	11.24	14.63	12.28	15.65	12.95	5.55	20.16	8.53	15.97	11.09
2006	12.99	14.95	12.62	16.63	13.39	6.37	17.22	7.43	20.12	10.21
2007	11.95	15.31	13.30	16.91	13.94	5.40	17.93	8.03	19.42	10.65
2008	13.50	15.87	13.73	18.01	14.40	6.01	16.96	8.58	20.96	10.74

⋆: Includes union members and covered non-members.
Source: Author's calculations, IPUMS-CPS, King et al. (2008).

paid by hour, excluding self-employed workers. This variable, as well as union coverage, is only available starting in 1990 in CPS data. Average, current-price wages by sector and year appear on the left panel of Table 4.4. Union coverage, defined as union membership plus non-members covered by union-related contracts, is reported on the right panel of Table 4.4. Construction and utilities (4) present the highest wages and union coverage rates, followed by manufacturing (2), services (3), and primary (4) sectors. Two remarks on the rate of union coverage are required. First, the observations for 1991 and 2001 in the primary sector (1) are suspect for measurement or sampling error since they are twice as large as the values in the adjacent years. Second, union coverage shows a decreasing trend in all sectors, consistent with that reported in Hirsch (2008).[9]

The final are of discussion is the evidence of wage dispersion in the data for wage/salary income. The literature identifies wage dispersion to be related with increases in average income. Moreover, Açikgöz and Kaymak (2008) and others report that wages are compressed

[9]Actual union coverage percentages differ, possible due to differences in industry composition of sectors.

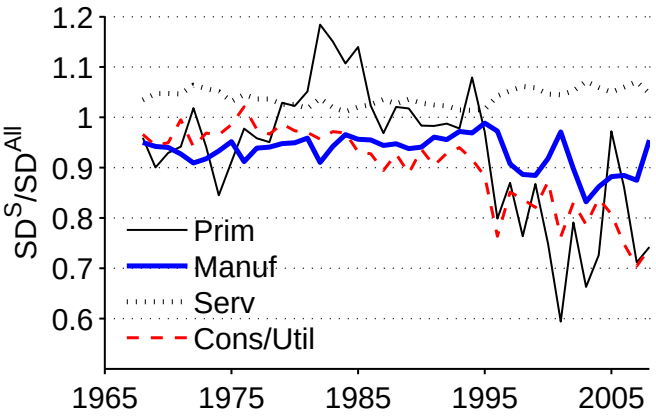


Figure 4.1: Sectoral wage/salary income SD relative to sample

in scenarios where some form of collective bargaining (*e.g.*, through unions) is prevalent. I present two indicators of sectoral differences in wage dispersion for the data. The first is the relative standard deviation of wage/salary income in each sector with respect to the sample standard deviation presented, by year, in Figure 4.1. The data in the graph come from estimates on the four sectors described in Table 4.5, option 4. It should be noted that wage dispersion in manufacturing is consistently higher than that of the overall economy between 1968 and 2008. Conversely, the standard deviation of wages in manufacturing and construction and utilities has been lower during the period, and even decreased in the last decade of data. The primary sector's relative standard deviation has fluctuated more widely over the period analyzed.

As indicators of wage dispersion, I also calculated the relative wages between pairs of the population 99-to-1, 95-to-5, and 90-to-10 percentiles by sector. These statistics appear in Table C.2 in the appendix. The ratios of wages for the different levels reported are higher in any given year in services (3) that in manufacturing (2) or construction/utilities (4). This evidence is consistent with that of the relative standard errors, as are the large and volatile ratios for the primary sector.

Other dimensions of sectoral difference, such as input intensity and productivity growth rates (see Acemoglu and Guerrieri 2006) are not included here as they are beyond the scope of the CPS data set.

4.2 Estimation strategy

In this section I present estimates on wage differentials between sectors in the economy using baseline model (3.1) on the data sets discussed in the previous section (Table 4.1). The most comprehensive version of these samples includes all individuals who worked full-time (understood as working at least 35 hours per week) in the previous year and earned a positive income. I also estimate wage differentials on a sub-sample of the first data, restricted to male workers only. These two estimates are done for the 1968-2008 time period.

To test the argument of Goux and Maurin (1999) and others that reconstructing the career profile of females might be problematic when assessing the impact of experience in the labor market on wages,[10] I report estimates for all workers and for male workers only. When I compare wage differentials arising from the different samples, the only systematic differences appear in the earlier years of the sample. In the discussion of the results, I argue this difference may arise from the general equilibrium effect of increases in female labor force participation.

As argued in the previous section, Mincer equations should be estimated with wages per hour as the dependent variable; however, these data are only available starting in 1990. Therefore, I estimate regressions with the two alternative dependent variables: wage/salary income and hourly wage (data sets 1 and 2 in Table 4.1). I present the estimates for all available years in each sample, but restrict myself to the 1990-2008 period when comparing them due to data availability.

Finally, within each of the data sets and dependent variable options, I run regressions over the five different sectoral definitions discussed previously. The first uses the major industrial groups in Table 4.2 with the goal of testing the overall presence of wage differentials. The remaining four regressions aggregate industries into different sectors in the private economy. Table 4.5 shows the minor industry groups that compose sectors in each case. Having different sectoral composition allows me to test the impact of aggregation when studying wage differentials.

I estimate industry fixed-effects regressions for each year of data available.[11] Following

[10] See Cahuc and Zylberberg (2004) for a discussion.

[11] Because I estimate the regressions year-by-year, I am implicitly running a year fixed-effects model as well.

Table 4.5: Industry composition of sectors

Sector	Industries*
	Option 1
Primary	[A] Agriculture, Forestry, and Fishing, [B] Mining
Manufacturing	[D] Manufacturing
Services	[C] Construction, [E] Transportation, Communication, and Other Utilities, [F] Wholesale and Retail Trade, [G] Finance, Insurance, and Real Estate, [H] Business and Repair Services, [I] Personal services, [J] Entertainment and Recreation Services, [K] Professional and Related Services
	Option 2
Primary	[A] Agriculture, Forestry, and Fishing, [B] Mining
Manufacturing	[C] Construction , [D] Manufacturing, [E3] Utilities and Sanitary Services
Services	[E1] Transportation, [E2] Telecommunication, [F] Wholesale and Retail Trade, [G] Finance, Insurance, and Real Estate, [H] Business and Repair Services, [I] Personal services, [J] Entertainment and Recreation Services, [K] Professional and Related Services
	Option 3
Primary	[A] Agriculture, Forestry, and Fishing
Manufacturing	[B] Mining, [C] Construction , [D] Manufacturing, [E3] Utilities and Sanitary Services
Services	[E1] Transportation, [E2] Telecommunication, [F] Wholesale and Retail Trade, [G] Finance, Insurance, and Real Estate, [H] Business and Repair Services, [I] Personal services, [J] Entertainment and Recreation Services, [K] Professional and Related Services
	Option 4
Primary	[A] Agriculture, Forestry, and Fishing, [B] Mining
Manufacturing	[D] Manufacturing
Cons. and Util.	[C] Construction , [E3] Utilities and Sanitary Services
Services	[E1] Transportation, [E2] Telecommunication, [F] Wholesale and Retail Trade, [G] Finance, Insurance, and Real Estate, [H] Business and Repair Services, [I] Personal services, [J] Entertainment and Recreation Services, [K] Professional and Related Services

⋆: Letters in brackets correspond to Table 4.2.

Angrist and Krueger (1999), I estimate a deviation-from-mean wage equation (3.7):

$$\begin{aligned}\log w_{i,t} - \log \overline{w}_t =& \tilde{\mathbf{x}}_{i,t}\mathbf{B}_t + \tilde{\gamma}_{i,t}\mathbf{\Theta}_t + \eta_{i,t} \\ =& \beta_t^0 + \beta_t^f \tilde{D}_{i,t}^f + \beta_t^b \tilde{D}_{i,t}^b + \beta_t^m \tilde{D}_{i,t}^m + \beta_t^u \tilde{D}_{i,t}^u + \sum_{r\in R} \beta_t^r \tilde{D}_{i,t}^r \\ &+ \sum_{e\in E} \beta_t^e \tilde{D}_{i,t}^e + \sum_{a\in A} \beta_t^a \tilde{D}_{i,t}^a + \sum_{s\in S} \theta_t^s \tilde{D}_{i,t}^s + \eta_{i,t} \end{aligned} \tag{4.1}$$

where $\tilde{x} \equiv x - \overline{x}$, the individual deviation from the sample mean $\overline{x}$. The vector $\mathbf{x}$ consists of: a constant, dummies for female workers (D^f), African-American workers (D^b), residence in metropolitan area (D^m), union coverage (D^u, when applicable), nine division-of-residence dummies (D^r), three education level dummies (D^e), and three age group dummies (D^a). Vector $\hat{\gamma}$ includes the industry or sectoral dummies, which vary depending across different models. A detailed description of the explanatory variables appears in Table 4.6.

Table 4.6: Explanatory variables

	Dependent variable	
	Hourly wage	Wage/Salary Income
• Availability:	1968-2008	1990-2008
• Individual Characteristics:*	Female, African-American, Metropolitan area	
	Union coverage	–
Age =	$15-24$	
	$25-34$	
	$35-54$	
	54+	
Education =	less than high school	
	high school	
	some college	
	college +	
Division =	New England	
	Middle Atlantic	
	East North Central	
	West North Central	
	South Atlantic	
	East South Central	
	West South Central	
	Mountain	
	Pacific	
Industry =	15-sector*	
	Option 1 (3 sectors)†	
	Option 2 (3 sectors)†	
	Option 3 (3 sectors)†	
	Option 4 (4 sectors)†	

$*$: The first category of discrete variables was dropped.
$\star$: See Table 4.2. †: See Table 4.5.

