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ABSTRACT

Labor-Market Concentration and Labor Compensation*

This paper estimates the effect of labor-market concentration on labor compensation across the U.S. private sector since 2000. We distinguish between concentration in local labor markets versus local product markets, guarding against bias from confounded product-market concentration. Analysis extends beyond wages to rates of employment-based health insurance coverage. Estimates suggest negative effects of labor-market concentration on labor compensation. This comes through both reducing the human-capital level of those in the market and reducing pay conditional on human-capital level. Higher product-market concentration exacerbates and higher unionization rates mitigates these effects.

JEL Classification: J31, J32, J42, L13, J51

Keywords: labor-market concentration, monopsony, wages, health insurance, unions

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1 Introduction

We study effects of local labor-market concentration on wages in the U.S. economy. Workers may be subject to employer market power due to a lack of competition between employers, a literal form of monopsonistic competition in particular that is one among many varieties of employer wage-setting power derived from upward-sloping labor supply curves facing firms (Alan, 2011; Naidu et al., 2018). Given that U.S. workers' wages, below the top end, have stagnated for decades (Shambaugh et al., 2017), investigating potential avenues for increasing them is of first-order economic importance (Shambaugh and Nunn, 2018). We define labor markets as the combination of an occupation and metropolitan area and study the relationship between changes in concentration and changes in wages in a labor market. We use worker-level wage data from the 2000 Decennial Census and the American Community Survey in each year from 2005 to 2014. Distinct from the prior literature, our contributions include controlling for important potential confounding factors, such as the product-market concentration of the worker's local industry and the worker's individual human capital characteristics. This is possible because, unlike the prior literature, we analyze worker-level data with each individual's wage, industry, occupation, and human-capital characteristics. We also expand the analysis of effects beyond wages to include employment-based health insurance as well.

Recent work finds evidence of such concentration based on firms' shares of vacancy postings in an occupation-locale during 2010 to 2013 Azar et al. (2017) and in 2016 Azar et al. (2018). The former presented evidence that greater concentration caused lower wage, measuring wage as posted wage among vacancies including a posted wage. The latter focuses on how to define local labor markets and offers cross-sectional description of concentration across markets but does not analyze relation to wages. Hershbein et al. (2018) uses data similar to this but focuses on how concentration affects demand for skill as expressed in the text of vacancy postings and finds greater concentration associated with both lower wages and stronger demand for greater skill, even within occupation, an effect they term "upskilling."

Because these three papers rely on online archives of vacancy postings, their measures of concentration derive from vacancy shares, rather than employment shares.[1]

Three recent papers leverage the Census Longitudinal Business Database (LBD) to measure labor-market concentration at the industry-locale-year level using employment shares, rather than vacancy shares. Benmelech et al. (2018) focus on a handful of industries within manufacturing and define a labor market at the industry-county level. They focus here because they can get establishment-level measures of labor productivity, which provides an important control variable in explaining establishment-year average wage. They find evidence that greater concentration causes slightly lower wages. Also, this effect is weaker in industries with higher, national-level unionization rates. Rinz (2018) expands this approach to the whole economy from 1976 to 2015, again focusing on concentration within an industry-locale but using commuting zone rather than county as the measure of locale. He produces the first evidence of trends in local labor market concentration and finds evidence of effects on individual wages. With access to worker demographic data, including age, race and gender, he focuses on documenting heterogeneous effects of concentration by demographic subpopulation rather than controlling for these worker characteristics in the model of wage. Lipsius (2018) also analyzes the LBD defining labor markets along local industry lines but uses LBD's establishment average wage aggregated up to the local firm level, rather than linking to individual worker-level wages. He interprets the evidence in the context of more well-developed theoretical model, which highlights the importance of controlling for labor market size and labor productivity.

We make four main contributions relative to the prior literature. First, we distinguish local labor-market concentration in an occupation-year from local product-market concentration in an industry-year to build more-credible estimates. Industries describe how firms face consumers. Occupations describe how they face workers. We measure both and control for the latter when trying to measure the effect of the former. This is conceptually critical

[1]Herbein et al's analysis of effects on wages includes occupation and locale effects but not occupation-locale (market) effects.

because the two are easily confounded. For example, if there are only two nursing homes in town and they are the only local employers of registered nurses, they will have power in both the product and labor markets. Industry concentration may generate economic rents for firms from consumers, which might provide a basis for rent-sharing with employees and higher wages. Occupational concentration may generate economic rents for firms from workers by suppressing wages. Because product market and labor market concentration may go together, excluding product-market concentration from the analysis creates a risk of omitted-variable bias.

We build our measures of local concentration from the Dun & Bradstreet (D&B) database of U.S. establishments. For each establishment-year, we observe measures of establishment name, parent firm, address, industry, employment, and revenue. The D&B data have a similar structure to the Census LBD used by Benmelech et al. (2018), Rinz (2018) and Lipsius (2018). Our measures of labor-market concentration derived from the D&B data show similar changes over time to those Rinz produced from the Census LBD, though definitions and levels differ somewhat. To harmonize with the Census worker-level micro-data, we define locale as the core-based statistical area (CBSA), which is similar to a metropolitan statistical area. Lipsius (2018) also uses this definition of locale. We define local product-market concentration based on revenue shares across firms within an industry-CBSA. If there are multiple establishments with the same ultimate parent firm in the same industry-CBSA, they are pooled together to count as one firm.

We want to focus on occupational shares to define labor-market concentration. We do not observe employment by occupation in the D&B. To overcome this, we harness estimates of the occupational distribution of employment within each industry-year from the Census microdata nationally. We impute employment by occupation to each establishment as the product of its employment level times its industry-year occupational distribution. From there, we compute a measure of employment shares across firms within each occupation-locale-year, which we use as the primary predictor of interest. This approach to measuring

occupational employment is novel in this literature.

Second, in trying to understand the effect of concentration on wage, we control for individual workers' age, education, race, and ethnicity. In their study of job vacancy text and aggregate wages, Hershbein et al. (2018) find evidence that labor-market concentration leads firms to demand workers with higher skill levels within occupation. If correct, this mechanism would generate a positive correlation between concentration and wage through worker skill but, conditional on skill, a negative effect on wage may appear. However, they do not measure the skill level of employed workers and do not test for this directly.[2] We do test this directly and find evidence supporting their story.

Empirically, our results largely reinforce the negative wage effects estimated by the prior literature. Estimates from our OLS analysis yield a different result – a very small positive or null effect, echoing Rinz. However, estimates from IV analysis following Azar et al's use of a function of each occupation's average number of employing firms in other locales as an instrument for each labor market's own labor-market concentration find evidence of a substantial negative effect of labor-market concentration on wages. The basic results of Benmelech et al, Azar et al, Rinz, Hershbein et al, and Lipsius of a negative effect on wages holds up with occupationally-defined labor markets, employment-based (rather than vacancy-based) HHI, and conditional on controls for product-market concentration is a main contribution. Though we use different data and labor-market definitions to measure labor-market concentration than Rinz, Hershbein et al, and Lipsius do, we also find that average concentration levels now are below 2000 levels, though up since the Great Recession. Labor-market concentration may have been pushing down labor compensation throughout the period, but the level of concentration doesn't appear to have risen over this period.

Third, beyond looking at the effect on workers' wages as the prior literature has, we also look at the effect of labor-market concentration on workers' probability of employment-

[2] Rinz (2018) explores the possibly heterogeneous effects of concentration in different worker subgroups – among whites, African-Americans, low-education, high-education, young, middle-aged, older, men, or women – but doesn't examine the effect of concentration on individual worker's wage while controlling for the full vector of worker characteristics.

based health insurance coverage. This is a substantial component of labor compensation. In recent data on U.S. private-sector workers, the cost of employee health insurance to employers equaled about 11% of wage and salary costs.[3] We find evidence of negative effects, suggesting that the prior literature's focus only on wages omits part of the compensation effect.

Fourth, we study how the relationship between labor-market concentration and labor compensation differs depending on the degree of product-market concentration, worker unionization, and occupational offshorability. Our novel ability to measure both labor and product market concentration enables this first test. It finds that negative effects of labor-market concentration are strengthened by greater product-market concentration. Firms' product-market rents do not immediately translate into higher labor compensation, especially in the context of greater labor-market concentration. However, the presence of strong worker organization appears to have the opposite effect, countervailing the negative effects of labor-market concentration. Benmelech et al used national-level unionization rates in the handful of industries they studied and found that concentration had more-negative effects in less-unionized industries. We generalize this across the whole labor market and exploit variation in occupational unionization rates across state-year. We also find evidence that unionization counteracts the negative effects of concentration. Lastly, contrary to expectations from theory, occupational offshorability is estimated to not affect the relationship.

2 Data

Our primary sample comes from the American Community Survey (ACS) between the years 2005 and 2014 supplemented with the 5% public-use subsample of the 2000 Decennial Census, drawn from IPUMS-USA Ruggles et al. (2018).[4] Let t index years.

The virtue of this sample relative to other data used in this literature is its measures of worker wage, industry, occupation, and locale at the individual level. This enables us

[3] https://www.bls.gov/news.release/ecec.nr0.htm

[4] The 2013 definition of CBSA is not available in years 2001-2004. Including intermediate years would require introducing a crosswalk across different measures of locale.

to separately measure the degree of labor-market concentration in the workers' occupation-locale from the degree of consumer-market concentration in their industry-locale. Other papers in this line of research have not included both industry and occupation, instead focusing on one or the other, interpreted the focal variable as the labor-market boundary, and left the concentration of the other in the residual Azar et al. (2017, 2018); Benmelech et al. (2018); Hershbein et al. (2018); Rinz (2018). Additionally, the micro-data includes measures of each worker's human-capital characteristics, which provide additional insight into mechanisms and protection against omitted-variable bias. Let i index workers in the sample.

Labor market. We define a labor market as the combination of an occupation and a CBSA. Markets are indexed by m, with $o(m)$ and $l(m)$ denoting a market's occupation and locale, respectively.

Conceptually, occupation is superior to industry as the basis for defining a labor market. Occupation is an aspect of a job and rooted in the knowledge, skills, and abilities that workers and firms trade in the labor market. Industry is an aspect of a product and rooted in the characteristics that consumers and firms trade in goods and service markets. We use the 1990 Census occupational codes and examine 334 occupations.

To define locales, we use the U.S. Office of Management & Budget's 2013 definition of core-based statistical area (CBSA), the most-recent definition and use all years of data for which it is available in IPUMS.[5] This yields 82,377 markets observed in 11 years each for a total of 538,596 possible market-years observed. An alternative definition of locale is commuting zone. We are missing county, the basis for measuring commuting zone, on 15% of individuals with observed CBSA. However, in the robustness section, we reproduce the analysis defining locale as commuting zones, rather than CBSA, for those workers with county observed. Results are qualitatively similar.

Labor compensation. The primary outcome measure (Y) is an employee's log hourly

[5] https://usa.ipums.org/usa-action/variables/MET2013. Hershbein et al. (2018) and Lipsius (2018) also uses this definition of locale.

wage measured in 1999 dollars. We include individuals between age 16 and 64 who work in the for-profit firms in private sector. We also drop those associated with institution group quarters, and those with missing wage, 1990 census industry, 2013 CBSA code, or 1990 census occupational code. This leaves 9,330,058 observations of workers. Hourly wages average $16.02 with standard deviation $21.50 and a median of $11.66 (Table 1: Panel A).[6]

As a supplemental measure of labor compensation, we also study whether a worker reports having employment-based health insurance (71 percent do) and how this relates to labor-market concentration. This is observed in the ACS from 2008 forward.[7]

Labor-market concentration. For each labor market-m each year-t, we measure concentration by combining data each establishment's employment level, industry, parent firm, and location from Dun & Bradstreet (D&B) with information on the joint distribution of occupation and industry employment nationally.

The D&B data contain each establishment's location, industry, firm, ultimate parent firm, and total employment level but no data on workers' occupations. This has the same structural features as the Longitudinal Business Database used by Rinz, Benmelech et al., and Lipsius to measure concentration. For each establishment, D&B provides information on establishment name, firm name, D&B firm ID, location (street address, city, county, and state), 4-digit 1987 version SIC industry, which we index by d, D&B ultimate parent ID, sales, and employment. To match each SIC code to a 3-digit detailed census industry code, we use the crosswalk from the U.S. Census Bureau.[8] The county code in the data is defined

[6]To measure hourly wage, we divide annual earnings by 52 times reported usual hours per week. Weeks of work is not reported in all years so we do not use it. Results using direct data on annual, rather than constructed hourly, earnings are very similar. In the prior literature, only Rinz used individual-level wage data and he used annual earnings, lacking any measures of time worked. Others use posted wages on vacancies or establishment average wage. 2017 $1.471 = 1999 $1.

[7]If a person is covered by own or another family member's current employer, former employer, or union, then this person is coded covered by employment-based health insurance. https://usa.ipums.org/usa-action/variables/HINSEMP#description_section

[8]The crosswalk is available at "CPS Industry Classifications (1992-2002)" in http://unionstats.com/. For each detailed census industry code, this crosswalk provides the equivalent SIC codes, mostly at the 3-digit level. For a few cases, we have to construct the crosswalk such that a group of the census industry codes is uniquely mapped to a group of SIC codes and vice versa. Specifically, we aggregate the census codes 272 and 280 as code "272,280", 371 and 372 together as code "371,372", 771 and 790 together as "771,790", and 862 and 863 together as code "862,863."

by D&B and we use the crosswalk provided by D&B to map each county to the FIPS county code.

To go from establishment's industry and employment to an estimate of establishment's employment by occupation, we multiply each establishment's employment level times the national occupational distribution of employment for the establishment's industry. We estimate a distribution of occupational employment by industry each year ($Pr(o)_{dt}$) from the Census microdata's joint distribution of occupation among U.S. workers in industry d in year t. For an establishment-e in industry d in year t employing E_{dte} workers, its number of employees in occupation-o is measured as $E_{ote} \equiv E_{dte} Pr(o)_{dt}$.

Multiple establishments within the same parent firm by locale combination are considered as a single employer. Each firm's employment in a market is the sum of its establishments' employment levels: $E_{mtf} \equiv \sum_{e \in f} E_{mte}$ Letting N_{mt} be the number of firms employing workers in occupation-$o(m)$ in year-t, each firm's employment share is $s_{mtf} \equiv E_{mtf}/E_{mt}$ where E_{mt} is total market employment, the sum of E_{mtf} across firms. A positive employment level is observed in 538,596 market-years.

Labor-market concentration is measured by an employment Herfindahl-Hirschman Index (EHHI) based on firms' employment shares:

$$EHHI_{mt} = \sum_{f=1}^{N_{mt}} s_{mtf}^2$$

.

Our measure of concentration very likely underestimates true concentration. If a firm in a metro has only 1 employee but it is in an industry that nationally has a positive probability of employing people in 100 occupations, the firm is measured as having a fraction of an employee in each of those 100 occupational labor-markets in that metro. This mechanically forces there to be a high number of employers in each labor market but most will have very small shares. For this reason, we recommend interpreting neither our estimate of EHHI levels nor of the number of employers literally. In our analysis of the effects of concentration,

we will use market fixed effects and focus on how changes in $log(EHHI)$ predict changes in log($Wage$). The essential question is whether changes in our EHHI measure capture changes in true labor-market concentration. Conceptually, it should.

This is the first estimate of labor market concentration based on employment shares in occupationally-defined labor markets in the recent literature.[9] Across market-years, the measured average EHHI is 0.046 (or 460 of 10,000) with standard deviation 0.088 and median 0.017, consistent with a skew towards higher concentration (Table 1).

The D&B data are not produced by required official reporting and employment and revenue measures are sometimes imputed by D&B or missing. However, D&B has been in this line of work, producing and selling such databases for decades in order to support business-to-business marketing and analysis and a variety of economic research has used these data, for instance (Alfaro and Charlton, 2009; Bitler and Haider, 2011; Levine et al., 2012; Kapadia, 2011; Bader et al., 2010; Wang and Bansal, 2012).

It is useful to compare our measures to others derived from the LBD. Figure 1 shows the trend in average of EHHI in 2000 and each year from 2005 to 2014. Rinz computes a measure of EHHI in his Figure 2 but using a different measure of labor market, industry by commuting zone instead of occupation by CBSA. Despite these differences and our levels being consistently lower by a factor of about two-thirds, changes in our EHHI measures follow a similar path. Both Rinz's and our estimates fall steadily from 2000 until the start of the Great Recession, rise abruptly, and then fall slowly after 2012.

Eighty-three percent of variation in labor-market concentration across individual workers is absorbed by a set of market fixed effects and year fixed effects (Table 1:R^2). We exploit the 17% of variation that remains, representing changes in labor-market concentration within labor market over years driven by local establishment entry, exit, employment growth or decline, and changes in occupational shares within industry over time.

[9]Others have been based on vacancy shares, not employment shares (Azar et al., 2017, 2018; Hershbein et al., 2018) or labor markets defined along industrial lines (Benmelech et al., 2018; Rinz, 2018; **?**), not occupational lines.

We use other important, time-varying influences on average wages that may be correlated with labor-market concentration as control variables.