From the estimated equations, I then construct an indicator of average sectoral wage differences. Recall the definition of $\tilde{x}$, and let $\hat{x}$ be the predicted of variable x. Then, for two sectors $s \neq s'$, the average log-wage difference can be decomposed according to:

$$\begin{aligned}\log\left(\frac{\overline{w}_t^s}{\overline{w}_t}\right) - \log\left(\frac{\overline{w}_t^{s'}}{\overline{w}_t}\right) &= \log\left(\frac{\overline{w}_t^s}{\overline{w}_t^{s'}}\right) \\ &= \underbrace{(\overline{\mathbf{x}}_t^s - \overline{\mathbf{x}}_t^{s'})\hat{\mathbf{B}}_t}_{(1)} + \underbrace{\hat{\theta}_t^s - \hat{\theta}_t^{s'}}_{(2)}; \end{aligned} \tag{4.2}$$

where the first term is the fraction of (average) wage differentials arising from differences in individual characteristics between sectors, while the second term accounts for "true" sectoral

differences. It follows then that "pure" sectoral wage differentials are simply:

$$\frac{\hat{w}_t^s}{\hat{w}_t^{s'}} = e^{\hat{\theta}_t^s - \hat{\theta}_t^{s'}}. \tag{4.3}$$

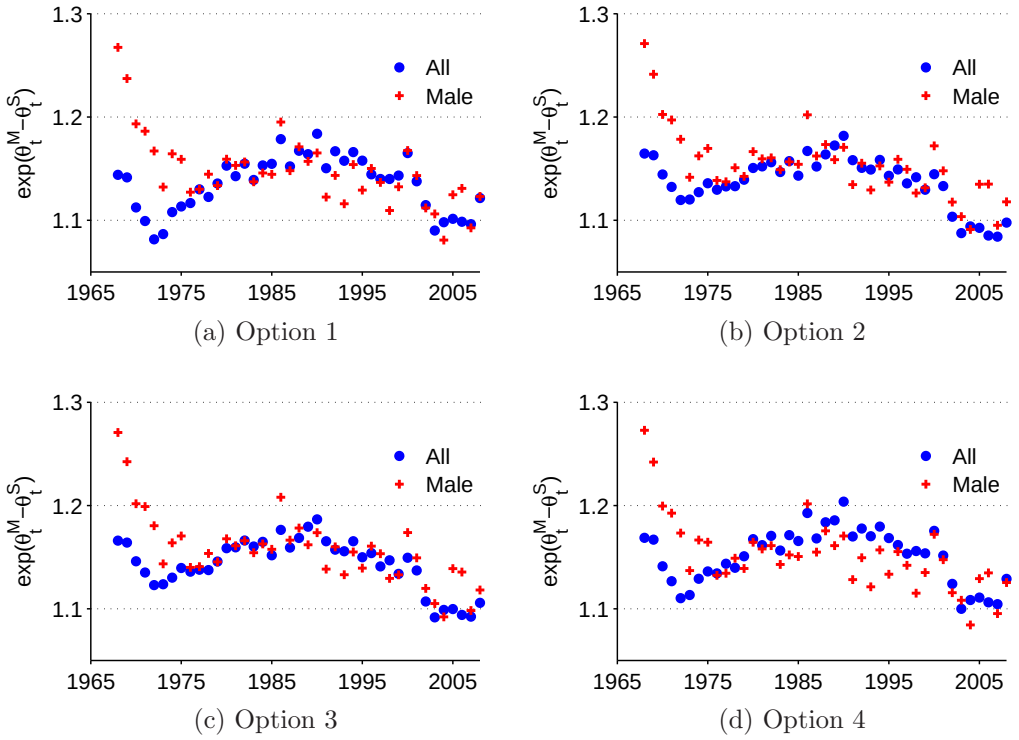
4.3 Results

Given the estimates of equation (4.1) for the different dependent variables and alternative data sets, I present the output information as follows. The results from the main regression, where I include 14 sectoral dummies, are summarized in Appendix D. Table D.1 contains the industry dummy parameters, t-statistics and p-values; the adjusted R^2 for the regression, and number of observations for the regressions estimated on all full-time workers who earned a salary or wage income. In all years, a negative gender gap (in favor of males), race gap (in favor of non-African-Americans), and a city gap (in favor of those residing in major metropolitan areas) were present and statistically significant. These results are consistent with that reported in the literature.

For all 41 years of the study period, I tested if the industry dummies were simultaneously equal to zero and rejected this hypothesis with 99% of confidence in every case. Therefore, I can conclude that there are wage differentials beyond those explained by differences in worker characteristics. Moreover, since estimated parameters are added to sector A (Agriculture, Forestry, and Fishing), these results imply that all sectors have higher log-wages than sector A. The sectors with larger dummies (*i.e.*, higher wage premia) are (B) Mining, (E2) Telecommunications, (E3) Utilities and Sanitary Services, and (D1) Manufacture of Durable Goods. The results obtained from the regressions that used hourly wage as dependent variable are consistent with that described above and, therefore, I do not discuss them in detail here (see Table D.2).

Given the evidence in favor of interindustry wage differentials, I estimate regressions on aggregated sectors. Rather than using the detailed fifteen industrial groups described in Table 4.2, I estimate similar equations grouping industries into major sectors. To test the robustness of my aggregation choice, I analyzed four alternatives, described in Table 4.5. I then plot the expression (4.3) as obtained from the estimated parameters. These parameters are all statistically significant, and their non-linear transformations are statistically different from 1.[12]

[12]Due to the space constraints, as with other estimates, output data are not included; they available from



(a) Option 1 (b) Option 2

(c) Option 3 (d) Option 4

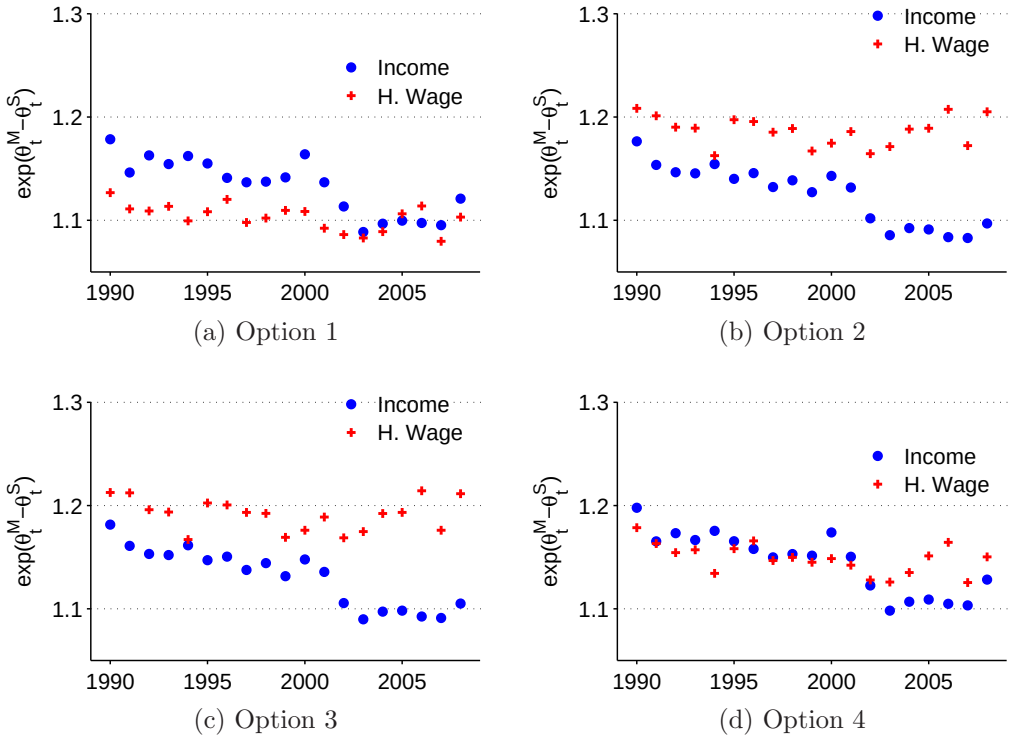
Figure 4.2: Wage/salary income differentials: all workers vs. males only

Figure 4.2 depicts wage differentials between manufacturing and services arising from regressions estimated on wage/salary income as the dependent variable. Regardless of the sectoral aggregation option used, an overall decreasing trend is evident for male workers; this trend is less steep after the mid-1970s. Moreover, when all workers are considered, there is a decrease in the wage gap until the beginning of the 1970s, followed by roughly a decade of wage gap increase (until the mid-1980s), before decreasing again.

The comparison of wage differentials between estimates on wage/salary income and hourly wages is depicted in Figure 4.3. A decreasing trend during the 1990-2008 period is more evident for estimates on wage/salary income ("Income" in the graphs) than for estimates on hourly wage across the first three aggregation options. The fourth option yields similar estimates between the two dependent variables in terms of levels and trend.

Figure 4.4 shows the wage differentials between construction/utilities and services as given by aggregation option 4. When wage/salary income is used to estimate this differential, there

the author upon request.



(a) Option 1 (b) Option 2

(c) Option 3 (d) Option 4

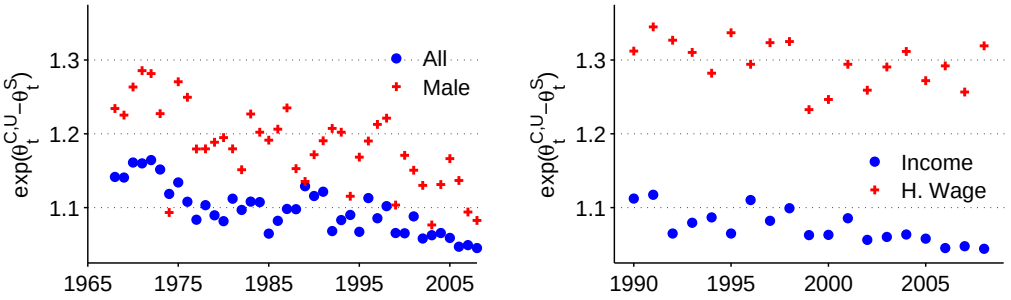
Figure 4.3: Hourly wage differentials: all workers vs. males only

is a somewhat decreasing trend in the gap between these two sectors (left panel). However, the wage differences for male workers are larger than those for the entire sample. The right panel shows wage differentials for hourly wages compared to wage/salary income. Neither alternative yields a clear trend for the 1990-2008 period; the gap generated in the hourly wage regressions is larger than the one calculated from wage/salary income.

Finally, it should be noted that other regularities, such as male-female and black-non-black differentials, are also prevalent in all estimations.[13] Moreover, the estimates on the hourly wage, which control for union coverage, yield a statistically significant union wage premium. This premium went from around 35 percent in the early 1990s, to close to 25 percent in the late 2000s, all other things equal. The presence of this premium is consistent with that reported in Kahn (1998).[14]

[13]These results were not reported due to space constraints, but are available upon request.

[14]When employing wage/salary income, the union premium went from around 20 to 10 percent in the same period of time.



(a) All vs. Male (b) Wages vs. Income

Figure 4.4: Differentials: construction, utilities vs. services

5 Concluding remarks

The purpose of this paper is to present a concise review of the relevant literature on group wage dispersion, and to estimate interindustry and intersectoral wage differentials. To achieve the first goal, I present empirical evidence of relevant papers in the literature. Then, I discuss the evolution of econometric techniques developed for this purpose over the last 60 years. Whenever appropriate employer-employee match data panels are available, the optimal econometric technique is to estimate an individual, firm, and employer-employee match fixed effects model. The evidence arising from such estimations suggests that unobserved characteristics (from individuals, firms, and their interaction) largely explain wage differentials in general, and interindustry differences, in particular.

Motivated by the discussion on evidence and methodology, I then estimate wage differentials for the United States employing CPS data. This data set, provided by the IPUMS-CPS project (King et al. 2008), has the advantages of a long time span availability (1962 to 2008, in the best case) and the comparability of variables across time. These characteristics allow me to compare sectoral wage differentials over a long period of time: 1968 to 2008. Since the data set is not a linked panel, I cannot track workers or firms over time; this keeps me from testing the hypothesis on the presence of individual and firm unobserved characteristics using fixed and random effects models.

To mitigate this limitation, I test a number of specifications and subsets of the data as a robustness check of my estimates. From a regression with fairly detailed industries (*i.e.*, one with 15 industry dummies), I can reject with high statistical confidence (99%) the hypothesis that there are no sectoral wage differentials beyond those caused by differences in

individual characteristics. I assume that there are industry fixed effects and avoid calculating interaction terms (*i.e.*, allowing the rates of return of different characteristics to differ across sectors) due to computational restrictions and little predictive power or such effects.

Moreover, I estimate four versions of more aggregated sectoral groups to test the hypothesis of wage differences in favor of manufacturing or construction and utilities, compared to services. I find – robustly across four sectoral aggregations – that workers in the manufacturing sector are favored with higher wages than those in manufacturing. This wage gap is statistically significant in all years estimated. More importantly, the wage gap is not constant. As discussed in the results subsection, the wage gap estimated for all workers grew from the early 1970s to the late 1980s and later decreased. This is consistent with gains of wages by workers during this period of time (Katz and Autor 1999). The equivalent gap estimated for male workers only, monotonically decreases in the period studied. Understanding the reason why these estimates follow different trends is beyond the scope of this paper. Yet it is possible that problems with the reconstruction of female workers' carrier profiles, which has been identified in the literature, and the general equilibrium effect of the increase in female participation in the economy are behind this difference.

Further empirical work remains to be done. Estimates on panel data and, more ideally, employer-employee match data sets (such as the U.S. Census Bureau's Longitudinal Employer-Household Dynamics – LEHD – database) will allow me to test the robustness of this findings, when controlling for individual, firm, and potentially employer-employee match effects.

A IPUMS-CPS variable description

Table A.1 indicates the availability and universe of the original variables in the CPS.

Table A.1: Variable availability and universe

AGE: Age	CLASSWORK: Class of worker
1968-2008: All persons.	1968-1987: Persons age 14+ who ever worked. 1988-2008: Persons age 15+ who ever worked.
EARNWT: Earnings weight	**EDUCREC: Educational attainment recode**
1990-2001: Persons in 2 (out of 8) rotation groups.	1968-1979: Persons age 14+. 1978-2008: Persons age 15+.
EMPSTAT: Employment status	**FULLPART: Worked full or part time last year**
1968-1987: Persons age 14+. 1988-2008: Persons age 15+.	1968-1979: Civilians 14+ who worked at least 14 weeks during the previous year. 1980-1989: Civilians 15+ who worked at least 14 weeks during the previous year. 1990-2008: Persons 15+ who worked at least 14 weeks during the previous year.
HOURWAGE: Hourly wage	**INCWAGE: Wage and salary income**
1990-2001: Civilians 15+ currently employed as wage/salary workers and in 2 (out of 8) rotation groups. Excludes self-employed persons. 2002-2008: Civilians 15+ currently employed as wage/salary workers and were asked the "earner study" questions. Excludes self-employed persons.	1968-1979: Persons age 14+. 1980-2008: Persons age 15+.
IND1950: Industry, 1950 basis⋆	**METAREA: Metropolitan central city status**
1968-1979: Civilians age 14+ who: were currently employed; or had previously worked and were looking for work; or were not currently in the labor force but had worked in the preceding 5 years and were in 2 (out of 8) rotation groups. 1980-2008: Civilians age 15+ who: were currently employed; or had previously worked and were looking for work; or were not currently in the labor force but had worked in the preceding 5 years and were in 2 (out of 8) rotation groups.	1968-2008: All households and group quarters.
PAIDHOUR: Paid by the hour	**PERWT: Person weight**
1990-2001: Civilians 15+ currently employed as wage/salary workers and in 2 (out of 8) rotation groups. Excludes self-employed persons. 2002-2008: Civilians 15+ currently employed as wage/salary workers and were asked the "earner study" questions. Excludes self-employed persons.	1968-2008: All persons.
RACE: Race	**REGION: Region and division**
1968-2008: All persons.	1968-2008: All households and group quarters.
SEX: Sex	**UNION: Union membership**
1968-2008: All persons.	1990-2001: Civilians 15+ currently employed as wage/salary workers and in 2 (out of 8) rotation groups. Excludes self-employed persons. 2002-2008: Civilians 15+ currently employed as wage/salary workers and were asked the "earner study" questions. Excludes self-employed persons.

⋆ : Unharmonized variable IND is available starting in the 1962-1967 period for civilians age 14+.
Variable universes for pre-1968 samples do not include persons under age 14.
For complete information on variable universe, see IPUMS-CPS, King et al. (2008).

B Major and minor industries

Table B.1 details the major industrial groups (denoted with letters) and minor industries that compose them, for the 1968-2008 period variable IND1950.

Table B.1: Major and minor industries

IND1950 industries (1968-2008)	
[A]	**Agriculture, Forestry, and Fishing:**
	(105) Agriculture, (116) Forestry, (126) Fisheries
[B]	**Mining:**
	(206) Metal mining, (216) Coal mining, (226) Crude petroleum and natural gas extraction, (236) Nonmetallic mining and quarrying, except fuel
[C]	**Construction:**
	(246) Construction
[D]	**Manufacturing:**
[D1]	**Durable Goods:**
	(306) Logging, (307) Sawmills, planing mills, and millwork, (308) Misc wood products, (309) Furniture and fixtures, (316) Glass and glass products, (317) Cement, concrete, gypsum and plaster products, (318) Structural clay products, (319) Pottery and related products, (326) Miscellaneous nonmetallic mineral and stone products, (336) Blast furnaces, steel works, and rolling mills, (337) Other primary iron and steel industries, (338) Primary nonferrous industries, (346) Fabricated steel products, (347) Fabricated nonferrous metal products, (348) Not specified metal industries, (356) Agricultural machinery and tractors, (357) Office and store machines and devices, (358) Miscellaneous machinery, (367) Electrical machinery, equipment, and supplies, (376) Motor vehicles and motor vehicle equipment, (377) Aircraft and parts, (378) Ship and boat building and repairing, (379) Railroad and miscellaneous transportation equipment, (386) Professional equipment and supplies, (387) Photographic equipment and supplies, (388) Watches, clocks, and clockwork-operated devices, (399) Miscellaneous manufacturing industries
[D2]	**Nondurable Goods:**
	(406) Meat products, (407) Dairy products, (408) Canning and preserving fruits, vegetables, and seafoods, (409) Grain-mill products, (416) Bakery products, (417) Confectionery and related products, (418) Beverage industries, (419) Miscellaneous food preparations and kindred products, (426) Not specified food industries, (429) Tobacco manufactures, (436) Knitting mills, (437) Dyeing and finishing textiles, except knit goods, (438) Carpets, rugs, and other floor coverings, (439) Yarn, thread, and fabric mills, (446) Miscellaneous textile mill products, (448) Apparel and accessories, (449) Miscellaneous fabricated textile products, (456) Pulp, paper, and paperboard mills, (457) Paperboard containers and boxes, (458) Miscellaneous paper and pulp products, (459) Printing, publishing, and allied industries, (466) Synthetic fibers, (467) Drugs and medicines, (468) Paints, varnishes, and related products, (469) Miscellaneous chemicals and allied products, (476) Petroleum refining, (477) Miscellaneous petroleum and coal products, (478) Rubber products, (487) Leather: tanned, curried, and finished, (488) Footwear, except rubber, (489) Leather products, except footwear, (499) Not specified manufacturing industries
[E]	**Transportation, Communication, and Other Utilities:**
[E1]	**Transportation:**
	(506) Railroads and railway express service, (516) Street railways and bus lines, (526) Trucking service, (527) Warehousing and storage, (536) Taxicab service, (546) Water transportation, (556) Air transportation, (567) Petroleum and gasoline pipe lines, (568) Services incidental to transportation
[E2]	**Telecommunications:**
	(578) Telephone, (579) Telegraph
[E3]	**Utilities and Sanitary Services:**
	(586) Electric light and power, (587) Gas and steam supply systems, (588) Electric-gas utilities, (596) Water supply, (597) Sanitary services, (598) Other and not specified utilities