Product-market concentration. A key contribution of our paper beyond the prior literature is to distinguish product-market concentration from labor-market concentration, to separately measure both, and to estimate the relationship of each to wages conditional on the other. Each worker in our Census data is observed in an occupation and an industry. Workers in the same labor market (occupation-metro) can be in different product markets (industry-metro).

We measure each industry-metro-year's product-market concentration with HHI based on firms' sales shares in the metro-industry constructed from the D&B establishment data on location, industry, and annual sales, aggregating up in a way parallel to that described above for labor market concentration. Our measure of product-market concentration is very similar to a recent study of product-market concentration (Rossi-Hansberg et al., 2018). They use a modified version of the D&B data, called NETS, and also use CBSA as one measure of locale. Of course, some industries are more localized than others potentially introducing some measurement error.

Both our labor-market and product-market HHI measures derive from the metro-industry-year firm shares. The product-market HHI uses firms' local shares of sales (SHHI). The labor-market HHI uses firms' shares of occupational employment after projecting establishment employment into occupational employment.

To get intuition for how the EHHI and SHHI measures work, consider a simple example with four firms in a single metro-year. As indicated in the first 2 columns of the table below, firms 1 and 2 are in industry A and firms 3 and 4 are in industry B.
In industry A, firm 1 has half the revenue of firm 2. Their revenue shares (S_f^{Rev}) are 0.33 and 0.67, respectively, and these are used to compute SHHI equal to 0.556 for industry A in this metro-year. In industry B, the firms have equal shares, implying industry B's SHHI is 0.50. Each firm's employment level (E_f) is observed. Using the national occupational

Simple example of measuring product- and labor-market shares

Firm	Ind	Rev_f	S_f^{Rev}	E_f	E_f^L	E_f^H	s_f^L	s_f^H
1	A	1	0.33	1	0.6	0.4	0.28	0.10
2	A	2	0.67	2	1.2	0.8	0.57	0.21
3	B	1	0.50	1	0.1	0.9	0.05	0.23
4	B	1	0.50	2	0.2	1.8	0.10	0.46

distribution conditional on industry, we project employment levels by occupation to each firm. Assume for simplicity that there are only 2 occupations, indexed L and H, and that the occupational distributions conditional on industry, $P(E^L, E^H|Ind)$, are $(0.6, 0.4|Ind = A)$ and $(0.1, 0.9|Ind = B)$. Projecting occupational employment levels to each firm, firm 1 is measured as employing 0.6 worker in occupation L and 0.4 workers in occupation H. Proportional to employment levels and using the same distribution because it is in the same industry, firm 2 employs double those levels. The same logic leads to employment measures in firms 3 and 4. Industry B tends to employ a higher share of workers in occupation H than industry A does so, even though firms 1 and 3 have the same overall employment level ($E_1 = E_3 = 1$), they have different measured occupational employment: $E_1^H = 0.4 < E_3^H = 0.9$. This would yield EHHI equal to 0.419 for occupation L, where firm 2 tends to dominate and firm 3 has a small share of employment, but 0.319 in H, the labor market with less-concentrated employment.

This measurement strategy is designed to leverage available data in a sensible way and capture independent variation in EHHI across occupations, distinct from SHHI. We execute this across 198 industries, 334 occupations, 289 metros and 11 years. In contrast, prior work has not distinguished EHHI from SHHI (Azar et al., 2017, 2018; Benmelech et al., 2018; Hershbein et al., 2018; Rinz, 2018; Lipsius, 2018). Lipsius allows for heterogeneity in labor-market (defined on industry lines) concentration effects by the extent to which, nationally, the industry's employment is geographically concentrated or diffuse, a measure of product tradeability. He finds stronger negative effects of local labor-market concentration in industries that are below-median in tradeability. No prior work has observed both occupation

and industry for each worker. They define a labor market based on either locale-industry or locale-occupation, whichever they observe, and used employment (or vacancy) share to measure EHHI. This leaves estimates vulnerable to potential confounding between local product-market and labor-market concentration.

Workers are in local industries with an average SHHI of 0.260 (2,600 out of 10,000). The median SHHI is 0.147, consistent with a skew towards high concentration, and standard deviation is 0.278.[10] Figure 1 shows that the trend in workers' average SHHI also declines leading up to the Great Recession and rises after, although the post-recession growth in SHHI makes up a lower share of the pre-recession fall in SHHI than it did for EHHI. Rossi-Hansberg also estimates SHHI with a very similar dataset and very similar definitions. Reassuringly, we obtain very similar results. Both of our trends fall between 2000 and 2010, then increase until 2013. In 2014, theirs steadily continues its modest increase but ours dips a bit.

On one hand, EHHI and SHHI are positively correlated, creating a risk of omitted variable bias when EHHI is analyzed without controlling for SHHI. On the other hand, are they too-highly correlated to be sensibly separated? To understand the covariation in these variables that will be relevant in the regression analysis, we regress logs of each at the worker level on market fixed effects and year fixed effects, create residuals, and study their relationship. The bin scatter in Figure 2 shows that, as expected, a positive association persists. Both EHHI and SHHI depend on the number and sizes of local firms. However, because they focus on different markets (labor versus product or, equivalently, occupation versus industry) a lot of independent variation remains. Across workers, log(EHHI) and log(SHHI) residuals' correlation is only 0.041.

Other market controls. Changes in wages may also be related to changes in employment levels. The sign depends on whether the changes are due to supply or demand shocks. We are not focused on this factor but construct and control for a time-varying measure of log total employment by market-year using our occupational employment projections. The

[10] A small share of workers in our sample (1.1%) are in local product markets without SHHI observed. We impute these as equal to 0 and include an indicator for missing.

average market has 2,421 employees with a median of 552 (Table 1: Panel A). Lipsius (2018) also conditions on employment levels too, arguing that it is a proxy for labor productivity.

To help clarify the validity of the D&B data for measuring employment, Figure A.1 compares employment level measurements in each labor market each year based on data from D&B and the Census as a more well-known, reliable benchmark but one which does not permit measurement of concentration. In the left panel, we show the trend in labor markets' average ratio of D&B employment to Census/ACS employment to show how D&B levels compare to Census levels within year and over time. D&B tends to consistently estimate higher employment levels, by a factor within 1.1 to 1.4 over time. The right panel shows the correlation between employment levels measured in the two data sources across all labor-markets in all years using a bin scatter. Markets that are measured as having the lowest (highest) level of employment in D&B also tend to be measured as having the lowest (highest) employment level in the Census.

Other studies in this literature, with the exception of Benmelech et al. (2018), do not include any direct measure of labor productivity. Benmelech et al focus only on manufacturing primarily because they have a measure of establishment-year labor productivity in this sector and can link to establishment-year average wage. This is a very nice feature of their study, as labor productivity may lift wages. Though we cannot do as well as this, we can do better than most. We begin by measuring labor productivity as the ratio of sales to employees at the establishment-year level. However, we don't know which establishments employ the workers whose wages we observe so we average up establishment-year labor productivity to the product-market-year level and use this as a control in some specifications tied to each worker's local industry, i.e. product market. Labor productivity averages $70,898 per employee with a standard deviation of $49,851.[11]

Worker characteristics. The Census data provide linking of individual worker's wages to their demographic characteristics, in particular age, education level (coded as at least a

[11] We winsorize labor productivity to the 1st and 99th percentiles across all establishments in each year before averaging up to the product-market-year level.

bachelors degree or not) and an indicator for missing education value, gender, race/ethnicity (coded as non-Hispanic white, black, Hispanic, and other), and marital status. These are important determinants of wages and potential confounders or mechanisms in the relationship between labor-market concentration and wages. Controlling for observable differences across labor markets in workforce composition as a potential confounding explanation for wage differences, adding to the credibility of the estimated effects of labor-market concentration. Using the text of job vacancy postings, Hershbein et al. (2018) provides evidence that greater labor-market concentration raises firms' demand for skill within occupation.

Specifications. We estimate the following regression at the individual worker level:

$$Y_{mti} = \beta \log(EHHI_{mt}) + \alpha X_{mti} + \epsilon_{mti}$$

where Y_{mti} is the natural log of the individual worker's real hourly wage and salary income or a dummy variable indicating whether a worker is covered by employer-sponsored health insurance, $\log(EHHI_{mt})$ is the natural logarithm of the labor-market's employment concentration in that worker's occupation-metro-year, and X_{mti} contains various observable characteristics of the worker, the market-year, and various combinations of fixed effects that will be introduced as results are discussed. ϵ_{mti} is the idiosyncratic residual. All estimations are weighted by the worker's Census personal weights. Standard errors are clustered at the labor market level.

Assuming that changes in labor-market concentration are mean independent of changes in average unobserved influences on wages (ϵ) conditional on X identifies the parameters in our OLS models.

We also present evidence from an instrumental variables approach, closely following strategies in the prior literature (Azar et al., 2017; Rinz, 2018). Our instrument for labor-market concentration in each market-year $log(EHHI_{mt})$ is the average of the natural log of the reciprocal of the number of firms in that same occupation-year in all other metros. This focuses on variation in the extent to which a type of labor market tends to be competitive.

The instrument averages -8.02 with median -8.76 and standard deviation 0.90.[12]

3 Results

We begin by presenting simple, bivariate evidence using long first-differences to understand the relationship between changes in labor-market concentration and wages within labor markets over time. For each labor market, we compute the change in average log(wage) between the first year in our data, 2000, and the last year, 2014, versus the same kind of change in log(employment HHI). The top panel of Figure 3 displays a bin scatter of the result along with an estimated best-fit line. Labor markets where concentration increases more tend to experience *smaller decreases* in real wages, with a positive estimated relationship. The bottom panel displays results from a parallel exercise with the base year 2005 and produces similar results. This results is similar to panel (d) of Rinz's Figure 21 but contrary to the expected sign.

The next section introduces the basic specifications we use and estimation results for wages under OLS. The following section discusses the analogous IV results. The results differ substantially. For subsequent outcomes, we focus on IV results and put OLS results in the appendix.

OLS. To begin, we look only at changes within market over time without additional controls. Point estimates suggest that increases in labor-market concentration have a positive effect on wage changes, as expressed in the 0.006 point estimate with a 95% confidence interval (CI) of (0.004,0.008). This specification includes only labor market (occupation-metro) fixed effects and year fixed effects (Table 2: Panel A: Specification 1). This estimated effect is very small. Moving a labor market's concentration up a standard deviation (0.088) from the mean level of concentration (0.046) would change wages less than one percent.[13]

[12]This level implies high numbers of employers per market, an artifact of our strategy for measuring occupational employment. The essential element is that it captures meaningful variation across time and markets.

[13]exp(0.006*[ln(0.046+0.088)-ln(0.046)])-1=0.644%.

The basic result is robust to allowing for very aggressive sets of fixed effects. Allowing metro-specific annual wage shocks by replacing the year fixed effects with metro-year fixed effects does not affect the result. (Table 2: Panel A: Specification 2).[14] Adding the possibility of occupation-year specific wage shocks diminishes the already small effect even more, to 0.004 with a CI of (0.002, 0.006) (specification 3), although this specification is more aggressive than the prior literature. Allowing the possibility of industry-year specific wage shocks in addition to metro-year and occupation-year shocks (specification 4) yields a point estimate of 0.003 with a CI of (0.001,0.005). Specification 5 adds in industry-metro-year fixed effects in addition to market and occupation-year fixed effects. This compares workers within the same product-market-year but different occupations and looks at how different changes in their EHHI across years relates to differences in wage changes. The estimated EHHI effect falls to 0.001 with CI (-0.001,0.003).

Each additional panel in Table 2 adds a set of observable control variables while maintaining the same structure of fixed effects across specifications.

Panel B presents estimates after adding controls for time-varying labor-market observables beyond EHHI, specifically log(average labor productivity) in the labor market, an indicator for the few markets where all establishments are missing productivity, a market-specific measure of the share of establishments missing the productivity measure, and log(total employment) in the labor market to capture changes in workforce size. Adding these controls changes the estimated labor-market concentration results just a little. Most coefficients fall by 0.001, but the basic pattern is stable. Specification 5 includes local product-market by year fixed effects, absorbing the variation in local industry labor productivity and precluding identification or estimation of an effect of any local product-market predictor.

Panel C adds each worker's local industry's product-market concentration measure, log(Sales HHI), as well as an indicator of the few cases when this is missing. Coefficients on labor-market concentration again fall by another 0.001, remaining significant but very small in

[14]This specification is similar to Azar et al. (2017)'s Table 2: Panel A: Specification 3, though they estimate a statistically significant -0.0378.

most specifications. The coefficients on product-market concentration are positive, consistent with firms sharing some product-market rents with their workers.

Panel D adds each worker's own human capital characteristics. The estimates on labor-market concentration remain stable. Part of the way they operate on wages is plausibly through selection towards more-educated and more-experienced workers. Coefficients on individual workers' human-capital characteristics appear plausible and broadly consistent with prior literature.

IV. Following Azar et al. (2017) and Rinz (2018), we present estimates using an instrumental variable (IV) strategy. Omitted-variable bias may make OLS estimates misleading, reflecting the influence of factors that drive both changes in wages and changes in labor-market concentration. For instance, a positive productivity shock to a local firm could cause quick employment growth and increase concentration, rents, and wages. Further, compositional changes in the set of employing firms across the business cycle could create confounds. For instance, when lower-productivity, lower-wage firms exit, concentration would increase and average wages rise. While we have attempted to control for productivity and product-market concentration to deal with these threats, the threat may remain.

We instrument $\log(\text{EHHI})_{mt}$ with the average of the natural logarithm of the reciprocal of the number of firms in the same occupation but in other metros that year (Azar et al., 2017). This isolates the variation in concentration deriving from a fundamentals of the occupation isolated from changes specific to that metro area. We reproduce the same structure as the OLS results described above except instrumenting for log(EHHI). Because the instrumental variables are almost at the occupation-year level, we do not include those corresponding fixed effects in these estimations. First-stage estimates are presented in Table A.1. The instrument is strong.

In IV analysis, our ability to control for local product-market concentration adds credibility above the prior literature. Failing to control for it adds risk an exclusion-restriction violation. The instrument is a function of the average number of firms employing workers in

that occupation in other locales. The exclusion restriction requires that this doesn't affect wages in any unobservable way; it only affects wages through labor-market concentration. Conditioning on production-market concentration pulls this potentially correlated channel of influence into observability, reducing a threat to the IV's validity.

Table 3 presents the 2SLS estimates which suggest that higher labor-market concentration substantially reduces wages. Panel A presents results including no controls, just the various sets of fixed effects. Specification 1 looks at changes across years within labor market and finds a -0.279 effect with a CI of (-0.385,-0.173). That point estimate implies that labor-market concentration one standard deviation above the mean is associated with 26 percent lower wages than mean concentration.[15] Using the more aggressive sets of fixed effects across the columns of Panel A reduce the point estimate somewhat but the effect remains substantial and highly-significant. In panel B, adding labor-market controls, average labor productivity and employment levels, reduces the point estimate in specification 1 to -0.232 but increases precision and yields a CI of (-0.305, -0.160). In panel C, adding product-market concentration as a control slightly reduces the point estimate of the coefficient on labor-market concentrations and slightly increases precision, yielding a point estimate of -0.231 and CI of (-0.302,-0.160). This implies a one standard deviation higher labor-market concentration is associated with 22 percent lower wages. In panel D, adding workers' human capital characteristics reduces the point estimate substantially but it remains statistically and economically significant at -0.143 and CI of (-0.192,-0.094). This implies a one standard deviation higher labor-market concentration is associated with 14 percent lower wages. Across all these panels, in each case, the estimated association with labor-market concentration diminishes but remains significant and substantial with the addition of very aggressive fixed effects across columns.

The reduction in the magnitude of the labor-market concentration coefficient when workers' human-capital characteristics are added to the model (from panel C to D) suggests that

[15] $1 - exp(-0.279 \times [ln(0.046 + 0.088) - ln(0.046)]) = 25.79\%$

the effect of labor-market concentration on wages may occur in part by affecting human-capital levels of the workers in the market. For instance, lower wages may attract workers with less education. We will test this directly after examining effects on an alternative form of labor compensation.

Employment-based health insurance. The Census also contains data on workers' coverage under employment-based health insurance since the year 2008. Table 4 reports results estimating the effect of labor market concentration on this alternative, nonwage labor compensation using 2SLS. In the less aggressive specifications, there is not much evidence of a relationship. In the more-aggressive specifications, there is evidence that increased concentration is associated with reduced coverage. Specifically, based on the estimations in column (4), Panel D, a one-standard-deviation increase in the labor-market concentration is associated with a 2.2 percentage point lower probability of being covered by employment-based health insurance,[16] a 3.14 percent decrease relative to the sample proportion, consistent with the wage result of lower labor compensation. Industry-year shocks (specification 3) and industry-year-metro shocks (specification 4) may be especially-important in a model of employment-based health insurance coverage rates because there is so much variation in coverage rates across industries. For instance, across the 198 of industries in our analysis, a quarter of them have coverage rates below (above) 66.0% (85.6%) percent across these years. Furthermore, 96.6% of the variation in the coverage rates at the industry-year level comes from the cross-industry variation.

Worker education level. We conduct the same kind of analysis as above but using an indicator for whether each worker has at least a bachelor's degree as the outcome instead of wage or employment-based health insurance. OLS estimates yield no evidence of a relationship between concentration and worker education (Table A.4). IV estimates in Table 5 suggest that workers in labor markets with greater concentration are less likely to have at least a bachelor's degree. This gives some suggestive evidence that a sorting process towards

[16] -0.021*[ln(0.046+0.088)-ln(0.046)]=-0.022

workers with less formal education could be part of how greater concentration yields lower labor compensation.

In their analysis of job vacancy text posted by employers, Hershbein et al. (2018) found evidence of higher employer demand for higher-skill workers in more-concentrated labor markets controlling for broad occupation. Our results suggest that this employer stated-preference for higher skill, in the context of lower wages, does not translate into a more-educated workforce. It is consistent with employers asking for more of what they like on two margins, lower wages and higher skills, but having the former dominate.

3.1 Heterogeneous effects

We examine if the effects of labor-market concentration differ depending on the levels of each of three factors: local product-market concentration, worker unionization rate, and occupational offshorability. We use only the richest specification (as in Table 3: Panel D: Column 4) and instrument for labor-market concentration and its interaction with our measures of each of these factors in turn.

For both wages and health insurance, labor-market concentration has a more negative effect on labor compensation in the context of more-concentrated product markets than less-concentrated product markets (Table 6: Column 1). The potential for greater product-market rents within the firms do not immediately translate into higher labor compensation, especially in the context of greater labor-market concentration.

In manufacturing, Benmelech et al found evidence that stronger unions reduce the negative effect of labor-market concentration on wages, consistent with unions increasing worker bargaining power and protecting against negative compensation effects from concentration's limiting of workers' outside options. We broaden the analysis to the whole private sector, leverage different variation in unionization rates, and find similar results. Because the Census does not measure worker's union status, we rely on the Current Population Survey. To get enough observations per cell, we aggregate occupations up into 6 broad groups and

estimate unionization rates within each group-state.[17] For each study year, we pool CPS observations in that group-state across a five-year window centered on the study year and use CPS earner weights to estimate a unionization rate.[18] We match this back to each Census worker whose wages we are explaining based on occupation-state-year. The IV estimates suggest that moving from a labor market with a mean unionization rate (7.4%) to a market with a unionization rate one standard deviation higher (14.9%) reduces the marginal effect of $log(EHHI)$ from -0.087 to -0.068.[19] In explaining employment-based health insurance coverage probability, the interaction coefficient has the same sign but is not statistically significant.

Finally, we test whether occupational offshorability changes the effect of labor-market concentration, measuring offshorability following Autor and Dorn (2013). For more-offshorable occupations, locale is a less-meaningful labor market boundary and $log(EHHI)_{mt}$ a noisier measure of concentration. Therefore, we expected a negative main effect of concentration and a positive interaction term. Instead, we estimate a significant, negative main effect of concentration but a null interaction term for both wages and health insurance.

3.2 Robustness

Locale definition. Rather than using CBSA to define locale as in Lipsius (2018) and Hershbein et al. (2018), we also performed the entire analysis using commuting zones (CZ) to define local labor and product markets (Azar et al., 2017; Rinz, 2018). This expands our sample to include workers outside CBSAs. We use David Dorn's crosswalk between counties and 1990 CZ definitions. In our sample, about 26% of individuals with observed 2013 CBSA's

[17] We follow broad groups in Census 1990 at IPUMS: "Managerial and professional specialty occupations", "Technical, sales, and administrative support occupations," "Service occupations," "Farming, forestry, and fishing occupations," "Precision production, craft, and repair occupations," and "Operators, fabricators, and laborers."

[18] Benmelech et al used national-level industry-specific unionization rates. We use state-level, occupation-group-specific unionization rates.

[19] Benmelech et al. focused on a subsample of industries, within manufacturing, with much higher average unionization rates. At one standard deviation above their mean, the unionization rate is 36%. At that unionization rate, their estimated wage effect of labor-market concentration was null. In our model, the point estimate is also null, going to -0.015 and losing significance.

have missing county data, making their assignment to CZ ambiguous in many cases. If these were fully observed, there would be no reason to prefer CBSA over CZ. However, given this, neither seems to strictly dominate the other and we do both.[20]

Using CZ, we replicate the prior analysis from Appendix Figure A.3 forward. Results are qualitatively similar though IV estimates using CZ are smaller in magnitude than those using CBSA, putting them into closer alignment with Azar et al. (2017) and Rinz (2018).

4 Conclusion

We develop new evidence that recent results linking higher labor-market concentration to lower wages are robust to potential confounders such as product-market concentration, labor productivity, and labor force composition. OLS estimates produce null results but, like Azar et al. (2017) and Rinz (2018), analysis using a market-type's average market structure in other locales as an instrument for each local market's concentration yields estimates that are substantially larger, significant, and negative.[21] For a rough sense of magnitude, reducing concentration of a labor market from the 75th percentile (0.045) to the median level (0.017) would imply a 8.7 percent increase in wages and a 2.0 percentage point increase in the probability of being covered by work-based health insurance.[22] This suggests scope for reductions in labor-market concentration to lift labor compensation levels. Marinescu and Hovenkamp (2018) and Naidu et al. (2018) have recently fleshed out legal and economic analysis in this direction.

In terms of changes in labor-market concentration as an explanation for recent *changes* in U.S. wages, the potential import is limited by the fact that average concentration has not changed much. As a back of the envelope, the move from the maximum average annual

[20] In the CZ analysis sample, the CBSAs are missing for around 3.8% of individuals.

[21] Rinz (2018) does not present OLS results, focusing only on the IV. However, his figure 21(d) is a visual analogue to OLS with worker-level wage data and also describes a weak positive association between concentration and wages.

[22] The magnitudes are calculated based on the estimations in column (4), Panel D of Table3 and Table 4, respectively.

concentration level (0.05 in 2000) to the minimum (0.035 in 2008) would imply a predicted 3.3 percent increase in wages and, then, a 1.2 percent wage decrease as concentration moved to 0.04 in 2014. This aligns with results in Rinz, Lipsius, and Hershein et al.

We designed our specifications to maximize comparability with the prior literature, though some inevitable differences in years of study and measures exist. The magnitudes of our IV estimates tend to exceed others'. In specifications with market and time FE, a one-unit increase in log(EHHI) is predicted to decrease log(Wage) by -0.232 in our main analysis with only market-level controls (Table 3: Panel B: Specification 1), -0.143 in Azar et al. (2017) (Table 2: Panel A: Specification 5) and -0.037 in Rinz (2018) (Table 6: Specification 3). In specifications with market and time-locale FE, our estimate of -0.228 (Spec 2) exceeds Azar et al's -0.127 (Spec 6) and Rinz's -0.032. The levels of our labor-market concentration measures are compressed toward zero by construction, biasing them down, and reducing their variance. This would help explain why the estimated effects appear quantitatively larger than the prior literature. Roughly, our measured levels are a third of Rinz's. Reducing our estimated effect, -0.228, by that factor yields an estimate of about -0.08, very similar to the point estimates of Azar et al and Rinz. Qualitatively, our estimates corroborate results in the prior literature, though our OLS estimates tend to differ from the IV estimates and suggest null or small effects in the opposite direction.[23]

We add novel evidence that the negative labor-market concentration wage result is robust to conditioning on local product-market concentration, a theoretically-important, potential confounder. Increases in workers' local product-market concentration predicts increased wages, consistent with rent-sharing within the firm. However, labor-market concentration estimates barely change when product-market concentration is added as a control. When an interaction between concentrations in labor markets and in product markets is allowed, higher product-market concentration strengthens the negative effect of labor-market concentration. On the other hand, stronger unions appear to counteract the negative effects labor-market

[23]Herbein et al's estimates of effects on wages are even smaller than Rinz's in magnitude. They are not as directly comparable because they do not include market fixed effects and also do not use any instrument.

concentration on compensation.

Including individual worker human capital measures diminishes the labor-market concentration estimate by about half. We also find evidence that greater concentration tends to lower the share of workers with at least a bachelor's degree, a that enriches the story in Hershbein et al. (2018). Higher concentration predicts lower labor compensation. We provide evidence that this happens both by reducing the average human capital level of workers employed in the market and reducing the compensation of workers conditional on their human-capital levels. While vacancy postings by employers in more-concentrated markets may express a desire for higher skills and lower wages, it seems in practice that they hire people with lower education levels and at lower wages.

References

Alan, Manning, "Imperfect competition in the labor market," in "Handbook of labor economics," Vol. 4, Elsevier, 2011, pp. 973–1041.

Alfaro, Laura and Andrew Charlton, "Intra-industry foreign direct investment," *American Economic Review*, 2009, *99* (5), 2096–2119.

Autor, David and David Dorn, "The growth of low-skill service jobs and the polarization of the US labor market," *American Economic Review*, 2013, *103* (5), 1553–97.

Azar, José A, Ioana Marinescu, Marshall I Steinbaum, and Bledi Taska, "Concentration in US labor markets: Evidence from online vacancy data," Technical Report, National Bureau of Economic Research 2018.

Azar, José, Ioana Marinescu, and Marshall I Steinbaum, "Labor market concentration," Technical Report, National Bureau of Economic Research 2017.

Bader, Michael DM, Marnie Purciel, Paulette Yousefzadeh, and Kathryn M Neckerman, "Disparities in neighborhood food environments: Implications of measurement strategies," *Economic geography*, 2010, *86* (4), 409–430.

Benmelech, Efraim, Nittai Bergman, and Hyunseob Kim, "Strong employers and weak employees: How does employer concentration affect wages?," Technical Report, National Bureau of Economic Research 2018.

Bitler, Marianne and Steven J Haider, "An economic view of food deserts in the United States," *Journal of Policy Analysis and Management*, 2011, *30* (1), 153–176.

Hershbein, Brad, Claudia Macaluso, and Chen Yeh, "Concentration in U.S. Local Labor Markets: Evidence from Vacancy and Employment Data," 2018.

Kapadia, Nishad, "Tracking down distress risk," *Journal of Financial Economics*, 2011, *102* (1), 167–182.

Levine, David I, Michael W Toffel, and Matthew S Johnson, "Randomized government safety inspections reduce worker injuries with no detectable job loss," *Science*, 2012, *336* (6083), 907–911.

Lipsius, Ben, "Labor Market Concentration Does Not Explain the Falling Labor Share," Technical

Report, University of Michigan Department of Economics 2018.

Marinescu, Ioana Elena and Herbert Hovenkamp, "Anticompetitive Mergers in Labor Markets," 2018.

Naidu, Suresh, Eric A Posner, and E Glen Weyl, "Antitrust Remedies for Labor Market Power," 2018.

Rinz, Kevin, "Labor Market Concentration, Earnings Inequality, and Earnings Mobility," Technical Report, U.S. Census Bureau Center for Administrative Records Research and Applications 2018.

Rossi-Hansberg, Esteban, Pierre-Daniel Sarte, and Nicholas Trachter, "Diverging trends in national and local concentration," Technical Report, National Bureau of Economic Research 2018.

Ruggles, Steven, Josiah Grover Erin Meyer Jose Pacas Sarah Flood Ronald Goeken, and Matthew Sobek, "IPUMS USA: Version 8.0 [dataset]," Minneapolis, MN 2018.

Shambaugh, Jay and Ryan Nunn, *Revitalizing Wage Growth: Policies to Get American Workers a Raise*, The Hamilton Project, 2018.

_ , _ , Patrick Liu, and Greg Nantz, "Thirteen Facts about Wage Growth," 2017.

Wang, Taiyuan and Pratima Bansal, "Social responsibility in new ventures: profiting from a long-term orientation," *Strategic Management Journal*, 2012, *33* (10), 1135–1153.

Figure 1: Employment and Sales HHI Trends

This figure reports the trend of employment and sales HHIs calculated using all firms in D&B database. We calculate average employment HHI across labor markets and average sales HHI across product markets each year using employment-weights. The sample years include 2000 and 2005-2014. A labor market is defined as the interaction between a metropolitan area (2013 CBSA definition) and an occupation (1990 Census definition at the 3-digit level). A product market is defined as the interaction between a metro area and an industry (based on 1990 Census definition).

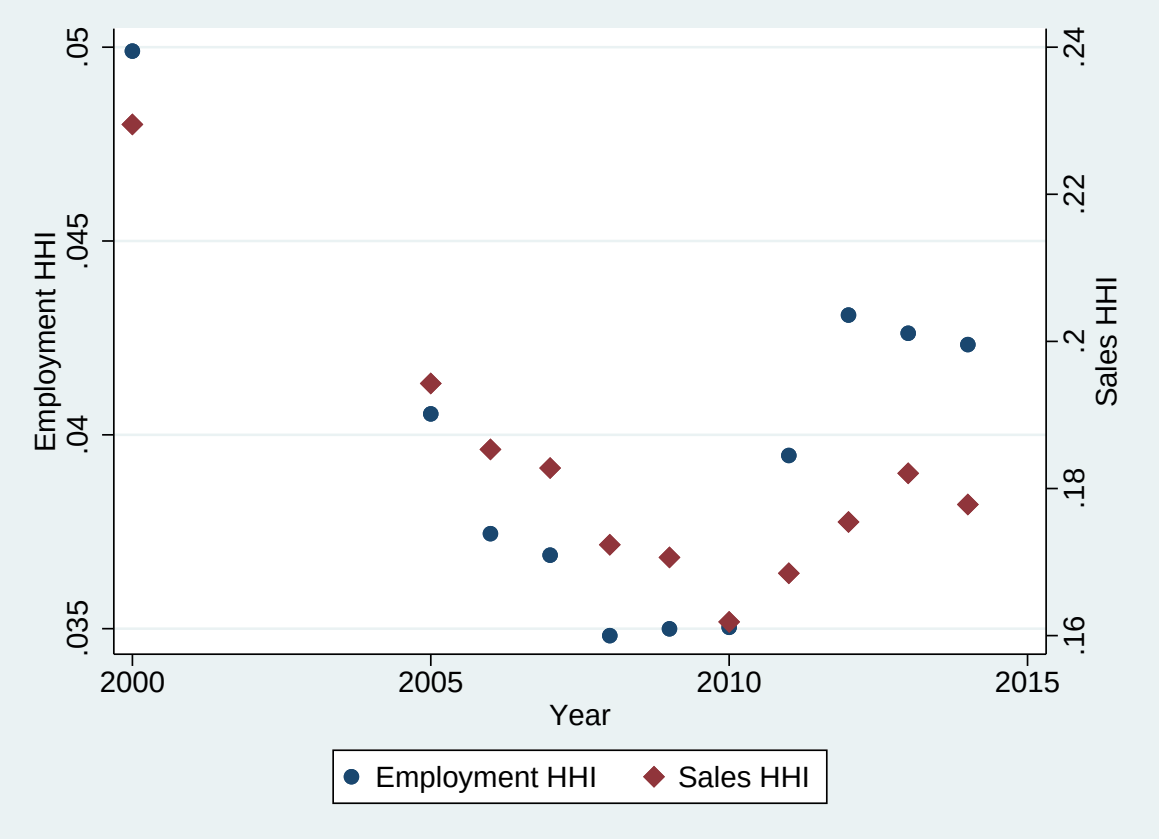

Figure 2: Residual of Log(Employment HHI) on Residual of Log(Sales HHI)

This figure reports the relation between the residualized log(Mean Hourly Wage) and the residualized log(Employment HHI). The residualized log(Mean Hourly Wage) is computed at the individual level and conditional on the labor market and year fixed effects. The residualized log(Employment HHI) is computed at the individual level and conditional on the product market and year fixed effects.