Continued on next page

IND1950 industries (1968-2008)

[F] **Wholesale and Retail Trade:**

[F1] **Wholesale Trade:**

(606) Motor vehicles and equipment, (607) Drugs, chemicals, and allied products, (608) Dry goods apparel, (609) Food and related products, (616) Electrical goods, hardware, and plumbing equipment, (617) Machinery, equipment, and supplies, (618) Petroleum products, (619) Farm products–raw materials, (626) Miscellaneous wholesale trade, (627) Not specified wholesale trade

[F2] **Retail Trade:**

(636) Food stores, except dairy products, (637) Dairy products stores and milk retailing, (646) General merchandize stores, (647) Five and ten cent stores, (656) Apparel and accessories stores, except shoe, (657) Shoe stores, (658) Furniture and house furnishing stores, (659) Household appliance and radio stores, (667) Motor vehicles and accessories retailing, (668) Gasoline service stations, (669) Drug stores, (679) Eating and drinking places, (686) Hardware and farm implement stores, (687) Lumber and building material retailing, (688) Liquor stores, (689) Retail florists, (696) Jewelry stores, (697) Fuel and ice retailing, (698) Miscellaneous retail stores, (699) Not specified retail trade

[G] **Finance, Insurance, and Real Estate:**

(716) Banking and credit agencies, (726) Security and commodity brokerage and investment companies, (736) Insurance, (746) Real estate

[H] **Business and Repair Services:**

(806) Advertising, (807) Accounting, auditing, and bookkeeping services, (808) Miscellaneous business services, (816) Auto repair services and garages, (817) Miscellaneous repair services

[I] **Personal services:**

(826) Private households, (836) Hotels and lodging places, (846) Laundering, cleaning, and dyeing services, (847) Dressmaking shops, (848) Shoe repair shops, (849) Miscellaneous personal services

[J] **Entertainment and Recreation Services:**

(856) Radio broadcasting and television, (857) Theaters and motion pictures, (858) Bowling alleys, and billiard and pool parlors, (859) Miscellaneous entertainment and recreation services

[K] **Professional and Related Services:**

(868) Medical and other health services, except hospitals, (869) Hospitals, (879) Legal services, (888) Educational services, (896) Welfare and religious services, (897) Nonprofit membership organizations, (898) Engineering and architectural services, (899) Miscellaneous professional and related services

[L] **Public Administration:**

(906) Postal service, (916) Federal public administration, (926) State public administration, (936) Local public administration

Industrial categories in CPS use the Census Bureau 1950 industrial classification system.

List excludes: (0) Not in universe, (997) Unknown, and (998) Industry not reported.

Source: IPUMS-CPS, King et al. (2008).

C Descriptive statistics

This appendix contains the detailed statistics summarized in Table 4.3 for the 41 years of data between 1968 and 2008. The data are organized into four sectors: (1) Primary, (2) Manufacturing, (3) Services, and (4) Construction and Utilities, as described in Tables 4.5 and B.1.

Table C.1 presents the fraction of workers by sector and the sample size for each year, along with the average wage and salary income in current dollars by sector and year, the fraction of female workers, and the average age by industry and year, the fraction of African-American workers, and the fraction of the workforce with a college or higher degree.

Table C.1: Descriptive statistics

Year	(1)	(2)	(3)	(4)	All	(1)	(2)	(3)	(4)	All
	Fraction of Population					**Wage/Salary Income $**				
1968	2.81	41.16	47.94	8.09	35,395	4,761	6,453	5,629	6,869	6,044
1969	2.74	41.13	47.95	8.18	35,461	5,022	6,945	6,120	7,440	6,537
1970	2.46	41.00	48.05	8.48	34,109	5,750	7,620	6,808	8,399	7,250
1971	2.61	38.56	50.27	8.55	34,085	6,170	7,884	7,238	8,886	7,600
1972	2.70	38.09	50.29	8.93	32,526	6,605	8,173	7,608	9,184	7,937
1973	2.80	37.28	50.96	8.96	32,444	7,367	8,803	8,162	9,866	8,531
1974	2.98	37.30	50.97	8.76	32,294	7,521	9,559	8,693	10,390	9,130
1975	2.91	36.76	51.84	8.48	31,485	8,620	10,215	9,197	10,974	9,705
1976	3.17	35.31	53.37	8.15	32,925	8,915	10,798	9,836	11,599	10,290
1977	3.11	35.47	53.37	8.05	39,410	9,853	11,739	10,465	12,211	11,038
1978	3.07	34.79	53.84	8.31	39,524	10,266	12,555	11,357	13,261	11,899
1979	3.06	34.91	53.59	8.45	40,483	11,928	13,693	12,224	14,160	12,891
1980	3.10	34.53	53.69	8.68	48,256	12,994	15,134	13,352	15,337	14,129
1981	3.36	33.49	54.82	8.34	48,277	14,320	16,299	14,488	16,712	15,274
1982	3.53	32.33	56.02	8.13	43,157	16,882	17,805	16,062	18,023	16,814
1983	3.65	31.11	57.03	8.21	41,874	18,053	19,000	17,114	19,275	17,912
1984	3.23	30.35	57.52	8.90	41,710	17,541	19,995	17,929	19,931	18,721
1985	3.12	30.05	58.05	8.79	43,914	19,260	21,227	19,104	20,517	19,871
1986	3.20	28.91	59.03	8.86	43,702	19,500	22,715	20,024	21,562	20,922
1987	3.02	28.11	60.16	8.71	43,670	18,591	23,631	21,037	22,646	21,832
1988	3.00	27.69	60.59	8.72	45,282	18,589	24,321	21,755	23,466	22,520
1989	3.05	27.41	60.75	8.79	42,437	19,363	25,357	22,901	24,914	23,643
1990	2.95	26.26	61.75	9.04	46,426	19,656	26,677	23,889	25,928	24,680
1991	3.10	25.97	62.16	8.77	46,106	20,359	27,186	24,607	26,322	25,296
1992	2.95	25.18	63.49	8.39	45,023	21,390	27,949	25,422	26,345	26,017
1993	2.92	24.58	64.40	8.10	44,022	21,682	29,186	26,506	27,677	27,119
1994	2.88	24.38	64.91	7.83	42,638	23,550	30,025	27,206	27,960	27,847
1995	2.91	24.10	64.61	8.37	43,632	23,882	31,245	28,277	28,487	28,882
1996	3.07	23.31	65.16	8.45	39,341	24,649	34,179	31,346	32,009	31,857
1997	2.99	23.26	65.15	8.59	40,481	26,460	34,929	33,202	33,300	33,411
1998	2.65	22.65	66.06	8.63	40,361	25,947	36,533	34,734	34,704	34,906
1999	2.53	22.13	66.71	8.63	41,251	27,634	38,293	36,284	35,088	36,407
2000	2.63	21.77	66.89	8.72	42,345	27,302	39,553	36,786	35,836	37,056
2001	2.54	20.66	67.98	8.81	41,379	28,616	42,931	40,301	38,079	40,352
2002	2.48	19.43	68.81	9.27	66,856	30,626	43,959	42,528	39,509	42,230
2003	2.65	17.91	70.01	9.43	65,060	31,475	43,603	43,629	39,795	42,940
2004	2.68	18.02	69.74	9.55	63,581	31,832	45,417	43,950	40,830	43,591