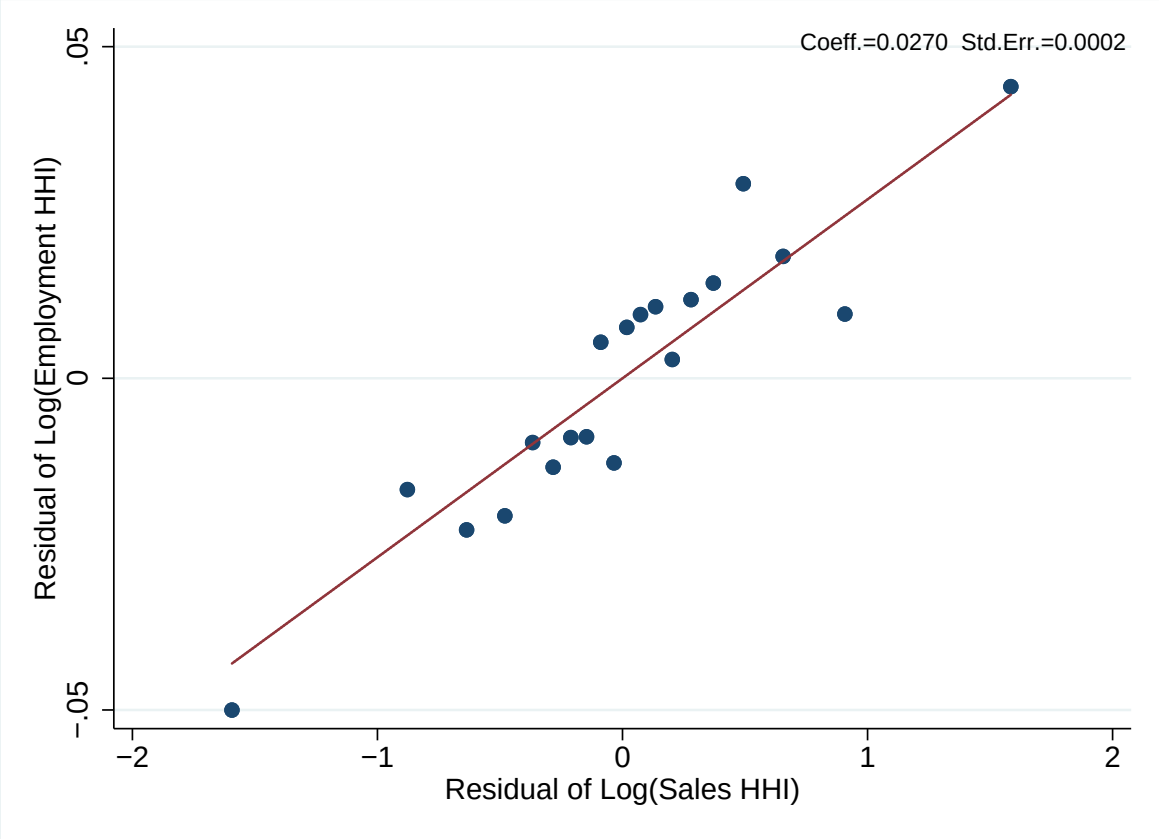

Figure 3: Change in Log(Mean Hourly Wage) on Change in Log(Employment HHI)

This figure reports the relationship between changes in concentration and wages within labor markets over time using long first-differences. In the top panel, for each labor market, we compute the change in average log(hourly wage) and in log(employment HHI) between 2000 and 2014. In the bottom panel, we use the year 2005 as the base year and perform a parallel exercise as in the top panel.

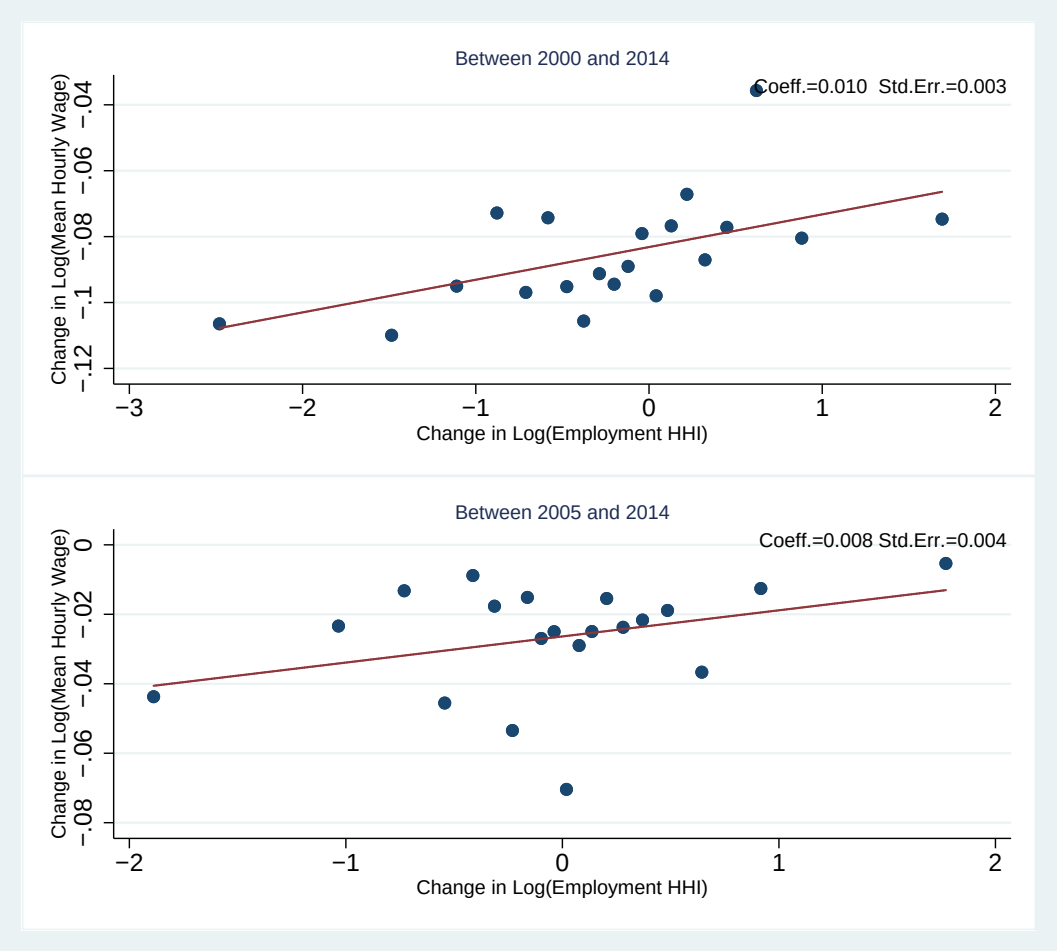

Table 1: **Summary Statistics**

This table reports the summary statistics of variables used in estimation. The hourly wage and market-level labor productivity are in the year 1999 dollar. The last column reports the R^2 from regressing each variable on market and year fixed effects at the individual level. For each CBSA-occupation-year, the *Instrumental variable* for the natural logarithm of its employment HHI is the average of the natural logarithm of one over the number of firms in the same occupation but in other CBSAs in that year. For sales HHI and variables related to labor productivity, a market is defined as the interaction between a CBSA and an industry. For employment HHI, the instrumental variable, and total employment, a market is defined as the interaction between a CBSA and an occupation. There are 9,330,058 individuals, 538,596 CBSA-Occ-year, and 381,802 CBSA-industry-year observations in the sample. The bachelor degree dummy is missing for 0.7% of individuals and labor productivity is missing for 1.1% of CBSA-industry-year observations. *Health Insurance through Employers/Unions* is available since 2008 in the ACS and we have data for 4,494,025 individuals. *Unionization Rate* is the 5-year average unionization rate in a major occupation group-state cell centered around a year in CPS. It is available for 3,102 occpation-state-year observations. *Offshorability* measures the extent to which the tasks performed by occupations are offshorable and the data is from David Dorn's webpage and it is available for 322 occupations derived from the 3-digit 1990 census occupation codes.

	Mean	Std.Dev.	P10	Median	P90	R^2
Hourly Wage	16.024	21.504	3.721	11.661	30.923	0.194
Employment HHI	0.046	0.088	0.003	0.017	0.112	0.828
Sales HHI	0.260	0.278	0.019	0.147	0.730	0.808
Sales HHI Missing	0.011	0.103	0.000	0.000	0.000	0.600
Labor Productivity ($000)	70.898	49.851	31.314	59.280	119.420	0.771
Fraction of Missing Estab Labor Productivity	0.322	0.282	0.000	0.252	0.764	0.884
Employment in D&B (000)	2.421	8.498	0.074	0.552	4.881	0.990
Age	38.417	12.491	22.000	38.000	56.000	0.128
Male	0.552	0.497	0.000	1.000	1.000	0.333
White	0.731	0.444	0.000	1.000	1.000	0.137
Black	0.115	0.319	0.000	0.000	1.000	0.140
Married	0.503	0.500	0.000	1.000	1.000	0.092
Hispanic	0.361	0.938	0.000	0.000	1.000	0.185
Bachelor Degree	0.277	0.447	0.000	0.000	1.000	0.360
Instrumental Variable	-8.021	0.899	-8.761	-8.244	-7.000	0.890
Health Insurance through Employers/Unions	0.706	0.456	0.000	1.000	1.000	0.187
Unionization Rate	0.074	0.075	0.007	0.049	0.192	
Offshorability	0.009	1.305	-1.745	0.011	1.680	

Table 2: **Effect of labor-market concentration on hourly wage using OLS**

The dependent variable in all estimations is worker's *Log(Hourly Wage)*. All estimations are weighted by the worker's personal weight. Standard errors in brackets allow clustered errors within labor-market, which is a combination of a metro area (CBSA) and an occupation (OCC).

	Panel A: only fixed effects				
	(1)	(2)	(3)	(4)	(5)
Log(Employment HHI)	0.006***	0.006***	0.004***	0.003***	0.001
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
CBSA × OCC FE	Y	Y	Y	Y	Y
Year FE	Y				
CBSA × Year FE		Y	Y	Y	
OCC × Year FE			Y	Y	Y
Ind × Year FE				Y	
Ind × CBSA × Year FE					Y
Adj. R^2	0.340	0.341	0.342	0.372	0.390
N	9,330,058	9,330,058	9,330,058	9,330,058	9,330,058
	Panel B: add market-level controls				
	(1)	(2)	(3)	(4)	(5)
Log(Employment HHI)	0.003***	0.004***	0.003***	0.002*	0.001
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Log(Labor Productivity)	0.251***	0.252***	0.262***	0.063***	
	[0.004]	[0.004]	[0.004]	[0.004]	
Missing Labor Productivity	3.058***	3.068***	3.180***	0.732***	
	[0.043]	[0.043]	[0.044]	[0.046]	
Fraction of Missing Estab Labor Productivity	-0.038***	-0.039***	-0.042***	0.063***	
	[0.006]	[0.006]	[0.006]	[0.004]	
Log(Total Employment, D&B)	0.006	-0.010**	0.001	0.002	-0.000
	[0.004]	[0.004]	[0.005]	[0.005]	[0.006]
CBSA × OCC FE	Y	Y	Y	Y	Y
Year FE	Y				
CBSA × Year FE		Y	Y	Y	
OCC × Year FE			Y	Y	Y
Ind × Year FE				Y	
Ind × CBSA × Year FE					Y
Adj. R^2	0.349	0.350	0.351	0.372	0.390
N	9,330,058	9,330,058	9,330,058	9,330,058	9,330,058

	Panel C: add sales-based HHI				
	(1)	(2)	(3)	(4)	(5)
Log(Employment HHI)	0.002*	0.003***	0.002**	0.001	0.001
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Log(Sales HHI)	0.021***	0.021***	0.020***	0.010***	
	[0.001]	[0.001]	[0.001]	[0.001]	
Sales HHI Missing	0.014	0.022	0.020	0.077***	
	[0.025]	[0.025]	[0.025]	[0.023]	
Log(Labor Productivity)	0.237***	0.238***	0.247***	0.059***	
	[0.004]	[0.004]	[0.004]	[0.004]	
Missing Labor Productivity	2.885***	2.887***	2.998***	0.615***	
	[0.051]	[0.051]	[0.051]	[0.050]	
Fraction of Missing Estab Labor Productivity	-0.076***	-0.077***	-0.078***	0.065***	
	[0.006]	[0.006]	[0.006]	[0.004]	
Log(Total Employment, D&B)	0.010***	-0.007*	0.002	0.002	-0.000
	[0.004]	[0.004]	[0.005]	[0.005]	[0.006]
CBSA × OCC FE	Y	Y	Y	Y	Y
Year FE	Y				
CBSA × Year FE		Y	Y	Y	
OCC × Year FE			Y	Y	Y
Ind × Year FE				Y	
Ind × CBSA × Year FE					Y
Adj. R^2	0.350	0.351	0.352	0.372	0.390
N	9,330,058	9,330,058	9,330,058	9,330,058	9,330,058

	Panel D: add individual-level controls				
	(1)	(2)	(3)	(4)	(5)
Log(Employment HHI)	0.002**	0.003***	0.002	0.001	0.001
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Log(Sales HHI)	0.015***	0.015***	0.015***	0.008***	
	[0.001]	[0.001]	[0.001]	[0.001]	
Sales HHI Missing	0.024	0.032	0.030	0.063***	
	[0.021]	[0.021]	[0.021]	[0.021]	
Log(Labor Productivity)	0.159***	0.159***	0.164***	0.044***	
	[0.002]	[0.002]	[0.003]	[0.003]	
Missing Labor Productivity	1.909***	1.906***	1.966***	0.453***	
	[0.036]	[0.036]	[0.036]	[0.043]	
Fraction of Missing Estab Labor Productivity	-0.034***	-0.034***	-0.035***	0.057***	
	[0.004]	[0.004]	[0.004]	[0.004]	
Log(Total Employment, D&B)	0.027***	0.012***	0.005	0.004	0.001
	[0.003]	[0.003]	[0.005]	[0.005]	[0.005]
Log(Age)	0.691***	0.691***	0.690***	0.670***	0.668***
	[0.003]	[0.003]	[0.003]	[0.003]	[0.003]
Male	0.170***	0.170***	0.170***	0.162***	0.160***
	[0.002]	[0.002]	[0.002]	[0.001]	[0.001]
White	0.085***	0.085***	0.086***	0.083***	0.083***
	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
Black	0.008***	0.008**	0.008***	0.005*	0.003
	[0.003]	[0.003]	[0.003]	[0.003]	[0.003]
Married	0.137***	0.137***	0.137***	0.130***	0.127***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Hispanic	-0.020***	-0.020***	-0.019***	-0.019***	-0.018***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Bachelor's Degree	0.276***	0.276***	0.275***	0.256***	0.252***
	[0.004]	[0.004]	[0.004]	[0.003]	[0.003]
Bachelor's Degree Dummy Miss	0.130***	0.130***	0.129***	0.121***	0.121***
	[0.005]	[0.005]	[0.005]	[0.005]	[0.005]
CBSA × OCC FE	Y	Y	Y	Y	Y
Year FE	Y				
CBSA × Year FE		Y	Y	Y	
OCC × Year FE			Y	Y	Y
Ind × Year FE				Y	
Ind × CBSA × Year FE					Y
Adj. R^2	0.446	0.446	0.447	0.458	0.472
N	9,330,058	9,330,058	9,330,058	9,330,058	9,330,058

Table 3: **Effect of labor-market concentration on hourly wage using IV**

The dependent variable in all the estimations is *Log(Hourly Wage)*. All the estimations are weighted by the personal weight. Standard errors in brackets are clustered at the CBSA-occupation level. First-stage estimates are in appendix Table A.1.

	Panel A: only fixed effects			
	(1)	(2)	(3)	(4)
Log(Employment HHI)	-0.279***	-0.271***	-0.209***	-0.201***
	[0.054]	[0.049]	[0.044]	[0.038]
CBSA × OCC FE	Y	Y	Y	Y
Year FE	Y			
CBSA × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CBSA × Year FE				Y
Adj. R^2	0.325	0.328	0.364	0.385
N	9,330,058	9,330,058	9,330,058	9,330,058
	Panel B: add market-level controls			
	(1)	(2)	(3)	(4)
Log(Employment HHI)	-0.232***	-0.228***	-0.137***	-0.147***
	[0.037]	[0.033]	[0.026]	[0.026]
Log(Labor Productivity)	0.253***	0.254***	0.063***	
	[0.004]	[0.004]	[0.004]	
Missing Labor Productivity	3.071***	3.081***	0.730***	
	[0.044]	[0.044]	[0.047]	
Fraction of Missing Estab Labor Productivity	-0.029***	-0.031***	0.070***	
	[0.006]	[0.006]	[0.005]	
Log(Total Employment, D&B)	0.214***	0.207***	0.153***	0.121***
	[0.033]	[0.031]	[0.029]	[0.021]
CBSA × OCC FE	Y	Y	Y	Y
Year FE	Y			
CBSA × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CBSA × Year FE				Y
Adj. R^2	0.340	0.342	0.369	0.387
N	9,330,058	9,330,058	9,330,058	9,330,058

	Panel C: add sales-based HHI			
	(1)	(2)	(3)	(4)
Log(Employment HHI)	-0.231***	-0.228***	-0.137***	-0.147***
	[0.036]	[0.032]	[0.026]	[0.026]
Log(Sales HHI)	0.022***	0.022***	0.011***	
	[0.001]	[0.001]	[0.001]	
Sales HHI Missing	0.005	0.010	0.077***	
	[0.025]	[0.025]	[0.024]	
Log(Labor Productivity)	0.238***	0.239***	0.058***	
	[0.004]	[0.004]	[0.004]	
Missing Labor Productivity	2.895***	2.905***	0.611***	
	[0.051]	[0.051]	[0.050]	
Fraction of Missing Estab Labor Productivity	-0.069***	-0.071***	0.072***	
	[0.006]	[0.006]	[0.005]	
Log(Total Employment, D&B)	0.217***	0.209***	0.152***	0.121***
	[0.033]	[0.031]	[0.029]	[0.021]
CBSA × OCC FE	Y	Y	Y	Y
Year FE	Y			
CBSA × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CBSA × Year FE				Y
Adj. R^2	0.341	0.343	0.369	0.387
N	9,330,058	9,330,058	9,330,058	9,330,058