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Year	(1)	(2)	(3)	(4)	All	(1)	(2)	(3)	(4)	All
2005	2.72	17.29	70.16	9.83	59,905	36,764	47,407	45,843	40,918	45,382
2006	2.87	17.19	69.94	10.00	60,302	35,868	48,379	47,314	41,412	46,578
2007	2.89	16.73	70.11	10.27	60,533	37,820	50,218	49,488	42,816	48,588
2008	2.89	16.08	71.09	9.94	60,521	37,721	53,233	49,493	44,485	49,257
	Fraction of Female Workers (%)					**Average Age**				
1968	7.95	26.74	41.52	5.38	31.57	40.09	39.85	39.68	39.27	39.73
1969	8.34	26.13	42.37	5.17	31.71	41.28	39.69	39.79	39.37	39.75
1970	9.27	26.26	42.23	5.66	31.77	39.78	39.57	39.76	39.62	39.67
1971	10.09	26.40	41.35	5.60	31.71	39.61	39.74	39.32	39.18	39.48
1972	10.18	26.66	40.99	5.19	31.50	39.33	39.73	39.08	38.15	39.25
1973	10.49	26.75	41.39	5.32	31.83	39.30	39.17	38.42	37.76	38.66
1974	9.80	26.90	42.23	5.98	32.37	38.09	38.80	37.98	37.08	38.21
1975	8.79	26.98	42.25	5.39	32.54	37.13	38.95	37.67	37.23	38.09
1976	9.45	28.06	42.74	6.29	33.53	36.65	39.24	37.23	37.46	37.94
1977	9.52	28.37	43.04	7.45	33.93	36.30	38.81	36.94	36.99	37.59
1978	13.50	28.97	43.50	7.03	34.50	36.05	38.32	36.81	36.64	37.29
1979	12.41	29.50	44.79	8.22	35.37	36.09	38.08	36.56	36.49	37.07
1980	13.00	30.03	45.57	7.67	35.91	35.22	38.05	36.53	36.08	36.97
1981	13.44	29.90	46.12	8.22	36.43	35.39	38.04	36.53	36.31	36.98
1982	14.37	30.76	45.64	9.37	36.78	34.90	38.26	36.54	36.25	37.02
1983	13.70	30.54	46.61	8.32	37.27	35.30	38.63	36.59	36.27	37.15
1984	15.68	31.89	46.60	9.51	37.83	35.74	38.60	36.64	36.36	37.18
1985	14.34	31.87	47.28	9.96	38.34	35.37	38.31	36.69	36.09	37.08
1986	15.52	30.65	47.54	9.96	38.30	35.27	38.54	36.55	35.99	37.03
1987	15.40	31.46	47.72	9.82	38.87	35.93	38.71	36.52	36.50	37.12
1988	16.69	31.27	48.09	9.10	39.09	36.64	38.26	36.71	36.35	37.11
1989	17.10	31.52	48.14	9.60	39.25	36.79	38.59	36.93	36.51	37.34
1990	15.83	31.44	48.26	9.97	39.42	36.44	38.56	37.15	36.51	37.44
1991	17.51	31.72	48.10	10.29	39.58	36.74	38.85	37.39	36.81	37.70
1992	16.13	31.37	48.59	10.19	40.08	37.45	39.18	37.61	36.93	37.94
1993	17.29	30.63	48.39	10.19	40.02	37.58	39.29	38.01	37.47	38.27
1994	15.32	29.89	48.08	10.08	39.72	37.50	39.28	37.90	37.74	38.21
1995	14.66	30.59	48.34	9.18	39.80	37.98	39.25	37.94	37.71	38.24
1996	18.06	30.79	48.15	9.89	39.94	39.27	39.51	38.38	38.09	38.64
1997	17.31	31.11	48.42	9.41	40.11	39.63	39.73	38.71	38.41	38.95
1998	17.67	30.79	48.62	9.66	40.40	38.18	39.92	38.76	38.44	38.98
1999	17.39	30.17	48.86	9.57	40.54	38.43	40.30	38.85	37.96	39.08
2000	18.80	32.03	48.57	9.51	40.78	38.82	40.54	39.05	38.43	39.32
2001	19.83	31.27	49.17	9.95	41.27	38.99	41.13	39.05	38.49	39.42
2002	17.46	29.15	48.99	9.63	40.70	38.31	41.52	39.57	38.49	39.82
2003	19.96	29.55	48.59	9.55	40.74	38.92	41.77	40.02	38.68	40.18
2004	18.17	30.03	48.84	9.46	40.86	39.48	42.14	40.21	38.59	40.39
2005	17.46	29.56	48.37	9.24	40.43	39.28	42.15	40.68	38.49	40.68
2006	17.49	29.51	48.43	9.16	40.37	39.18	42.42	40.71	38.74	40.76
2007	18.10	29.85	48.29	9.34	40.33	39.85	42.73	40.77	39.13	40.90
2008	16.73	28.75	48.83	9.59	40.77	40.10	42.91	40.99	39.95	41.17
	Black Workers (%)					**College Graduates (%)**				
1968	14.26	8.75	10.53	9.76	9.84	4.19	7.83	10.82	4.16	8.86
1969	12.08	9.66	9.86	9.40	9.80	4.27	7.63	11.35	4.02	9.03
1970	11.45	9.58	9.94	8.43	9.70	6.52	8.32	11.97	4.40	9.70
1971	11.31	9.67	9.47	9.48	9.60	5.52	8.51	12.97	4.75	10.35
1972	10.09	9.17	9.47	8.00	9.24	7.83	8.24	13.69	4.75	10.66
1973	8.59	9.42	9.37	7.57	9.20	7.37	8.60	14.11	5.66	11.11
1974	7.89	10.37	9.27	8.23	9.55	7.68	8.89	15.25	5.74	11.82
1975	6.79	9.74	8.95	9.76	9.25	7.64	9.79	16.63	6.37	12.98
1976	7.02	9.85	8.92	6.45	8.99	8.61	10.19	17.67	7.54	13.92
1977	9.37	10.01	9.05	6.74	9.21	9.73	10.75	17.88	8.01	14.30
1978	8.09	10.04	9.07	6.95	9.20	9.52	11.10	17.81	7.95	14.40
1979	8.95	10.04	9.07	7.55	9.28	10.56	11.62	19.01	8.10	15.25
1980	7.54	10.09	9.15	8.16	9.34	10.74	11.97	19.69	9.06	15.82

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Year	**(1)**	**(2)**	**(3)**	**(4)**	**All**	**(1)**	**(2)**	**(3)**	**(4)**	**All**
1981	7.79	9.64	9.29	7.57	9.22	11.55	12.66	20.30	8.87	16.49
1982	8.06	9.65	9.38	8.16	9.32	13.99	13.15	21.79	8.66	17.65
1983	7.62	10.08	9.15	6.51	9.17	14.77	15.05	23.81	9.62	19.59
1984	7.30	9.90	9.26	5.98	9.10	14.31	15.77	23.85	9.90	19.85
1985	5.50	9.95	9.58	6.62	9.31	17.49	15.84	23.69	10.45	19.98
1986	6.33	9.91	10.01	6.93	9.59	15.92	16.73	24.24	10.71	20.60
1987	4.78	10.69	9.90	7.66	9.77	12.40	17.89	24.40	10.21	20.97
1988	5.94	10.15	10.18	7.89	9.84	15.06	18.07	24.83	10.41	21.41
1989	6.80	10.32	10.20	7.73	9.91	14.95	17.28	25.89	11.69	21.95
1990	6.21	10.19	10.91	7.27	10.25	14.09	17.91	26.29	12.29	22.46
1991	5.59	10.63	10.15	7.79	9.93	12.96	18.36	26.50	11.14	22.62
1992	4.65	10.50	10.28	7.40	9.93	13.14	18.05	26.23	11.14	22.52
1993	5.89	10.06	10.43	7.65	9.98	13.80	18.99	26.90	11.73	23.34
1994	5.60	9.48	10.67	7.78	10.00	14.47	19.28	27.64	11.57	23.96
1995	4.47	10.46	10.84	6.81	10.23	17.24	19.64	28.10	11.67	24.37
1996	4.74	11.03	11.08	6.81	10.51	12.74	19.51	28.69	12.51	24.69
1997	3.14	11.02	11.14	7.65	10.57	12.94	20.40	28.59	11.08	24.71
1998	4.25	10.92	11.74	7.72	11.01	12.79	20.26	29.03	11.35	25.09
1999	4.58	10.17	11.97	6.83	10.94	13.58	20.62	29.33	12.18	25.53
2000	4.04	10.11	12.63	7.33	11.39	12.71	21.19	30.09	11.36	26.06
2001	4.53	10.68	13.18	7.04	11.90	15.37	21.25	30.36	10.97	26.39
2002	5.55	9.82	11.98	6.91	10.93	13.99	22.47	31.32	11.51	27.34
2003	4.45	9.28	11.84	6.21	10.65	12.80	22.75	31.83	12.21	27.85
2004	4.13	9.48	12.08	5.69	10.78	13.78	24.62	31.74	12.05	28.10
2005	3.50	10.44	11.69	5.76	10.67	15.78	25.33	32.57	11.28	28.77
2006	4.95	9.65	11.57	6.04	10.49	12.93	25.39	32.97	11.26	28.92
2007	3.94	8.95	12.11	6.15	10.73	14.78	25.35	34.02	12.40	29.79
2008	3.97	9.31	11.87	5.27	10.57	12.13	27.49	34.62	12.92	30.67

Source: Author's calculations, IPUMS-CPS, King et al. (2008).

Table C.2 reports the relative wages between different percentile pairs: 99% to 1%, 95% to 5%, and 90% to 10%.

Table C.2: Relative wages

	All	(1)	(2)	(3)	(4)	All	(1)	(2)	(3)	(4)
			1968					1979		
99/1	64.1	127.3	40.0	86.3	36.0	49.5	52.7	30.0	50.0	37.5
95/5	12.9	21.2	7.6	16.1	8.0	10.7	14.7	8.6	13.0	10.0
90/10	5.4	11.3	4.2	6.9	4.1	6.0	8.0	4.8	6.3	5.6
			1969					1980		
99/1	56.5	112.9	32.7	83.3	35.0	43.5	50.6	31.3	50.0	43.9
95/5	11.7	18.3	7.0	14.2	7.8	10.7	16.2	7.9	11.9	10.1
90/10	5.6	9.3	4.0	6.9	4.4	5.7	8.4	4.7	6.3	5.2
			1970					1981		
99/1	40.9	62.2	24.8	51.4	27.2	38.5	100.0	25.0	46.9	31.3
95/5	10.0	16.1	7.2	12.5	7.2	10.6	17.7	8.2	11.7	9.6
90/10	5.2	8.1	4.2	6.0	4.4	5.6	8.2	4.8	6.1	5.3
			1971					1982		
99/1	42.2	95.3	25.1	55.9	30.0	43.3	75.0	26.6	56.0	40.4
95/5	9.7	14.6	7.4	11.7	7.7	11.0	17.0	8.0	12.9	9.7
90/10	5.2	7.5	4.2	6.2	4.8	5.8	9.0	4.7	6.1	6.1
			1972					1983		
99/1	44.2	71.6	28.8	57.7	27.8	50.0	115.4	30.0	53.6	37.5

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	All	(1)	(2)	(3)	(4)	All	(1)	(2)	(3)	(4)
95/5	10.5	17.3	7.8	12.6	7.8	11.1	18.3	8.4	12.0	10.5
90/10	5.4	8.3	4.6	6.4	4.6	5.9	9.5	5.0	6.3	5.8
			1973					1984		
99/1	46.3	95.0	29.9	59.0	33.2	46.9	71.4	31.8	57.7	34.7
95/5	10.9	17.0	8.3	12.8	9.2	11.0	17.2	8.8	12.2	10.8
90/10	5.6	7.5	4.7	6.5	5.2	5.8	8.9	5.1	6.2	6.0
			1974					1985		
99/1	46.9	52.0	30.0	58.7	39.8	53.3	97.4	37.5	63.8	45.9
95/5	11.0	13.6	8.7	13.2	8.7	11.7	20.0	9.1	12.9	11.4
90/10	5.6	6.7	4.7	6.5	4.9	6.2	10.4	5.3	6.4	6.3
			1975					1986		
99/1	50.0	75.0	32.7	68.7	34.9	54.7	86.0	31.2	64.3	47.3
95/5	10.5	12.7	8.2	12.2	8.9	12.2	16.3	9.3	12.5	12.0
90/10	5.8	6.6	4.6	6.4	4.9	6.3	8.4	5.1	6.3	6.0
			1976					1987		
99/1	43.3	87.5	26.0	57.5	34.5	55.9	76.0	37.4	66.7	36.0
95/5	11.3	15.1	7.9	12.8	9.2	11.8	19.6	9.1	13.0	9.9
90/10	5.9	8.4	4.6	6.2	5.1	6.2	10.0	5.3	6.7	5.7
			1977					1988		
99/1	40.0	62.6	25.7	60.0	36.0	54.4	250.0	30.8	63.8	52.0
95/5	11.4	14.7	8.3	12.4	10.9	11.6	24.3	8.8	13.1	10.2
90/10	5.8	7.5	4.8	6.5	5.3	6.2	10.5	5.5	6.6	6.1
			1978					1989		
99/1	45.6	100.0	26.7	50.0	36.4	55.6	180.0	30.3	64.2	37.5
95/5	10.5	19.1	8.7	12.3	8.9	11.6	22.1	9.2	13.3	8.6
90/10	5.9	9.5	4.9	6.4	5.1	6.4	9.9	5.2	6.4	5.6
			1990					2000		
99/1	55.6	308.6	30.9	62.0	46.5	76.4	83.3	49.9	90.7	57.7
95/5	12.0	25.5	9.3	13.0	11.6	12.3	14.6	8.9	13.9	10.8
90/10	6.3	13.9	5.3	6.4	5.9	6.4	8.0	5.1	7.0	5.9
			1991					2001		
99/1	50.0	246.8	36.8	55.6	35.4	111.7	106.9	65.7	111.7	37.5
95/5	12.0	27.0	9.1	12.0	10.8	12.3	14.4	9.1	12.5	8.9
90/10	6.1	11.6	5.4	6.4	6.0	6.0	8.1	5.2	6.7	5.2
			1992					2002		
99/1	50.0	228.3	32.9	53.4	66.7	93.2	229.1	55.7	101.1	106.9
95/5	12.1	21.7	9.0	13.0	11.4	11.1	15.0	8.3	12.3	10.0
90/10	6.3	9.7	5.0	6.2	6.1	6.3	8.6	5.1	6.5	5.8
			1993					2003		
99/1	50.0	222.2	33.3	50.0	47.6	120.3	87.1	35.0	130.3	40.0
95/5	12.1	20.0	9.6	13.1	11.1	11.3	13.3	9.1	13.3	8.9
90/10	6.3	9.7	5.3	6.3	6.3	6.5	7.4	5.5	6.7	5.4
			1994					2004		
99/1	62.5	125.0	35.7	66.7	50.0	110.1	136.4	35.4	130.3	54.3
95/5	13.3	23.7	9.9	14.0	11.0	11.7	17.0	9.5	12.2	9.3
90/10	6.6	11.1	5.5	6.5	6.2	6.4	7.5	5.7	6.7	5.4
			1995					2005		
99/1	43.2	166.7	33.3	43.5	40.0	141.0	248.7	40.0	141.0	40.0
95/5	12.5	22.4	10.0	13.8	10.8	11.8	16.0	9.2	12.8	9.9
90/10	6.3	10.4	5.9	6.7	6.0	6.4	7.3	5.9	6.8	5.5

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	All	(1)	(2)	(3)	(4)	All	(1)	(2)	(3)	(4)
			1996					2006		
99/1	75.0	200.0	48.8	134.3	46.9	102.5	100.0	38.0	105.9	56.5
95/5	12.5	21.7	10.2	12.9	10.0	11.5	15.2	9.3	12.3	10.2
90/10	6.4	9.2	5.8	6.4	5.6	6.4	8.1	5.8	6.8	5.6
			1997					2007		
99/1	145.0	120.0	38.9	155.6	55.0	109.4	49.1	36.4	125.0	41.3
95/5	12.7	16.4	9.5	13.3	10.7	12.0	12.8	10.0	12.5	10.0
90/10	6.1	9.1	5.4	6.6	6.0	6.4	7.4	6.1	6.7	5.4
			1998					2008		
99/1	122.6	150.0	38.7	126.5	46.7	105.0	125.0	61.0	105.0	34.0
95/5	11.9	22.4	9.1	13.1	9.4	12.0	15.8	9.6	12.5	10.0
90/10	6.2	9.1	5.4	6.2	5.5	6.0	7.5	5.9	6.2	5.4
			1999							
99/1	102.2	100.0	37.0	110.7	45.1					
95/5	12.0	17.5	8.5	12.9	10.7					
99/10	6.3	8.7	5.3	6.5	5.7					

Source: Author's calculations, IPUMS-CPS, King et al. (2008).

D Empirical estimates: 15-sector regression tables

Table D.1: Industry dummies, observations, and adjusted R^2

	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
[B]	0.77	0.828	0.775	0.753	0.775	0.738	0.615	0.665	0.798	0.719
	(0.04)**	(0.04)**	(0.039)**	(0.039)**	(0.04)**	(0.04)**	(0.04)**	(0.041)**	(0.038)**	(0.035)**
[C]	0.645	0.704	0.666	0.608	0.646	0.567	0.459	0.497	0.519	0.466
	(0.027)**	(0.028)**	(0.027)**	(0.027)**	(0.028)**	(0.029)**	(0.028)**	(0.031)**	(0.028)**	(0.025)**
[D1]	0.702	0.751	0.672	0.602	0.621	0.562	0.49	0.532	0.587	0.568
	(0.025)**	(0.026)**	(0.025)**	(0.026)**	(0.027)**	(0.027)**	(0.026)**	(0.03)**	(0.026)**	(0.024)**
[D2]	0.657	0.713	0.632	0.585	0.601	0.537	0.465	0.488	0.545	0.524
	(0.026)**	(0.026)**	(0.025)**	(0.026)**	(0.027)**	(0.028)**	(0.027)**	(0.03)**	(0.026)**	(0.024)**
[E1]	0.729	0.776	0.706	0.638	0.703	0.638	0.537	0.589	0.662	0.622
	(0.028)**	(0.029)**	(0.028)**	(0.029)**	(0.03)**	(0.03)**	(0.03)**	(0.033)**	(0.029)**	(0.027)**
[E2]	0.792	0.874	0.798	0.753	0.797	0.771	0.697	0.756	0.835	0.836
	(0.035)**	(0.035)**	(0.033)**	(0.033)**	(0.035)**	(0.036)**	(0.035)**	(0.038)**	(0.035)**	(0.032)**
[E3]	0.762	0.787	0.756	0.733	0.771	0.708	0.577	0.643	0.705	0.663
	(0.035)**	(0.036)**	(0.034)**	(0.035)**	(0.037)**	(0.037)**	(0.038)**	(0.042)**	(0.037)**	(0.034)**
[F1]	0.63	0.682	0.641	0.584	0.605	0.554	0.461	0.514	0.534	0.527
	(0.029)**	(0.029)**	(0.028)**	(0.029)**	(0.03)**	(0.03)**	(0.029)**	(0.032)**	(0.029)**	(0.026)**
[F2]	0.453	0.488	0.44	0.392	0.409	0.336	0.27	0.288	0.338	0.31
	(0.026)**	(0.027)**	(0.026)**	(0.026)**	(0.027)**	(0.028)**	(0.027)**	(0.03)**	(0.026)**	(0.024)**
[G]	0.665	0.718	0.65	0.594	0.623	0.564	0.465	0.478	0.552	0.564
	(0.028)**	(0.029)**	(0.027)**	(0.028)**	(0.029)**	(0.029)**	(0.029)**	(0.032)**	(0.028)**	(0.026)**
[H]	0.586	0.645	0.583	0.497	0.522	0.42	0.345	0.382	0.389	0.369
	(0.031)**	(0.031)**	(0.029)**	(0.03)**	(0.031)**	(0.031)**	(0.031)**	(0.034)**	(0.03)**	(0.027)**
[I]	0.114	0.206	0.167	0.096	0.113	0.099	-0.041	-0.012	0.06	0.004
	(0.029)**	(0.03)**	(0.029)**	(0.03)*	(0.032)**	(0.033)*	(0.032)	(0.036)	(0.032)	(0.03)
[J]	0.603	0.597	0.521	0.5	0.486	0.376	0.223	0.111	0.417	0.275
	(0.041)**	(0.041)**	(0.04)**	(0.04)**	(0.043)**	(0.043)**	(0.042)**	(0.045)**	(0.042)**	(0.037)**
[K]	0.465	0.536	0.448	0.441	0.486	0.422	0.336	0.374	0.449	0.42
	(0.028)**	(0.028)**	(0.027)**	(0.027)**	(0.029)**	(0.029)**	(0.028)**	(0.031)**	(0.027)**	(0.025)**
N	35395	35461	34109	34085	32526	32444	32294	31485	32925	39410
R^2	0.418	0.404	0.424	0.399	0.395	0.388	0.392	0.358	0.377	0.372