	Panel D: add individual-level controls			
	(1)	(2)	(3)	(4)
Log(Employment HHI)	-0.143***	-0.140***	-0.088***	-0.094***
	[0.025]	[0.022]	[0.019]	[0.018]
Log(Sales HHI)	0.016***	0.016***	0.008***	
	[0.001]	[0.001]	[0.001]	
Sales HHI Missing	0.018	0.025	0.064***	
	[0.021]	[0.021]	[0.021]	
Log(Labor Productivity)	0.160***	0.160***	0.044***	
	[0.003]	[0.002]	[0.003]	
Missing Labor Productivity	1.915***	1.917***	0.447***	
	[0.036]	[0.036]	[0.043]	
Fraction of Missing Estab Labor Productivity	-0.029***	-0.030***	0.061***	
	[0.004]	[0.004]	[0.004]	
Log(Total Employment, D&B)	0.155***	0.146***	0.110***	0.090***
	[0.022]	[0.021]	[0.021]	[0.015]
Log(Age)	0.691***	0.691***	0.670***	0.668***
	[0.003]	[0.003]	[0.003]	[0.003]
Male	0.170***	0.170***	0.162***	0.160***
	[0.002]	[0.002]	[0.001]	[0.001]
White	0.085***	0.085***	0.082***	0.082***
	[0.002]	[0.002]	[0.002]	[0.002]
Black	0.007**	0.007**	0.005*	0.003
	[0.003]	[0.003]	[0.003]	[0.003]
Married	0.137***	0.137***	0.130***	0.127***
	[0.001]	[0.001]	[0.001]	[0.001]
Hispanic	-0.020***	-0.020***	-0.019***	-0.018***
	[0.001]	[0.001]	[0.001]	[0.001]
Bachelor's Degree	0.276***	0.276***	0.257***	0.253***
	[0.004]	[0.004]	[0.003]	[0.003]
Bachelor's Degree Dummy Miss	0.129***	0.130***	0.122***	0.121***
	[0.005]	[0.005]	[0.005]	[0.005]
CBSA × OCC FE	Y	Y	Y	Y
Year FE	Y			
CBSA × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CBSA × Year FE				Y
Adj. R^2	0.442	0.443	0.456	0.470
N	9,330,058	9,330,058	9,330,058	9,330,058

Table 4: **Effect of labor-market concentration on employer-sponsored health insurance coverage using IV**

The dependent variable in all the estimations is a dummy variable indicating whether an individual has health insurance through a current or former employer or union. All the estimations are weighted by the personal weight. Standard errors in brackets allow clustered errors within labor-market. The full estimation results are available in Table A.3

	(1)	(2)	(3)	(4)
	Panel A: only fixed effects			
Log(Employment HHI)	-0.013	-0.014	-0.034**	-0.031**
	[0.014]	[0.014]	[0.014]	[0.013]
CBSA × OCC FE	Y	Y	Y	Y
Year FE	Y			
CBSA × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CBSA × Year FE				Y
Adj. R^2	0.175	0.175	0.199	0.219
N	4,494,025	4,494,025	4,494,025	4,494,025
	Panel B: add market-level controls			
Log(Employment HHI)	0.006	0.004	-0.023**	-0.023**
	[0.010]	[0.009]	[0.010]	[0.009]
CBSA × OCC FE	Y	Y	Y	Y
Year FE	Y			
CBSA × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CBSA × Year FE				Y
Adj. R^2	0.184	0.185	0.199	0.219
N	4,494,025	4,494,025	4,494,025	4,494,025
	Panel C: add sales-based HHI			
Log(Employment HHI)	0.002	0.001	-0.023**	-0.023**
	[0.009]	[0.009]	[0.010]	[0.009]
CBSA × OCC FE	Y	Y	Y	Y
Year FE	Y			
CBSA × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CBSA × Year FE				Y
Adj. R^2	0.185	0.186	0.200	0.219
N	4,494,025	4,494,025	4,494,025	4,494,025
	Panel D: add individual-level controls			
Log(Employment HHI)	0.005	0.004	-0.020**	-0.021**
	[0.009]	[0.009]	[0.009]	[0.009]
CBSA × OCC FE	Y	Y	Y	Y
Year FE	Y			
CBSA × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CBSA × Year FE				Y
Adj. R^2	0.212	0.213	0.224	0.243
N	4,494,025	4,494,025	4,494,025	4,494,025

Table 5: **Effect of labor-market concentration on workers' education using IV**

The dependent variable in all estimations is a dummy variable indicating whether a worker has a bachelor degree. All the estimations are weighted by the personal weight. Standard errors in brackets allow clustered errors within labor-market. The full estimation results are available in Table A.5

	(1)	(2)	(3)	(4)
	Panel A: only fixed effects			
Log(Employment HHI)	-0.146***	-0.142***	-0.084***	-0.081***
	[0.032]	[0.028]	[0.023]	[0.020]
CBSA × OCC FE	Y	Y	Y	Y
Year FE	Y			
CBSA × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CBSA × Year FE				Y
Adj. R^2	0.338	0.341	0.364	0.379
N	9,258,695	9,258,695	9,258,695	9,258,695
	Panel B: add market-level controls			
Log(Employment HHI)	-0.102***	-0.096***	-0.054***	-0.057***
	[0.019]	[0.016]	[0.014]	[0.014]
CBSA × OCC FE	Y	Y	Y	Y
Year FE	Y			
CBSA × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CBSA × Year FE				Y
Adj. R^2	0.348	0.350	0.367	0.380
N	9,258,695	9,258,695	9,258,695	9,258,695
	Panel C: add sales-based HHI			
Log(Employment HHI)	-0.101***	-0.096***	-0.054***	-0.057***
	[0.019]	[0.016]	[0.014]	[0.014]
CBSA × OCC FE	Y	Y	Y	Y
Year FE	Y			
CBSA × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CBSA × Year FE				Y
Adj. R^2	0.348	0.350	0.367	0.380
N	9,258,695	9,258,695	9,258,695	9,258,695
	Panel D: add individual-level controls			
Log(Employment HHI)	-0.094***	-0.089***	-0.052***	-0.055***
	[0.018]	[0.015]	[0.014]	[0.013]
CBSA × OCC FE	Y	Y	Y	Y
Year FE	Y			
CBSA × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CBSA × Year FE				Y
Adj. R^2	0.356	0.358	0.373	0.387
N	9,258,695	9,258,695	9,258,695	9,258,695

Table 6: **Heterogeneous Effects of Labor Market Concentration using IV**

This table reports heterogenous effects of labor-market concentration on labor compensation using 2SLS estimations. We use two instrumental variables: (1) the average of the natural logarithm of one over the number of firms in the same occupation but in other CBSAs in a year and (2) the interaction between the first instrument and *Log(Sales HHI)*, *Unionization Rate* or *Offshorability*. The dependent variables in Panels A and B are the natural logarithm of real hourly wage and an indicator variable for whether an individual has employment-based health insurance, respectively. *Unionization Rate* is the 5-year average unionization rate in an occupation major group by state cell centered around a year in the CPS. Occupations are represented in major groups. *Offshorability* measures the extent to which the tasks performed by occupations are offshorable and is from David Dorn's webpage. In column (1) in both panels, we drop observations in which *Sales HHI* is missing. The control variables are the same as the ones in column (4), Panel D of Table 3. All estimations are weighted by the personal weight. Standard errors in brackets are clustered at the CBSA-occupation level.

	(1)	(2)	(3)
	Panel A: Log(Hourly Wage)		
Log(Employment HHI)	-0.111***	-0.106***	-0.090***
	[0.018]	[0.019]	[0.019]
Log(Employment HHI)*Log(Sales HHI)	-0.009***		
	[0.002]		
Log(Employment HHI)*Unionization Rate		0.253***	
		[0.061]	
Unionization Rate		1.562***	
		[0.329]	
Log(Employment HHI)*Offshorability			-0.008
			[0.007]
Controls	Y	Y	Y
CBSA × OCC FE	Y	Y	Y
Ind × CBSA × Year FE	Y	Y	Y
Adj. R^2	0.470	0.471	0.470
N	9,310,380	9,330,058	9,329,308
	Panel B: Employer-sponsored Health Insurance		
Log(Employment HHI)	-0.025***	-0.023**	-0.023**
	[0.009]	[0.010]	[0.011]
Log(Employment HHI)*Log(Sales HHI)	-0.002**		
	[0.001]		
Log(Employment HHI)*Unionization Rate		0.040	
		[0.067]	
Unionization Rate		0.057	
		[0.386]	
Log(Employment HHI)*Offshorability			0.005
			[0.010]
Controls	Y	Y	Y
CBSA × OCC FE	Y	Y	Y
Ind × CBSA × Year FE	Y	Y	Y
Adj. R^2	0.243	0.243	0.243
N	4,488,305	4,494,025	4,493,756

Appendix A Appendix: Qiu & Sojourner (1/7/19)

Figure A.1: Comparison of employment-level estimates from D&B and Census data

This figure compares the measures of employment levels based on data from D&B and Census. A market is defined as an interaction between a metro and an occupation. In the left panel, we show the trend in labor markets' average ratio of D&B employment to Census/ACS employment. In the right panel, we look at the correlation between employment levels measured in the two data sources across all labor-markets in all years using a bin scatter.

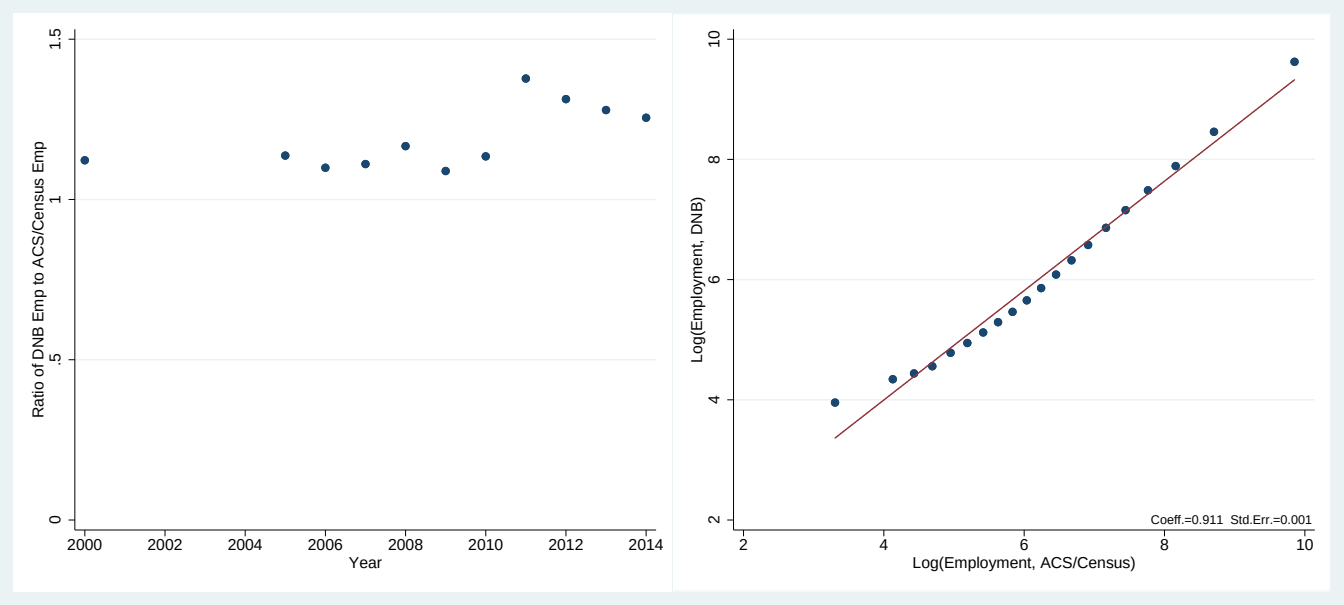

Figure A.2: HHI Trend—CBSA*Industry

This figure reports the trend of labor market HHI calculated using all firms in D&B database. A labor market is defined as the interaction between a 2013 CBSA and an industry based on 1990 census industry codes. In each year, we calculate the employment-weighted average of HHI across all labor markets. The sample years include 2000-2014.

Table A.1: **First stage regressions for Table 3**

The dependent variable in all the estimations is *Log(Employment HHI)*. For each CBSA-occupation-year cell, IV is the average of the natural logarithm of one over the number of firms in the same occupation but in other CBSAs in a year. All the estimations are weighted by the personal weight. Standard errors in brackets are clustered at the CBSA-occupation level.

	Panel A: only fixed effects			
	(1)	(2)	(3)	(4)
IV	0.060***	0.061***	0.070***	0.070***
	[0.007]	[0.006]	[0.007]	[0.005]
CBSA × OCC FE	Y	Y	Y	Y
Year FE	Y			
CBSA × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CBSA × Year FE				Y
Adj. R^2	0.916	0.927	0.929	0.946
N	9,330,058	9,330,058	9,330,058	9,330,058
Kleibergen-Paap F-stat	79.43	99.12	96.81	181.25
	Panel B: add market-level controls			
	(1)	(2)	(3)	(4)
IV	0.092***	0.094***	0.104***	0.095***
	[0.007]	[0.006]	[0.007]	[0.006]
Log(Labor Productivity)	0.007***	0.007***	0.006*	
	[0.002]	[0.002]	[0.003]	
Missing Labor Productivity	0.043*	0.048**	0.047	
	[0.023]	[0.021]	[0.039]	
Fraction of Missing Estab Labor Productivity	0.041***	0.034***	0.047***	
	[0.003]	[0.003]	[0.005]	
Log(Total Employment, D&B)	0.898***	0.949***	1.072***	0.802***
	[0.043]	[0.042]	[0.043]	[0.038]
CBSA × OCC FE	Y	Y	Y	Y
Year FE	Y			
CBSA × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CBSA × Year FE				Y
Adj. R^2	0.922	0.933	0.936	0.950
N	9,330,058	9,330,058	9,330,058	9,330,058
Kleibergen-Paap F-stat	168.81	239.26	225.57	296.64

	Panel C: add sales-based HHI			
	(1)	(2)	(3)	(4)
IV	0.092***	0.094***	0.104***	0.095***
	[0.007]	[0.006]	[0.007]	[0.006]
Log(Sales HHI)	0.006***	0.004***	0.006***	
	[0.001]	[0.001]	[0.001]	
Sales HHI Missing	-0.041	-0.053*	-0.022	
	[0.032]	[0.030]	[0.030]	
Log(Labor Productivity)	0.003	0.004**	0.003	
	[0.002]	[0.002]	[0.003]	
Missing Labor Productivity	0.036	0.067*	0.040	
	[0.040]	[0.037]	[0.049]	
Fraction of Missing Estab Labor Productivity	0.031***	0.027***	0.048***	
	[0.003]	[0.003]	[0.005]	
Log(Total Employment, D&B)	0.898***	0.949***	1.072***	0.802***
	[0.043]	[0.042]	[0.043]	[0.038]
CBSA × OCC FE	Y	Y	Y	Y
Year FE	Y			
CBSA × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CBSA × Year FE				Y
Adj. R^2	0.922	0.933	0.936	0.950
N	9,330,058	9,330,058	9,330,058	9,330,058
Kleibergen-Paap F-stat	169.05	239.34	225.03	296.64

	Panel D: add individual-level controls			
	(1)	(2)	(3)	(4)
IV	0.092***	0.094***	0.104***	0.095***
	[0.007]	[0.006]	[0.007]	[0.006]
Log(Sales HHI)	0.006***	0.004***	0.006***	
	[0.001]	[0.001]	[0.001]	
Sales HHI Missing	-0.041	-0.053*	-0.022	
	[0.032]	[0.030]	[0.030]	
Log(Labor Productivity)	0.003	0.004**	0.003	
	[0.002]	[0.002]	[0.003]	
Missing Labor Productivity	0.035	0.066*	0.040	
	[0.040]	[0.037]	[0.049]	
Fraction of Missing Estab Labor Productivity	0.031***	0.027***	0.048***	
	[0.003]	[0.003]	[0.005]	
Log(Total Employment, D&B)	0.898***	0.949***	1.072***	0.802***
	[0.043]	[0.042]	[0.043]	[0.038]
Log(Age)	-0.001	0.000	0.001	0.000
	[0.001]	[0.001]	[0.001]	[0.000]
Male	0.000	0.000	0.000	0.001
	[0.000]	[0.000]	[0.000]	[0.000]
White	-0.003***	-0.000	-0.001	-0.001**
	[0.001]	[0.001]	[0.001]	[0.000]
Black	-0.007***	-0.002***	-0.002***	-0.001**
	[0.001]	[0.001]	[0.001]	[0.001]
Married	0.000	-0.000	0.000	0.000
	[0.000]	[0.000]	[0.000]	[0.000]
Hispanic	-0.001***	-0.000	-0.000	-0.000
	[0.000]	[0.000]	[0.000]	[0.000]
Bachelor's Degree	-0.000	-0.001	-0.001	-0.000
	[0.001]	[0.001]	[0.000]	[0.000]
Bachelor's Degree Dummy Miss	-0.003	-0.004*	-0.004**	-0.003
	[0.002]	[0.002]	[0.002]	[0.002]
CBSA × OCC FE	Y	Y	Y	Y
Year FE	Y			
CBSA × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CBSA × Year FE				Y
Adj. R^2	0.922	0.933	0.936	0.950
N	9,330,058	9,330,058	9,330,058	9,330,058
Kleibergen-Paap F-stat	169.15	239.37	225.05	296.66

Table A.2: **Effect of labor-market concentration on employer-sponsored health insurance coverage using OLS**

The dependent variable in all estimations is a dummy variable indicating whether an individual has health insurance through a current or former employer or union. All estimations are weighted by the worker's personal weight. Standard errors in brackets allow clustered errors within labor-market, which is a combination of a metro area (CBSA) and an occupation (OCC).

	Panel A: only fixed effects				
	(1)	(2)	(3)	(4)	(5)
Log(Employment HHI)	-0.002**	-0.001	0.001	0.001	-0.000
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
CBSA × OCC FE	Y	Y	Y	Y	Y
Year FE	Y				
CBSA × Year FE		Y	Y	Y	
OCC × Year FE			Y	Y	Y
Ind × Year FE				Y	
Ind × CBSA × Year FE					Y
Adj. R^2	0.175	0.175	0.176	0.200	0.220
N	4,494,025	4,494,025	4,494,025	4,494,025	4,494,025
	Panel B: add market-level controls				
	(1)	(2)	(3)	(4)	(5)
Log(Employment HHI)	-0.002*	-0.001	0.001	0.001	0.000
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Log(Labor Productivity)	0.126***	0.126***	0.130***	0.023***	
	[0.002]	[0.002]	[0.002]	[0.003]	
Missing Labor Productivity	1.452***	1.455***	1.505***	0.252***	
	[0.020]	[0.020]	[0.021]	[0.031]	
Fraction of Missing Estab Labor Productivity	0.084***	0.084***	0.083***	0.041***	
	[0.002]	[0.002]	[0.002]	[0.003]	
Log(Total Employment, D&B)	-0.005	-0.011***	-0.002	-0.002	-0.005
	[0.003]	[0.004]	[0.006]	[0.006]	[0.006]
CBSA × OCC FE	Y	Y	Y	Y	Y
Year FE	Y				
CBSA × Year FE		Y	Y	Y	
OCC × Year FE			Y	Y	Y
Ind × Year FE				Y	
Ind × CBSA × Year FE					Y
Adj. R^2	0.184	0.185	0.185	0.200	0.220
N	4,494,025	4,494,025	4,494,025	4,494,025	4,494,025

	Panel C: add sales-based HHI				
	(1)	(2)	(3)	(4)	(5)
Log(Employment HHI)	-0.002**	-0.001	0.001	0.001	0.000
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Log(Sales HHI)	0.011***	0.011***	0.011***	0.005***	
	[0.000]	[0.000]	[0.000]	[0.000]	
Sales HHI Missing	0.032	0.031	0.026	0.027	
	[0.020]	[0.020]	[0.020]	[0.021]	
Log(Labor Productivity)	0.117***	0.117***	0.121***	0.021***	
	[0.002]	[0.002]	[0.002]	[0.003]	
Missing Labor Productivity	1.322***	1.324***	1.378***	0.204***	
	[0.028]	[0.028]	[0.029]	[0.036]	
Fraction of Missing Estab Labor Productivity	0.063***	0.063***	0.062***	0.042***	
	[0.002]	[0.002]	[0.002]	[0.003]	
Log(Total Employment, D&B)	-0.003	-0.010***	-0.004	-0.003	-0.005
	[0.003]	[0.004]	[0.006]	[0.006]	[0.006]
CBSA × OCC FE	Y	Y	Y	Y	Y
Year FE	Y				
CBSA × Year FE		Y	Y	Y	
OCC × Year FE			Y	Y	Y
Ind × Year FE				Y	
Ind × CBSA × Year FE					Y
Adj. R^2	0.185	0.186	0.186	0.200	0.220
N	4,494,025	4,494,025	4,494,025	4,494,025	4,494,025

	Panel D: add individual-level controls				
	(1)	(2)	(3)	(4)	(5)
Log(Employment HHI)	-0.003***	-0.002	0.000	0.001	0.000
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Log(Sales HHI)	0.010***	0.010***	0.010***	0.004***	
	[0.000]	[0.000]	[0.000]	[0.000]	
Sales HHI Missing	0.034*	0.034*	0.030	0.026	
	[0.020]	[0.020]	[0.020]	[0.020]	
Log(Labor Productivity)	0.099***	0.099***	0.103***	0.016***	
	[0.002]	[0.002]	[0.002]	[0.003]	
Missing Labor Productivity	1.108***	1.110***	1.156***	0.149***	
	[0.027]	[0.027]	[0.028]	[0.035]	
Fraction of Missing Estab Labor Productivity	0.071***	0.071***	0.070***	0.040***	
	[0.002]	[0.002]	[0.002]	[0.003]	
Log(Total Employment, D&B)	-0.002	-0.008**	-0.004	-0.003	-0.005
	[0.003]	[0.003]	[0.006]	[0.005]	[0.006]
Log(Age)	0.063***	0.063***	0.062***	0.055***	0.052***
	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
Male	-0.007***	-0.007***	-0.008***	-0.007***	-0.008***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
White	0.076***	0.076***	0.076***	0.074***	0.074***
	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
Black	0.024***	0.024***	0.024***	0.021***	0.019***
	[0.003]	[0.003]	[0.003]	[0.002]	[0.002]
Married	0.087***	0.087***	0.087***	0.085***	0.083***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Hispanic	-0.039***	-0.039***	-0.038***	-0.038***	-0.037***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Bachelor's Degree	0.056***	0.056***	0.056***	0.050***	0.049***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Bachelor's Degree Dummy Miss	-0.055***	-0.055***	-0.055***	-0.055***	-0.054***
	[0.004]	[0.004]	[0.004]	[0.003]	[0.004]
CBSA × OCC FE	Y	Y	Y	Y	Y
Year FE	Y				
CBSA × Year FE		Y	Y	Y	
OCC × Year FE			Y	Y	Y
Ind × Year FE				Y	
Ind × CBSA × Year FE					Y
Adj. R^2	0.212	0.213	0.213	0.225	0.243
N	4,494,025	4,494,025	4,494,025	4,494,025	4,494,025

Table A.3: **Full results for Table 4**

The dependent variable in all the estimations is a dummy variable indicating whether an individual has health insurance through a current or former employer or union. All the estimations are weighted by the personal weight. Standard errors in brackets are clustered at the CBSA-occupation level.

	Panel A: only fixed effects			
	(1)	(2)	(3)	(4)
Log(Employment HHI)	-0.013	-0.014	-0.034**	-0.031**
	[0.014]	[0.014]	[0.014]	[0.013]
CBSA × OCC FE	Y	Y	Y	Y
Year FE	Y			
CBSA × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CBSA × Year FE				Y
Adj. R^2	0.175	0.175	0.199	0.219
N	4,494,025	4,494,025	4,494,025	4,494,025
	Panel B: add market-level controls			
	(1)	(2)	(3)	(4)
Log(Employment HHI)	0.006	0.004	-0.023**	-0.023**
	[0.010]	[0.009]	[0.010]	[0.009]
Log(Labor Productivity)	0.126***	0.126***	0.023***	
	[0.002]	[0.002]	[0.003]	
Missing Labor Productivity	1.452***	1.455***	0.252***	
	[0.020]	[0.020]	[0.031]	
Fraction of Missing Estab Labor Productivity	0.084***	0.084***	0.042***	
	[0.002]	[0.002]	[0.003]	
Log(Total Employment, D&B)	-0.016	-0.018	0.032**	0.023*
	[0.014]	[0.013]	[0.015]	[0.012]
CBSA × OCC FE	Y	Y	Y	Y
Year FE	Y			
CBSA × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CBSA × Year FE				Y
Adj. R^2	0.184	0.185	0.199	0.219
N	4,494,025	4,494,025	4,494,025	4,494,025

	Panel C: add sales-based HHI			
	(1)	(2)	(3)	(4)
Log(Employment HHI)	0.002	0.001	-0.023**	-0.023**
	[0.009]	[0.009]	[0.010]	[0.009]
Log(Sales HHI)	0.011***	0.011***	0.005***	
	[0.000]	[0.000]	[0.000]	
Sales HHI Missing	0.032	0.031	0.029	
	[0.020]	[0.020]	[0.021]	
Log(Labor Productivity)	0.117***	0.117***	0.021***	
	[0.002]	[0.002]	[0.003]	
Missing Labor Productivity	1.322***	1.324***	0.203***	
	[0.028]	[0.028]	[0.036]	
Fraction of Missing Estab Labor Productivity	0.063***	0.063***	0.043***	
	[0.002]	[0.002]	[0.003]	
Log(Total Employment, D&B)	-0.010	-0.013	0.032**	0.023*
	[0.013]	[0.013]	[0.015]	[0.012]
CBSA × OCC FE	Y	Y	Y	Y
Year FE	Y			
CBSA × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CBSA × Year FE				Y
Adj. R^2	0.185	0.186	0.200	0.219
N	4,494,025	4,494,025	4,494,025	4,494,025

	Panel D: add individual-level controls			
	(1)	(2)	(3)	(4)
Log(Employment HHI)	0.005	0.004	-0.020**	-0.021**
	[0.009]	[0.009]	[0.009]	[0.009]
Log(Sales HHI)	0.010***	0.010***	0.004***	
	[0.000]	[0.000]	[0.000]	
Sales HHI Missing	0.034*	0.034*	0.028	
	[0.020]	[0.020]	[0.020]	
Log(Labor Productivity)	0.099***	0.099***	0.016***	
	[0.002]	[0.002]	[0.003]	
Missing Labor Productivity	1.109***	1.110***	0.148***	
	[0.027]	[0.027]	[0.035]	
Fraction of Missing Estab Labor Productivity	0.071***	0.071***	0.040***	
	[0.002]	[0.002]	[0.003]	
Log(Total Employment, D&B)	-0.013	-0.015	0.028**	0.021*
	[0.013]	[0.012]	[0.014]	[0.012]
Log(Age)	0.063***	0.063***	0.055***	0.052***
	[0.002]	[0.002]	[0.002]	[0.002]
Male	-0.007***	-0.007***	-0.007***	-0.008***
	[0.001]	[0.001]	[0.001]	[0.001]
White	0.076***	0.076***	0.074***	0.074***
	[0.002]	[0.002]	[0.002]	[0.002]
Black	0.024***	0.024***	0.021***	0.019***
	[0.003]	[0.003]	[0.002]	[0.002]
Married	0.087***	0.087***	0.085***	0.083***
	[0.001]	[0.001]	[0.001]	[0.001]
Hispanic	-0.039***	-0.039***	-0.038***	-0.037***
	[0.001]	[0.001]	[0.001]	[0.001]
Bachelor's Degree	0.056***	0.056***	0.050***	0.049***
	[0.001]	[0.001]	[0.001]	[0.001]
Bachelor's Degree Dummy Miss	-0.055***	-0.055***	-0.055***	-0.054***
	[0.004]	[0.004]	[0.003]	[0.004]
CBSA × OCC FE	Y	Y	Y	Y
Year FE	Y			
CBSA × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CBSA × Year FE				Y
Adj. R^2	0.212	0.213	0.224	0.243
N	4,494,025	4,494,025	4,494,025	4,494,025

Table A.4: **Effect of labor-market concentration on workers' education using OLS**

The dependent variable in all estimations is a dummy variable indicating whether a worker has a bachelor degree. All estimations are weighted by the worker's personal weight. Standard errors in brackets allow clustered errors within labor-market, which is a combination of a metro area (CBSA) and an occupation (OCC).

	Panel A: only fixed effects				
	(1)	(2)	(3)	(4)	(5)
Log(Employment HHI)	0.001**	0.000	0.000	0.000	0.000
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
CBSA × OCC FE	Y	Y	Y	Y	Y
Year FE	Y				
CBSA × Year FE		Y	Y	Y	
OCC × Year FE			Y	Y	Y
Ind × Year FE				Y	
Ind × CBSA × Year FE					Y
Adj. R^2	0.355	0.355	0.356	0.369	0.383
N	9,258,695	9,258,695	9,258,695	9,258,695	9,258,695

	Panel B: add market-level controls				
	(1)	(2)	(3)	(4)	(5)
Log(Employment HHI)	0.000	-0.001	0.000	-0.000	-0.000
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Log(Labor Productivity)	0.028***	0.029***	0.031***	0.023***	
	[0.001]	[0.001]	[0.001]	[0.002]	
Missing Labor Productivity	0.353***	0.356***	0.383***	0.257***	
	[0.016]	[0.016]	[0.017]	[0.026]	
Fraction of Missing Estab Labor Productivity	-0.020***	-0.021***	-0.022***	-0.000	
	[0.003]	[0.003]	[0.003]	[0.002]	
Log(Total Employment, D&B)	0.005***	0.010***	0.002	0.002	0.004
	[0.002]	[0.002]	[0.002]	[0.002]	[0.003]
CBSA × OCC FE	Y	Y	Y	Y	Y
Year FE	Y				
CBSA × Year FE		Y	Y	Y	
OCC × Year FE			Y	Y	Y
Ind × Year FE				Y	
Ind × CBSA × Year FE					Y
Adj. R^2	0.355	0.355	0.356	0.369	0.383
N	9,258,695	9,258,695	9,258,695	9,258,695	9,258,695

	Panel C: add sales-based HHI				
	(1)	(2)	(3)	(4)	(5)
Log(Employment HHI)	0.000	-0.001*	-0.000	-0.000	-0.000
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Log(Sales HHI)	0.008***	0.008***	0.008***	0.003***	
	[0.000]	[0.000]	[0.000]	[0.000]	
Sales HHI Missing	-0.021	-0.023	-0.023	0.005	
	[0.025]	[0.025]	[0.026]	[0.023]	
Log(Labor Productivity)	0.022***	0.023***	0.025***	0.021***	
	[0.001]	[0.001]	[0.001]	[0.002]	
Missing Labor Productivity	0.308***	0.313***	0.337***	0.237***	
	[0.029]	[0.030]	[0.030]	[0.035]	
Fraction of Missing Estab Labor Productivity	-0.035***	-0.036***	-0.036***	0.000	
	[0.003]	[0.003]	[0.003]	[0.002]	
Log(Total Employment, D&B)	0.007***	0.011***	0.003	0.002	0.004
	[0.002]	[0.002]	[0.003]	[0.002]	[0.003]
CBSA × OCC FE	Y	Y	Y	Y	Y
Year FE	Y				
CBSA × Year FE		Y	Y	Y	
OCC × Year FE			Y	Y	Y
Ind × Year FE				Y	
Ind × CBSA × Year FE					Y
Adj. R^2	0.356	0.356	0.357	0.369	0.383
N	9,258,695	9,258,695	9,258,695	9,258,695	9,258,695

	Panel D: add individual-level controls				
	(1)	(2)	(3)	(4)	(5)
Log(Employment HHI)	-0.000	-0.001**	-0.001	-0.001	-0.000
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Log(Sales HHI)	0.008***	0.008***	0.008***	0.003***	
	[0.000]	[0.000]	[0.000]	[0.000]	
Sales HHI Missing	-0.020	-0.022	-0.022	0.004	
	[0.024]	[0.025]	[0.025]	[0.023]	
Log(Labor Productivity)	0.015***	0.015***	0.017***	0.021***	
	[0.001]	[0.001]	[0.001]	[0.002]	
Missing Labor Productivity	0.211***	0.215***	0.235***	0.228***	
	[0.028]	[0.029]	[0.029]	[0.034]	
Fraction of Missing Estab Labor Productivity	-0.029***	-0.029***	-0.029***	0.001	
	[0.002]	[0.002]	[0.002]	[0.002]	
Log(Total Employment, D&B)	0.009***	0.012***	0.003	0.003	0.004
	[0.002]	[0.002]	[0.002]	[0.002]	[0.003]
Log(Age)	0.021***	0.021***	0.021***	0.019***	0.018***
	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
Male	0.041***	0.041***	0.041***	0.044***	0.044***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
White	-0.030***	-0.030***	-0.030***	-0.029***	-0.029***
	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
Black	-0.085***	-0.084***	-0.084***	-0.083***	-0.085***
	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
Married	0.029***	0.029***	0.029***	0.028***	0.027***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Hispanic	-0.025***	-0.025***	-0.025***	-0.024***	-0.024***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
CBSA × OCC FE	Y	Y	Y	Y	Y
Year FE	Y				
CBSA × Year FE		Y	Y	Y	
OCC × Year FE			Y	Y	Y
Ind × Year FE				Y	
Ind × CBSA × Year FE					Y
Adj. R^2	0.363	0.363	0.363	0.375	0.389
N	9,258,695	9,258,695	9,258,695	9,258,695	9,258,695

Table A.5: **Full results for Table 5**

The dependent variable in all estimations is a dummy variable indicating whether a worker has a bachelor degree. All the estimations are weighted by the personal weight. Standard errors in brackets are clustered at the CBSA-occupation level.