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
[B]	0.761	0.713	0.791	0.788	0.768	0.913	0.742	0.822	0.784	0.828
	(0.035)**	(0.035)**	(0.033)**	(0.031)**	(0.033)**	(0.034)**	(0.039)**	(0.037)**	(0.037)**	(0.039)**
[C]	0.543	0.426	0.438	0.501	0.414	0.479	0.399	0.436	0.392	0.48
	(0.025)**	(0.026)**	(0.024)**	(0.024)**	(0.026)**	(0.027)**	(0.029)**	(0.028)**	(0.027)**	(0.027)**
[D1]	0.621	0.526	0.567	0.599	0.551	0.606	0.535	0.614	0.568	0.632
	(0.024)**	(0.025)**	(0.023)**	(0.022)**	(0.024)**	(0.025)**	(0.027)**	(0.026)**	(0.025)**	(0.025)**
[D2]	0.588	0.477	0.516	0.553	0.486	0.543	0.498	0.548	0.502	0.547
	(0.024)**	(0.025)**	(0.023)**	(0.023)**	(0.025)**	(0.025)**	(0.028)**	(0.027)**	(0.026)**	(0.026)**
[E1]	0.674	0.572	0.6	0.639	0.578	0.623	0.557	0.584	0.526	0.621
	(0.027)**	(0.028)**	(0.026)**	(0.025)**	(0.028)**	(0.028)**	(0.031)**	(0.03)**	(0.029)**	(0.029)**
[E2]	0.836	0.755	0.778	0.802	0.74	0.852	0.782	0.817	0.796	0.863
	(0.032)**	(0.033)**	(0.03)**	(0.03)**	(0.032)**	(0.033)**	(0.035)**	(0.034)**	(0.034)**	(0.035)**
[E3]	0.757	0.62	0.667	0.737	0.713	0.801	0.742	0.784	0.705	0.822
	(0.034)**	(0.035)**	(0.032)**	(0.032)**	(0.035)**	(0.035)**	(0.037)**	(0.037)**	(0.036)**	(0.036)**
[F1]	0.605	0.456	0.502	0.538	0.494	0.576	0.476	0.561	0.491	0.567
	(0.026)**	(0.027)**	(0.025)**	(0.025)**	(0.027)**	(0.027)**	(0.03)**	(0.029)**	(0.028)**	(0.028)**
[F2]	0.351	0.264	0.273	0.3	0.218	0.299	0.231	0.286	0.225	0.303
	(0.024)**	(0.025)**	(0.023)**	(0.023)**	(0.025)**	(0.025)**	(0.027)**	(0.026)**	(0.026)**	(0.025)**
[G]	0.586	0.469	0.503	0.543	0.477	0.548	0.482	0.568	0.492	0.59
	(0.026)**	(0.027)**	(0.025)**	(0.024)**	(0.026)**	(0.027)**	(0.029)**	(0.028)**	(0.027)**	(0.027)**
[H]	0.461	0.343	0.386	0.438	0.365	0.418	0.366	0.411	0.342	0.417
	(0.027)**	(0.028)**	(0.026)**	(0.025)**	(0.027)**	(0.027)**	(0.03)**	(0.028)**	(0.027)**	(0.027)**
[I]	0.11	0.012	-0.007	0.074	0.021	0.063	0.003	0.116	0.045	0.158
	(0.03)**	(0.031)	(0.028)	(0.028)**	(0.03)	(0.031)*	(0.033)	(0.032)**	(0.031)	(0.031)**
[J]	0.369	0.182	0.289	0.307	0.282	0.317	0.224	0.38	0.26	0.338
	(0.037)**	(0.038)**	(0.036)**	(0.034)**	(0.037)**	(0.039)**	(0.041)**	(0.039)**	(0.039)**	(0.038)**
[K]	0.484	0.361	0.384	0.425	0.385	0.446	0.361	0.475	0.391	0.454
	(0.025)**	(0.026)**	(0.024)**	(0.023)**	(0.025)**	(0.026)**	(0.028)**	(0.027)**	(0.026)**	(0.026)**
N	39524	40483	48256	48277	43157	41874	41710	43914	43702	43670
R^2	0.38	0.357	0.344	0.336	0.332	0.31	0.28	0.311	0.319	0.323

continued...

Tables D.1 and D.2 contain selected parameters related to industry dummies, as well as the sample size and adjusted R^2 for the regressions including 15 industries.

Table D.2: Industry dummies, observations, and adjusted R^2 (...continued)

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
[B]	0.85	0.933	0.892	0.95	0.818	0.848	0.812	0.786	0.693	0.713
	(0.037)**	(0.039)**	(0.038)**	(0.036)**	(0.039)**	(0.04)**	(0.043)**	(0.041)**	(0.048)**	(0.047)**
[C]	0.526	0.565	0.584	0.597	0.424	0.464	0.398	0.377	0.402	0.368
	(0.024)**	(0.024)**	(0.024)**	(0.024)**	(0.024)**	(0.025)**	(0.026)**	(0.024)**	(0.026)**	(0.026)**
[D1]	0.693	0.686	0.725	0.712	0.618	0.648	0.565	0.542	0.516	0.496
	(0.023)**	(0.023)**	(0.023)**	(0.022)**	(0.023)**	(0.023)**	(0.025)**	(0.023)**	(0.025)**	(0.024)**
[D2]	0.618	0.623	0.679	0.661	0.558	0.577	0.509	0.488	0.465	0.453
	(0.023)**	(0.024)**	(0.023)**	(0.023)**	(0.023)**	(0.024)**	(0.025)**	(0.024)**	(0.026)**	(0.026)**
[E1]	0.662	0.663	0.664	0.668	0.55	0.587	0.53	0.446	0.451	0.435
	(0.026)**	(0.026)**	(0.026)**	(0.025)**	(0.026)**	(0.026)**	(0.028)**	(0.026)**	(0.028)**	(0.028)**
[E2]	0.903	0.883	0.908	0.916	0.787	0.839	0.745	0.708	0.684	0.607
	(0.031)**	(0.032)**	(0.032)**	(0.031)**	(0.032)**	(0.034)**	(0.037)**	(0.034)**	(0.039)**	(0.038)**
[E3]	0.904	0.851	0.868	0.897	0.815	0.862	0.752	0.687	0.707	0.709
	(0.033)**	(0.034)**	(0.033)**	(0.033)**	(0.033)**	(0.033)**	(0.037)**	(0.035)**	(0.038)**	(0.039)**
[F1]	0.594	0.599	0.648	0.663	0.572	0.595	0.502	0.488	0.446	0.433
	(0.025)**	(0.026)**	(0.025)**	(0.025)**	(0.025)**	(0.026)**	(0.027)**	(0.026)**	(0.028)**	(0.028)**
[F2]	0.376	0.365	0.386	0.395	0.3	0.32	0.227	0.243	0.21	0.209
	(0.023)**	(0.023)**	(0.023)**	(0.022)**	(0.023)**	(0.023)**	(0.024)**	(0.023)**	(0.024)**	(0.024)**
[G]	0.655	0.64	0.677	0.691	0.566	0.604	0.535	0.522	0.502	0.491
	(0.024)**	(0.024)**	(0.024)**	(0.024)**	(0.024)**	(0.025)**	(0.026)**	(0.025)**	(0.026)**	(0.026)**
[H]	0.475	0.476	0.523	0.526	0.417	0.44	0.355	0.343	0.333	0.332
	(0.024)**	(0.024)**	(0.024)**	(0.024)**	(0.024)**	(0.025)**	(0.026)**	(0.024)**	(0.026)**	(0.026)**
[I]	0.127	0.169	0.24	0.245	0.136	0.216	0.119	0.113	0.062	0.105
	(0.028)**	(0.028)**	(0.027)**	(0.027)**	(0.027)**	(0.028)**	(0.03)**	(0.028)**	(0.03)*	(0.03)**
[J]	0.409	0.35	0.399	0.516	0.311	0.377	0.321	0.318	0.327	0.301
	(0.034)**	(0.035)**	(0.034)**	(0.034)**	(0.032)**	(0.032)**	(0.034)**	(0.032)**	(0.035)**	(0.034)**
[K]	0.509	0.513	0.544	0.561	0.466	0.51	0.424	0.395	0.401	0.383
	(0.023)**	(0.024)**	(0.023)**	(0.023)**	(0.023)**	(0.024)**	(0.025)**	(0.023)**	(0.025)**	(0.025)**
N	45282	42437	46426	46106	45023	44022	42638	43632	39341	40481
R^2	0.337	0.336	0.332	0.327	0.318	0.318	0.313	0.316	0.304	0.302

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
[B]	0.786	0.676	0.716	0.667	0.611	0.523	0.647	0.667	0.732	0.647
	(0.048)**	(0.048)**	(0.049)**	(0.05)**	(0.039)**	(0.04)**	(0.041)**	(0.041)**	(0.038)**	(0.039)**
[C]	0.456	0.373	0.364	0.385	0.347	0.269	0.362	0.311	0.327	0.27
	(0.027)**	(0.027)**	(0.026)**	(0.026)**	(0.021)**	(0.02)**	(0.021)**	(0.022)**	(0.021)**	(0.021)**
[D1]	0.578	0.526	0.524	0.502	0.46	0.357	0.459	0.403	0.434	0.364
	(0.026)**	(0.025)**	(0.025)**	(0.025)**	(0.02)**	(0.02)**	(0.02)**	(0.022)**	(0.02)**	(0.021)**
[D2]	0.527	0.45	0.481	0.444	0.419	0.316	0.413	0.373	0.393	0.343
	(0.027)**	(0.027)**	(0.026)**	(0.026)**	(0.021)**	(0.021)**	(0.021)**	(0.023)**	(0.021)**	(0.022)**
[E1]	0.515	0.423	0.426	0.41	0.414	0.278	0.397	0.35	0.389	0.284
	(0.029)**	(0.028)**	(0.028)**	(0.028)**	(0.022)**	(0.023)**	(0.023)**	(0.025)**	(0.023)**	(0.024)**
[E2]	0.726	0.666	0.665	0.661	0.634	0.487	0.608	0.569	0.599	0.498
	(0.038)**	(0.036)**	(0.035)**	(0.034)**	(0.027)**	(0.028)**	(0.03)**	(0.034)**	(0.032)**	(0.032)**
[E3]	0.809	0.699	0.671	0.678	0.615	0.548	0.679	0.589	0.626	0.572
	(0.039)**	(0.04)**	(0.039)**	(0.04)**	(0.032)**	(0.032)**	(0.035)**	(0.037)**	(0.035)**	(0.038)**
[F1]	0.545	0.464	0.435	0.457	0.44	0.325	0.432	0.383	0.408	0.345
	(0.029)**	(0.028)**	(0.027)**	(0.027)**	(0.022)**	(0.023)**	(0.022)**	(0.024)**	(0.023)**	(0.024)**
[F2]	0.269	0.22	0.19	0.184	0.169	0.132	0.2	0.165	0.165	0.105
	(0.026)**	(0.025)**	(0.025)**	(0.025)**	(0.02)**	(0.019)**	(0.02)**	(0.021)**	(0.02)**	(0.021)**
[G]	0.583	0.513	0.548	0.519	0.527	0.406	0.503	0.46	0.501	0.467
	(0.028)**	(0.027)**	(0.026)**	(0.026)**	(0.021)**	(0.021)**	(0.021)**	(0.022)**	(0.021)**	(0.022)**
[H]	0.404	0.392	0.388	0.39	0.377	0.27	0.376	0.324	0.368	0.323
	(0.027)**	(0.026)**	(0.026)**	(0.025)**	(0.021)**	(0.021)**	(0.021)**	(0.022)**	(0.021)**	(0.022)**
[I]	0.2	0.082	0.082	0.117	0.128	0.051	0.09	0.079	0.101	0.045
	(0.032)**	(0.031)**	(0.03)**	(0.03)**	(0.024)**	(0.024)*	(0.024)**	(0.026)**	(0.025)**	(0.026)
[J]	0.336	0.267	0.312	0.232	0.219	0.161	0.274	0.186	0.27	0.192
	(0.035)**	(0.033)**	(0.033)**	(0.033)**	(0.026)**	(0.026)**	(0.026)**	(0.027)**	(0.026)**	(0.027)**
[K]	0.45	0.386	0.366	0.352	0.337	0.275	0.368	0.3	0.347	0.277
	(0.026)**	(0.026)**	(0.025)**	(0.025)**	(0.02)**	(0.02)**	(0.02)**	(0.021)**	(0.02)**	(0.021)**
N	40361	41251	42345	41379	66856	65060	63581	59905	60302	60533
R^2	0.305	0.322	0.32	0.329	0.32	0.307	0.304	0.299	0.32	0.298

Standard errors in parenthesis. **: significant at 1% confidence level; *: significant at 5% confidence level.