	Panel A: only fixed effects			
	(1)	(2)	(3)	(4)
Log(Employment HHI)	-0.146***	-0.142***	-0.084***	-0.081***
	[0.032]	[0.028]	[0.023]	[0.020]
CBSA × OCC FE	Y	Y	Y	Y
Year FE	Y			
CBSA × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CBSA × Year FE				Y
Adj. R^2	0.338	0.341	0.364	0.379
N	9,258,695	9,258,695	9,258,695	9,258,695
	Panel B: add market-level controls			
	(1)	(2)	(3)	(4)
Log(Employment HHI)	-0.102***	-0.096***	-0.054***	-0.057***
	[0.019]	[0.016]	[0.014]	[0.014]
Log(Labor Productivity)	0.029***	0.029***	0.023***	
	[0.001]	[0.001]	[0.002]	
Missing Labor Productivity	0.359***	0.362***	0.256***	
	[0.016]	[0.016]	[0.026]	
Fraction of Missing Estab Labor Productivity	-0.016***	-0.018***	0.002	
	[0.003]	[0.003]	[0.002]	
Log(Total Employment, D&B)	0.095***	0.099***	0.064***	0.053***
	[0.017]	[0.015]	[0.015]	[0.011]
CBSA × OCC FE	Y	Y	Y	Y
Year FE	Y			
CBSA × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CBSA × Year FE				Y
Adj. R^2	0.348	0.350	0.367	0.380
N	9,258,695	9,258,695	9,258,695	9,258,695

	Panel C: add sales-based HHI			
	(1)	(2)	(3)	(4)
Log(Employment HHI)	-0.101***	-0.096***	-0.054***	-0.057***
	[0.019]	[0.016]	[0.014]	[0.014]
Log(Sales HHI)	0.009***	0.009***	0.004***	
	[0.000]	[0.000]	[0.000]	
Sales HHI Missing	-0.025	-0.028	0.003	
	[0.024]	[0.025]	[0.023]	
Log(Labor Productivity)	0.023***	0.023***	0.021***	
	[0.001]	[0.001]	[0.002]	
Missing Labor Productivity	0.313***	0.320***	0.235***	
	[0.029]	[0.029]	[0.034]	
Fraction of Missing Estab Labor Productivity	-0.032***	-0.033***	0.003	
	[0.003]	[0.003]	[0.002]	
Log(Total Employment, D&B)	0.096***	0.100***	0.064***	0.053***
	[0.017]	[0.015]	[0.015]	[0.011]
CBSA × OCC FE	Y	Y	Y	Y
Year FE	Y			
CBSA × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CBSA × Year FE				Y
Adj. R^2	0.348	0.350	0.367	0.380
N	9,258,695	9,258,695	9,258,695	9,258,695
	Panel D: add individual-level controls			
	(1)	(2)	(3)	(4)
Log(Employment HHI)	-0.094***	-0.089***	-0.052***	-0.055***
	[0.018]	[0.015]	[0.014]	[0.013]
Log(Sales HHI)	0.009***	0.009***	0.004***	
	[0.000]	[0.000]	[0.000]	
Sales HHI Missing	-0.023	-0.026	0.003	
	[0.024]	[0.025]	[0.023]	
Log(Labor Productivity)	0.015***	0.015***	0.020***	
	[0.001]	[0.001]	[0.002]	
Missing Labor Productivity	0.216***	0.222***	0.226***	
	[0.028]	[0.028]	[0.034]	
Fraction of Missing Estab Labor Productivity	-0.026***	-0.027***	0.003	
	[0.002]	[0.002]	[0.002]	
Log(Total Employment, D&B)	0.092***	0.095***	0.062***	0.052***
	[0.016]	[0.015]	[0.015]	[0.011]
Log(Age)	0.021***	0.021***	0.019***	0.018***
	[0.002]	[0.002]	[0.002]	[0.002]
Male	0.041***	0.041***	0.044***	0.044***
	[0.001]	[0.001]	[0.001]	[0.001]
White	-0.030***	-0.030***	-0.029***	-0.029***
	[0.002]	[0.002]	[0.002]	[0.002]
Black	-0.085***	-0.085***	-0.084***	-0.085***
	[0.002]	[0.002]	[0.002]	[0.002]
Married	0.029***	0.029***	0.028***	0.027***
	[0.001]	[0.001]	[0.001]	[0.001]
Hispanic	-0.025***	-0.025***	-0.024***	-0.024***
	[0.001]	[0.001]	[0.001]	[0.001]
CBSA × OCC FE	Y	Y	Y	Y
Year FE	Y			
CBSA × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CBSA × Year FE				Y
Adj. R^2	0.356	0.358	0.373	0.387
N	9,258,695	9,258,695	9,258,695	9,258,695

Table A.6: **Heterogeneous Effects of Labor Market Concentration using OLS**

This table reports the heterogenous effects of labor-market concentration on labor compensation using OLS estimations. The dependent variables in Panels A and B are the natural logarithm of real hourly wage and an indicator variable for whether an individual has employment-based health insurance, respectively. *Unionization Rate* is the 5-year average unionization rate in an occupation major group by state cell centered around a year in CPS. *Offshorability* measures the extent to which the tasks performed by occupations are offshorable and is from David Dorn's webpage. In column (1) in both panels, we drop observations in which *Sales HHI* is missing. The control variables are the same as the ones in column (4), Panel D of Table 3. All the estimations are weighted by the personal weight. Standard errors in brackets are clustered at the CBSA-occupation level.

	Panel A: Log(Hourly Wage)		
	(1)	(2)	(3)
Log(Employment HHI)	-0.003	0.001	0.001
	[0.002]	[0.002]	[0.001]
Log(Employment HHI)*Log(Sales HHI)	-0.001***		
	[0.000]		
Log(Employment HHI)*Unionization Rate		-0.001	
		[0.012]	
Unionization Rate		0.080	
		[0.064]	
Log(Employment HHI)*Offshorability			0.001
			[0.001]
Controls	Y	Y	Y
CBSA × OCC FE	Y	Y	Y
Ind × CBSA × Year FE	Y	Y	Y
Adj. R^2	0.472	0.472	0.472
N	9,310,380	9,330,058	9,329,308
	Panel B: Employer-sponsored Health Insurance		
	(1)	(2)	(3)
Log(Employment HHI)	-0.005***	-0.002	0.000
	[0.001]	[0.002]	[0.001]
Log(Employment HHI)*Log(Sales HHI)	-0.002***		
	[0.000]		
Log(Employment HHI)*Unionization Rate		0.033**	
		[0.013]	
Unionization Rate		0.002	
		[0.075]	
Log(Employment HHI)*Offshorability			0.001
			[0.001]
Controls	Y	Y	Y
CBSA × OCC FE	Y	Y	Y
Ind × CBSA × Year FE	Y	Y	Y
Adj. R^2	0.243	0.243	0.243
N	4,488,305	4,494,025	4,493,756

Table A.7: **First stage regressions for Table 6**

The dependent variable in columns (1), (3), and (5) is *Log(Employment HHI)*. The dependent variables in columns (2), (4), and (6) are *Log(Employment HHI)*×*Log(Sales HHI)*, *Log(Employment HHI)*×*Unionization Rate*, and *Log(Employment HHI)*×*Offshorability*, respectively. For each CBSA-occupation-year cell, IV is the average of the natural logarithm of one over the number of firms in the same occupation but in other CBSAs in a year. All the estimations are weighted by the personal weight. Standard errors in brackets are clustered at the CBSA-occupation level.

	Panel A: Log(Hourly Wage)					
	(1)	(2)	(3)	(4)	(5)	(6)
IV	0.108***	0.820***	0.102***	-0.019***	0.092***	0.025**
	[0.006]	[0.040]	[0.007]	[0.002]	[0.006]	[0.010]
IV*Log(Sales HHI)	0.006***	0.468***				
	[0.001]	[0.018]				
IV*Unionization Rate			-0.115	0.430***		
			[0.108]	[0.036]		
Unionization Rate			-1.237	-1.898***		
			[0.930]	[0.279]		
IV*Offshorability					0.047***	0.224***
					[0.006]	[0.011]
Log(Total Employment, D&B)	0.802***	-1.630***	0.806***	0.086***	0.806***	-0.008
	[0.038]	[0.095]	[0.037]	[0.004]	[0.037]	[0.052]
Log(Age)	0.000	-0.010***	0.000	0.000	0.000	0.001
	[0.000]	[0.003]	[0.000]	[0.000]	[0.000]	[0.001]
Male	0.001	-0.002	0.001	-0.000	0.001*	-0.001
	[0.000]	[0.002]	[0.000]	[0.000]	[0.000]	[0.000]
White	-0.001*	-0.002	-0.001**	0.000***	-0.001*	0.001**
	[0.000]	[0.003]	[0.000]	[0.000]	[0.000]	[0.001]
Black	-0.001**	-0.006	-0.001*	0.000**	-0.001**	-0.000
	[0.001]	[0.004]	[0.001]	[0.000]	[0.001]	[0.001]
Married	0.000	0.002	-0.000	0.000	-0.000	0.000
	[0.000]	[0.002]	[0.000]	[0.000]	[0.000]	[0.000]
Hispanic	-0.000	0.001	-0.000	-0.000***	-0.000	0.000
	[0.000]	[0.001]	[0.000]	[0.000]	[0.000]	[0.000]
Bachelor's Degree	-0.000	-0.009***	-0.000	-0.000	-0.000	-0.001*
	[0.000]	[0.003]	[0.000]	[0.000]	[0.000]	[0.001]
Bachelor's Degree Dummy Miss	-0.003	0.011	-0.002	-0.001***	-0.002	0.001
	[0.002]	[0.007]	[0.002]	[0.000]	[0.002]	[0.002]
CBSA × OCC FE	Y	Y	Y	Y	Y	Y
Ind × CBSA × Year FE	Y	Y	Y	Y	Y	Y
Adj. R^2	0.950	0.980	0.950	0.989	0.950	0.995
N	9,310,380	9,310,380	9,330,058	9,330,058	9,329,308	9,329,308
Kleibergen-Paap F-stat		146.25		135.70		128.14

	Panel B: Employer-sponsored Health Insurance					
	(1)	(2)	(3)	(4)	(5)	(6)
IV	0.108***	0.846***	0.103***	-0.010***	0.106***	0.045***
	[0.007]	[0.047]	[0.008]	[0.002]	[0.007]	[0.006]
IV*Log(Sales HHI)	0.001	0.491***				
	[0.001]	[0.021]				
IV*Unionization Rate			0.063	0.323***		
			[0.070]	[0.029]		
Unionization Rate			0.686	-2.958***		
			[0.584]	[0.234]		
IV*Offshorability					0.016***	0.087***
					[0.003]	[0.007]
Log(Total Employment, D&B)	1.244***	-2.790***	1.243***	0.094***	1.244***	0.258**
	[0.072]	[0.159]	[0.072]	[0.007]	[0.072]	[0.117]
Log(Age)	0.000	-0.011***	0.000	0.000	0.000	0.001
	[0.000]	[0.004]	[0.000]	[0.000]	[0.000]	[0.001]
Male	0.000	-0.002	0.000	-0.000	0.000	0.001
	[0.000]	[0.003]	[0.000]	[0.000]	[0.000]	[0.001]
White	0.000	-0.005	0.000	0.001***	0.000	0.002**
	[0.000]	[0.003]	[0.000]	[0.000]	[0.000]	[0.001]
Black	-0.001	-0.006	-0.001	0.000***	-0.001	0.000
	[0.001]	[0.005]	[0.001]	[0.000]	[0.001]	[0.001]
Married	0.000	0.003	0.000	0.000	0.000	0.000
	[0.000]	[0.002]	[0.000]	[0.000]	[0.000]	[0.000]
Hispanic	0.000	0.001	0.000	-0.000	0.000	0.000
	[0.000]	[0.001]	[0.000]	[0.000]	[0.000]	[0.000]
Bachelor's Degree	0.001***	-0.015***	0.001***	-0.000**	0.001***	0.001
	[0.000]	[0.004]	[0.000]	[0.000]	[0.000]	[0.001]
Bachelor's Degree Dummy Miss	-0.001	-0.001	-0.001	-0.001***	-0.001	0.001
	[0.001]	[0.008]	[0.001]	[0.000]	[0.001]	[0.002]
CBSA × OCC FE	Y	Y	Y	Y	Y	Y
Ind × CBSA × Year FE	Y	Y	Y	Y	Y	Y
Adj. R^2	0.971	0.983	0.971	0.993	0.971	0.997
N	4,488,305	4,488,305	4,494,025	4,494,025	4,493,756	4,493,756
Kleibergen-Paap F-stat		102.61		101.23		97.89

Figure A.3: HHI Trend—Commuting Zone*Census Occupation

This figure reports the trend of labor market HHI calculated using all firms in D&B database. We calculate average employment HHI across labor markets each year using employment-weights. The sample years include 2000 and 2005-2014. A labor market is defined as the interaction between a commuting zone and an occupation (1990 Census definition at the 3-digit level).

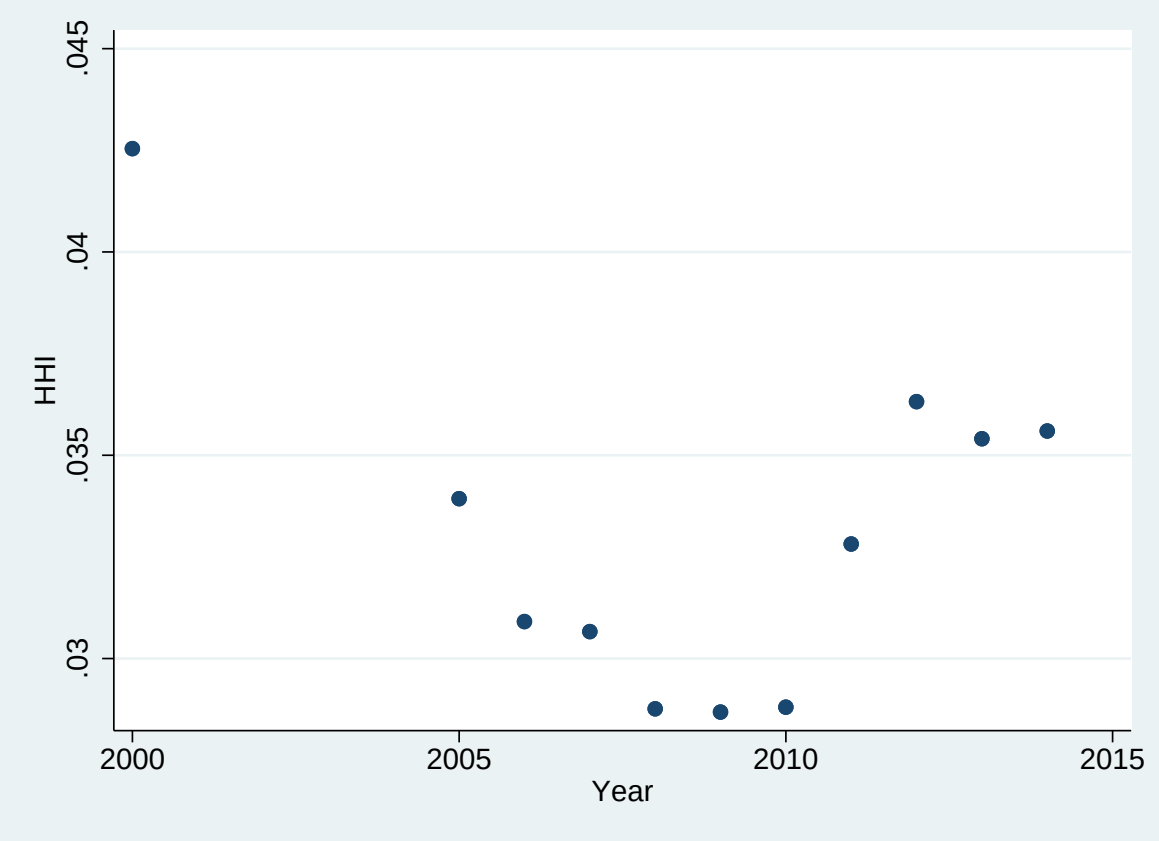

Figure A.4: Change in Log(Mean Hourly Wage) on Change in Log(Employment HHI)—Commuting Zone*Census Occupation

This figure reports the relationship between changes in concentration and wages within labor markets over time using long first-differences. A labor market is defined as the interaction between a commuting zone and a census occupation. In the top panel, for each labor market, we compute the change in average log(hourly wage) and in log(employment HHI) between 2000 and 2014. In the bottom panel, we use the year 2005 as the base year and perform a parallel exercise as in the top panel.