Table D.3 contains selected parameters related to industry dummies, as well as the sample size and adjusted R^2 for the regressions including 15 industries and the dependent variable is hourly wage.

Table D.3: Industry dummies, observations, and adjusted R^2

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
[B]	0.885	0.941	0.811	0.843	0.808	0.782	0.685	0.708	0.782	0.674
	(0.038)**	(0.036)**	(0.039)**	(0.039)**	(0.043)**	(0.041)**	(0.048)**	(0.047)**	(0.048)**	(0.048)**
[C]	0.58	0.593	0.419	0.46	0.394	0.374	0.399	0.363	0.452	0.369
	(0.024)**	(0.024)**	(0.024)**	(0.025)**	(0.026)**	(0.024)**	(0.026)**	(0.026)**	(0.027)**	(0.027)**
[D1]	0.718	0.707	0.611	0.643	0.56	0.538	0.511	0.491	0.574	0.522
	(0.023)**	(0.022)**	(0.023)**	(0.023)**	(0.024)**	(0.023)**	(0.025)**	(0.024)**	(0.026)**	(0.025)**
[D2]	0.673	0.657	0.551	0.572	0.504	0.484	0.461	0.448	0.522	0.447
	(0.023)**	(0.023)**	(0.023)**	(0.024)**	(0.025)**	(0.024)**	(0.026)**	(0.026)**	(0.027)**	(0.027)**
[E1]	0.655	0.659	0.54	0.579	0.522	0.439	0.443	0.428	0.507	0.416
	(0.026)**	(0.025)**	(0.026)**	(0.026)**	(0.028)**	(0.026)**	(0.028)**	(0.028)**	(0.029)**	(0.028)**
[E2]	0.894	0.906	0.77	0.824	0.731	0.696	0.672	0.595	0.711	0.652
	(0.032)**	(0.031)**	(0.032)**	(0.034)**	(0.037)**	(0.034)**	(0.039)**	(0.038)**	(0.038)**	(0.036)**
[E3]	0.858	0.889	0.801	0.853	0.744	0.678	0.698	0.7	0.799	0.693
	(0.033)**	(0.033)**	(0.033)**	(0.033)**	(0.037)**	(0.035)**	(0.038)**	(0.039)**	(0.039)**	(0.04)**
[F1]	0.646	0.662	0.571	0.593	0.501	0.487	0.445	0.431	0.544	0.464
	(0.025)**	(0.025)**	(0.025)**	(0.026)**	(0.027)**	(0.026)**	(0.028)**	(0.028)**	(0.029)**	(0.028)**
[F2]	0.384	0.394	0.298	0.318	0.226	0.242	0.208	0.207	0.267	0.219
	(0.023)**	(0.022)**	(0.023)**	(0.023)**	(0.024)**	(0.023)**	(0.024)**	(0.024)**	(0.026)**	(0.025)**
[G]	0.676	0.691	0.564	0.604	0.535	0.522	0.501	0.49	0.582	0.513
	(0.024)**	(0.024)**	(0.024)**	(0.025)**	(0.026)**	(0.025)**	(0.026)**	(0.026)**	(0.028)**	(0.027)**
[H]	0.521	0.526	0.416	0.438	0.355	0.343	0.332	0.33	0.403	0.392
	(0.024)**	(0.024)**	(0.024)**	(0.025)**	(0.026)**	(0.024)**	(0.026)**	(0.026)**	(0.027)**	(0.026)**
[I]	0.238	0.244	0.132	0.214	0.118	0.112	0.06	0.104	0.197	0.08
	(0.027)*	(0.027)**	(0.027)**	(0.028)**	(0.03)**	(0.028)**	(0.03)**	(0.03)**	(0.032)**	(0.031)**
[J]	0.396	0.513	0.307	0.372	0.318	0.315	0.323	0.297	0.332	0.263
	(0.034)**	(0.034)**	(0.032)**	(0.032)**	(0.034)**	(0.032)**	(0.035)**	(0.034)**	(0.035)**	(0.033)**
[K]	0.54	0.559	0.462	0.507	0.422	0.393	0.398	0.38	0.447	0.384
	(0.023)**	(0.023)**	(0.023)**	(0.024)**	(0.025)**	(0.023)**	(0.025)**	(0.025)**	(0.026)**	(0.026)**
N	46426	46106	45023	44022	42638	43632	39341	40481	40361	41251
R^2	0.333	0.328	0.319	0.319	0.314	0.316	0.304	0.303	0.306	0.322

	2000	2001	2002	2003	2004	2005	2006	2007	2008
[B]	0.715	0.665	0.61	0.521	0.644	0.664	0.73	0.645	0.68
	(0.049)**	(0.05)**	(0.039)**	(0.04)**	(0.041)**	(0.041)**	(0.038)**	(0.039)**	(0.037)**
[C]	0.361	0.382	0.345	0.265	0.36	0.31	0.324	0.268	0.298
	(0.026)**	(0.026)**	(0.021)**	(0.02)**	(0.021)**	(0.022)**	(0.021)**	(0.021)**	(0.02)**
[D1]	0.522	0.5	0.458	0.353	0.456	0.4	0.432	0.362	0.435
	(0.025)**	(0.025)**	(0.02)**	(0.02)**	(0.02)**	(0.022)**	(0.02)**	(0.021)**	(0.02)**
[D2]	0.479	0.442	0.417	0.313	0.41	0.37	0.391	0.341	0.381
	(0.026)**	(0.026)**	(0.021)**	(0.021)**	(0.021)**	(0.023)**	(0.021)**	(0.022)**	(0.021)**
[E1]	0.422	0.407	0.41	0.272	0.392	0.346	0.387	0.281	0.318
	(0.028)**	(0.028)**	(0.022)**	(0.023)**	(0.023)**	(0.025)**	(0.023)**	(0.024)**	(0.023)**
[E2]	0.659	0.656	0.63	0.481	0.604	0.565	0.595	0.493	0.514
	(0.035)**	(0.034)**	(0.027)**	(0.028)**	(0.03)**	(0.034)**	(0.032)**	(0.032)**	(0.031)**
[E3]	0.665	0.673	0.61	0.541	0.671	0.584	0.621	0.565	0.628
	(0.039)**	(0.04)**	(0.032)**	(0.032)**	(0.035)**	(0.037)**	(0.035)**	(0.038)**	(0.034)**
[F1]	0.434	0.456	0.44	0.324	0.432	0.383	0.408	0.344	0.418
	(0.027)**	(0.027)**	(0.022)**	(0.022)**	(0.022)**	(0.024)**	(0.023)**	(0.024)**	(0.023)**
[F2]	0.189	0.183	0.168	0.131	0.199	0.165	0.165	0.104	0.162
	(0.025)**	(0.025)**	(0.02)**	(0.019)**	(0.02)**	(0.021)**	(0.02)**	(0.021)**	(0.019)**
[G]	0.548	0.519	0.527	0.406	0.503	0.46	0.501	0.467	0.467
	(0.026)**	(0.026)**	(0.021)**	(0.021)**	(0.021)**	(0.022)**	(0.021)**	(0.022)**	(0.021)**
[H]	0.388	0.39	0.377	0.269	0.375	0.324	0.368	0.322	0.333
	(0.026)**	(0.025)**	(0.021)**	(0.021)**	(0.021)**	(0.022)**	(0.021)**	(0.022)**	(0.02)**
[I]	0.081	0.116	0.127	0.05	0.089	0.078	0.1	0.044	0.069
	(0.03)**	(0.03)**	(0.024)**	(0.024)*	(0.024)**	(0.026)**	(0.025)**	(0.026)*	(0.024)**
[J]	0.31	0.231	0.218	0.16	0.272	0.185	0.269	0.191	0.23
	(0.033)**	(0.033)**	(0.026)**	(0.026)**	(0.026)**	(0.027)**	(0.026)**	(0.027)**	(0.025)**
[K]	0.364	0.351	0.336	0.273	0.366	0.298	0.345	0.276	0.324
	(0.025)**	(0.025)**	(0.02)**	(0.02)**	(0.02)**	(0.021)**	(0.02)**	(0.021)**	(0.02)**
N	42345	41379	66856	65060	63581	59905	60302	60533	60521
R^2	0.32	0.329	0.32	0.307	0.304	0.3	0.321	0.299	0.317

Standard errors in parenthesis. **: significant at 1% confidence level; *: significant at 5% confidence level.

Estimates summarized in tables D.1, D.2, and D.3 included dummies for female workers, African-American workers, living a metropolitan area, division of residence, age group, and educational attainment. Additionally, regressions of hourly wage on individual characteristics included a dummy for union coverage.

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