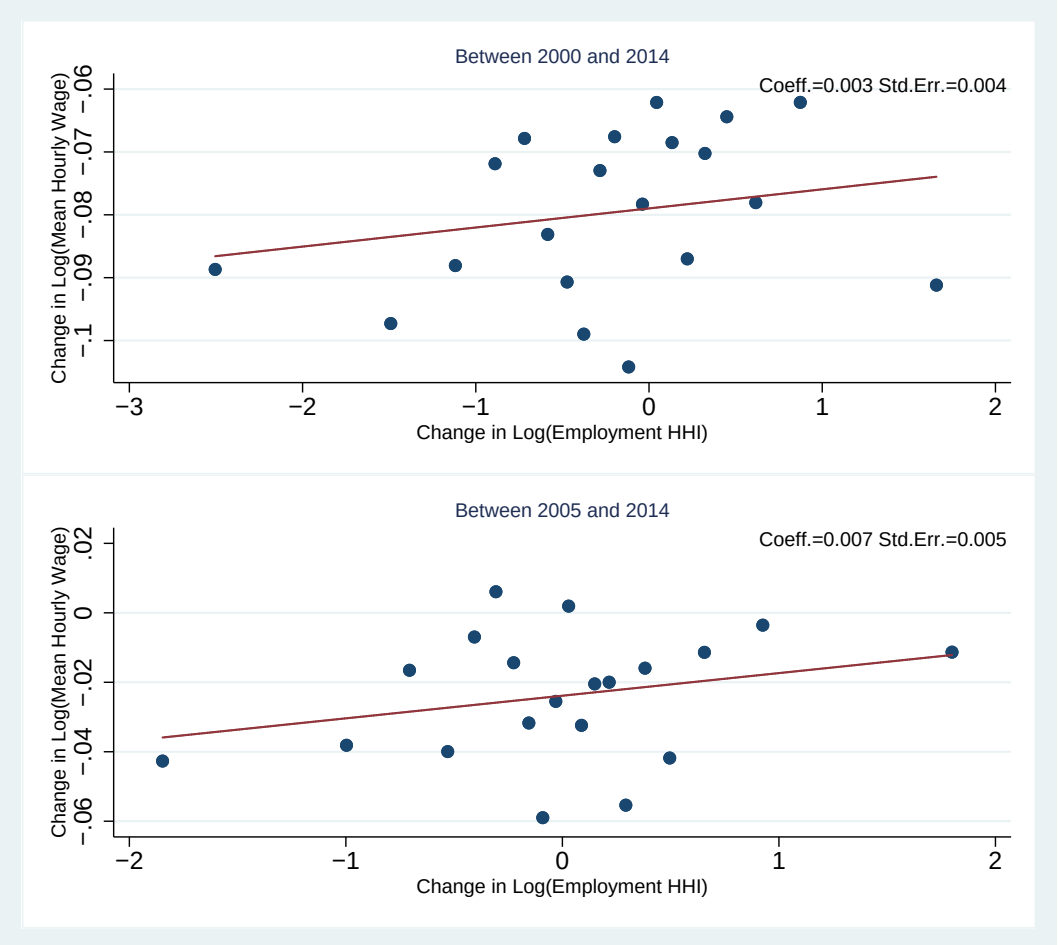

Table A.8: **Summary Statistics for commuting zone analysis**

This table reports the summary statistics of variables used in the commuting zone (CZ) estimations. The hourly wage and market-level labor productivity are in the year 1999 dollar. The last column reports the R^2 from regressing each variable on market and year fixed effects at the individual level. For each CZ-occupation-year cell, the *Instrumental variable* for employment HHI is the average of the natural logarithm of one over the number of firms in the same occupation but in other CZs in that year. For sales HHI and variables related to labor productivity, a market is defined as the interaction between a CZ and an industry. For employment HHI, the instrumental variable, and total employment, a market is defined as the interaction between a CZ and an occupation. There are 7,223,866 individuals, 403,876 CZ-Occ-year, and 286,303 CZ-industry-year observations in the sample. The bachelor degree dummy is missing for 0.8% of individuals and labor productivity is missing for 0.6% of CZ-industry-year observations. *Health Insurance through Employers/Unions* is available since 2008 in the ACS and we have data for 3,536,391 individuals. *Unionization Rate* is the 5-year average unionization rate in a major occupation group-state cell centered around a year in CPS. It is available for 2,886 occpation-state-year observations. *Offshorability* measures the extent to which the tasks performed by occupations are offshorable and the data is from David Dorn's webpage and it is available for 322 occupations derived from the 3-digit 1990 census occupation codes.

	Mean	Std.Dev.	P10	Median	P90	R^2
Hourly Wage	16.126	21.775	3.721	11.688	31.033	0.193
Employment HHI	0.036	0.074	0.002	0.013	0.085	0.801
Sales HHI	0.230	0.260	0.015	0.122	0.647	0.804
Sales HHI Missing	0.006	0.075	0.000	0.000	0.000	0.662
Labor Productivity ($000)	70.470	47.191	31.509	59.656	117.790	0.790
Fraction of Missing Estab Labor Productivity	0.328	0.268	0.019	0.267	0.740	0.892
Employment in D&B (000)	3.221	9.163	0.124	0.882	7.031	0.988
Age	38.370	12.466	22.000	38.000	56.000	0.127
Male	0.552	0.497	0.000	1.000	1.000	0.327
White	0.709	0.454	0.000	1.000	1.000	0.141
Black	0.119	0.324	0.000	0.000	1.000	0.148
Married	0.498	0.500	0.000	0.000	1.000	0.091
Hispanic	0.376	0.943	0.000	0.000	1.000	0.168
Bachelor Degree	0.281	0.449	0.000	0.000	1.000	0.361
Instrumental Variable	-8.223	0.906	-8.969	-8.468	-7.174	0.890
Health Insurance through Employers/Unions	0.701	0.458	0.000	1.000	1.000	0.188
Unionization Rate	0.074	0.074	0.007	0.049	0.190	
Offshorability	0.009	1.305	-1.745	0.011	1.680	

Table A.9: **Effect of labor-market concentration based on commuting zones (CZ) on hourly wage using OLS**

The dependent variable in all the estimations is *Log(Hourly Wage)*. All the estimations are weighted by the personal weight. Standard errors in brackets allow clustered errors at the CZ-occupation level.

	Panel A: only fixed effects				
	(1)	(2)	(3)	(4)	(5)
Log(Employment HHI)	0.006***	0.006***	0.003**	0.002*	-0.000
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
CZ × OCC FE	Y	Y	Y	Y	Y
Year FE	Y				
CZ × Year FE		Y	Y	Y	
OCC × Year FE			Y	Y	Y
Ind × Year FE				Y	
Ind × CZ × Year FE					Y
Adj. R^2	0.338	0.338	0.340	0.369	0.387
N	7,223,866	7,223,866	7,223,866	7,223,866	7,223,866
	Panel B: add market-level controls				
	(1)	(2)	(3)	(4)	(5)
Log(Employment HHI)	0.003***	0.004***	0.003**	0.001	-0.001
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Log(Labor Productivity-EW)	0.258***	0.259***	0.269***	0.088***	
	[0.004]	[0.004]	[0.004]	[0.005]	
Missing Labor Productivity	3.204***	3.214***	3.334***	1.028***	
	[0.049]	[0.049]	[0.049]	[0.062]	
Fraction of Missing Estab Labor Productivity	-0.042***	-0.042***	-0.046***	0.071***	
	[0.006]	[0.006]	[0.006]	[0.005]	
Log(Total Employment, D&B)	-0.000	-0.013***	-0.001	0.004	0.005
	[0.005]	[0.004]	[0.007]	[0.006]	[0.007]
CZ × OCC FE	Y	Y	Y	Y	Y
Year FE	Y				
CZ × Year FE		Y	Y	Y	
OCC × Year FE			Y	Y	Y
Ind × Year FE				Y	
Ind × CZ × Year FE					Y
Adj. R^2	0.347	0.348	0.349	0.369	0.387
N	7,223,866	7,223,866	7,223,866	7,223,866	7,223,866

	Panel C: add sales-based HHI				
	(1)	(2)	(3)	(4)	(5)
Log(Employment HHI)	0.002*	0.003**	0.002	0.000	-0.001
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Log(Sale HHI)	0.021***	0.021***	0.020***	0.011***	
	[0.001]	[0.001]	[0.001]	[0.001]	
Sales HHI Missing	0.038	0.049	0.048	0.066**	
	[0.030]	[0.030]	[0.030]	[0.028]	
Log(Labor Productivity-EW)	0.243***	0.244***	0.254***	0.082***	
	[0.004]	[0.004]	[0.004]	[0.005]	
Missing Labor Productivity	3.004***	3.005***	3.122***	0.904***	
	[0.056]	[0.057]	[0.057]	[0.064]	
Fraction of Missing Estab Labor Productivity	-0.082***	-0.082***	-0.084***	0.073***	
	[0.006]	[0.006]	[0.006]	[0.005]	
Log(Total Employment, D&B)	0.004	-0.010**	0.001	0.005	0.005
	[0.004]	[0.004]	[0.007]	[0.006]	[0.007]
CZ × OCC FE	Y	Y	Y	Y	Y
Year FE	Y				
CZ × Year FE		Y	Y	Y	
OCC × Year FE			Y	Y	Y
Ind × Year FE				Y	
Ind × CZ × Year FE					Y
Adj. R^2	0.348	0.348	0.350	0.369	0.387
N	7,223,866	7,223,866	7,223,866	7,223,866	7,223,866

	Panel D: add individual-level controls				
	(1)	(2)	(3)	(4)	(5)
Log(Employment HHI)	0.002**	0.003***	0.002	0.001	-0.000
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Log(Sale HHI)	0.016***	0.016***	0.015***	0.008***	
	[0.001]	[0.001]	[0.001]	[0.001]	
Sales HHI Missing	0.057**	0.071***	0.070***	0.071***	
	[0.026]	[0.027]	[0.026]	[0.026]	
Log(Labor Productivity-EW)	0.163***	0.164***	0.169***	0.062***	
	[0.003]	[0.003]	[0.003]	[0.004]	
Missing Labor Productivity	1.979***	1.971***	2.036***	0.670***	
	[0.040]	[0.040]	[0.040]	[0.055]	
Fraction of Missing Estab Labor Productivity	-0.037***	-0.037***	-0.039***	0.063***	
	[0.004]	[0.004]	[0.004]	[0.005]	
Log(Total Employment, D&B)	0.023***	0.010**	0.005	0.007	0.004
	[0.004]	[0.004]	[0.006]	[0.006]	[0.007]
Log(Age)	0.692***	0.692***	0.692***	0.672***	0.671***
	[0.004]	[0.004]	[0.003]	[0.003]	[0.004]
Male	0.166***	0.166***	0.166***	0.159***	0.156***
	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
White	0.088***	0.087***	0.088***	0.085***	0.085***
	[0.003]	[0.003]	[0.003]	[0.002]	[0.002]
Black	0.008**	0.007**	0.008**	0.004	0.003
	[0.003]	[0.003]	[0.003]	[0.003]	[0.003]
Married	0.135***	0.135***	0.134***	0.128***	0.126***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Hispanic	-0.020***	-0.020***	-0.019***	-0.019***	-0.018***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Bachelor's Degree	0.277***	0.277***	0.276***	0.258***	0.254***
	[0.004]	[0.004]	[0.004]	[0.003]	[0.003]
Bachelor's Degree Missing	0.126***	0.126***	0.125***	0.117***	0.116***
	[0.006]	[0.006]	[0.006]	[0.005]	[0.005]
CZ × OCC FE	Y	Y	Y	Y	Y
Year FE	Y				
CZ × Year FE		Y	Y	Y	
OCC × Year FE			Y	Y	Y
Ind × Year FE				Y	
Ind × CZ × Year FE					Y
Adj. R^2	0.443	0.444	0.445	0.455	0.469
N	7,223,866	7,223,866	7,223,866	7,223,866	7,223,866

Table A.10: **First stage regressions for Table A.11**

The dependent variable in all the estimations is *Log(Employment HHI)*. For each CZ-occupation-year cell, IV is the average of the natural logarithm of one over the number of firms in the same occupation but in other CZs in a year. All the estimations are weighted by the personal weight. Standard errors in brackets are clustered at the CZ-occupation level.

	Panel A: only fixed effects			
	(1)	(2)	(3)	(4)
IV	0.057***	0.058***	0.065***	0.066***
	[0.006]	[0.006]	[0.006]	[0.005]
CZ × OCC FE	Y	Y	Y	Y
Year FE	Y			
CZ × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CZ × Year FE				Y
Adj. R^2	0.908	0.920	0.923	0.942
N	7,223,866	7,223,866	7,223,866	7,223,866
Kleibergen-Paap F-stat	90.72	100.23	106.34	152.23
	Panel B: add market-level controls			
	(1)	(2)	(3)	(4)
IV	0.087***	0.089***	0.099***	0.090***
	[0.006]	[0.006]	[0.006]	[0.006]
Log(Labor Productivity-EW)	0.006***	0.006***	0.007*	
	[0.002]	[0.002]	[0.004]	
Missing Labor Productivity	0.051*	0.058**	0.074	
	[0.027]	[0.024]	[0.049]	
Fraction of Missing Estab Labor Productivity	0.039***	0.031***	0.044***	
	[0.003]	[0.003]	[0.006]	
Log(Total Employment, D&B)	0.900***	0.956***	1.086***	0.806***
	[0.052]	[0.051]	[0.054]	[0.046]
CZ × OCC FE	Y	Y	Y	Y
Year FE	Y			
CZ × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CZ × Year FE				Y
Adj. R^2	0.915	0.926	0.930	0.945
N	7,223,866	7,223,866	7,223,866	7,223,866
Kleibergen-Paap F-stat	194.76	235.51	252.95	251.60

	Panel C: add sales-based HHI			
	(1)	(2)	(3)	(4)
IV	0.087***	0.089***	0.099***	0.090***
	[0.006]	[0.006]	[0.006]	[0.006]
Log(Sale HHI)	0.005***	0.003***	0.005***	
	[0.001]	[0.001]	[0.001]	
Sales HHI Missing	-0.012	-0.026	-0.005	
	[0.039]	[0.039]	[0.039]	
Log(Labor Productivity-EW)	0.003	0.004**	0.005	
	[0.002]	[0.002]	[0.004]	
Missing Labor Productivity	0.020	0.056	0.051	
	[0.047]	[0.045]	[0.062]	
Fraction of Missing Estab Labor Productivity	0.029***	0.025***	0.045***	
	[0.004]	[0.003]	[0.006]	
Log(Total Employment, D&B)	0.901***	0.956***	1.086***	0.806***
	[0.052]	[0.051]	[0.053]	[0.046]
CZ × OCC FE	Y	Y	Y	Y
Year FE	Y			
CZ × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CZ × Year FE				Y
Adj. R^2	0.915	0.926	0.930	0.945
N	7,223,866	7,223,866	7,223,866	7,223,866
Kleibergen-Paap F-stat	195.07	235.59	252.72	251.60

	Panel D: add individual-level controls			
	(1)	(2)	(3)	(4)
IV	0.087***	0.089***	0.099***	0.090***
	[0.006]	[0.006]	[0.006]	[0.006]
Log(Sale HHI)	0.005***	0.003***	0.005***	
	[0.001]	[0.001]	[0.001]	
Sales HHI Missing	-0.012	-0.026	-0.005	
	[0.039]	[0.039]	[0.039]	
Log(Labor Productivity-EW)	0.003	0.004**	0.005	
	[0.002]	[0.002]	[0.004]	
Missing Labor Productivity	0.019	0.056	0.050	
	[0.047]	[0.045]	[0.062]	
Fraction of Missing Estab Labor Productivity	0.029***	0.025***	0.045***	
	[0.004]	[0.003]	[0.006]	
Log(Total Employment, D&B)	0.901***	0.956***	1.086***	0.806***
	[0.052]	[0.051]	[0.053]	[0.046]
Log(Age)	-0.002**	-0.000	-0.000	0.000
	[0.001]	[0.001]	[0.001]	[0.001]
Male	0.000	0.000	0.000	0.000
	[0.001]	[0.001]	[0.000]	[0.000]
White	-0.002**	-0.000	-0.001	-0.001**
	[0.001]	[0.001]	[0.001]	[0.001]
Black	-0.006***	-0.002*	-0.002*	-0.001*
	[0.001]	[0.001]	[0.001]	[0.001]
Married	0.001***	0.000	0.001**	0.000
	[0.000]	[0.000]	[0.000]	[0.000]
Hispanic	-0.001***	-0.000	-0.000*	-0.000*
	[0.000]	[0.000]	[0.000]	[0.000]
Bachelor's Degree	0.000	-0.000	0.000	0.000
	[0.001]	[0.001]	[0.001]	[0.000]
Bachelor's Degree Missing	-0.004*	-0.005**	-0.005**	-0.003*
	[0.003]	[0.002]	[0.002]	[0.002]
CZ × OCC FE	Y	Y	Y	Y
Year FE	Y			
CZ × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CZ × Year FE				Y
Adj. R^2	0.915	0.926	0.930	0.945
N	7,223,866	7,223,866	7,223,866	7,223,866
Kleibergen-Paap F-stat	195.16	235.60	252.73	251.60

Table A.11: **Effect of labor-market concentration based on commuting zones (CZ) on hourly wage using IV**

The dependent variable in all the estimations is *Log(Hourly Wage)*. All the estimations are weighted by the personal weight. Standard errors in brackets are clustered at the CZ-occupation level.

	Panel A: only fixed effects			
	(1)	(2)	(3)	(4)
Log(Employment HHI)	-0.267***	-0.262***	-0.215***	-0.202***
	[0.049]	[0.046]	[0.042]	[0.035]
CZ × OCC FE	Y	Y	Y	Y
Year FE	Y			
CZ × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CZ × Year FE				Y
Adj. R^2	0.324	0.327	0.361	0.381
N	7,223,866	7,223,866	7,223,866	7,223,866
	Panel B: add market-level controls			
	(1)	(2)	(3)	(4)
Log(Employment HHI)	-0.232***	-0.228***	-0.141***	-0.148***
	[0.034]	[0.031]	[0.026]	[0.025]
Log(Labor Productivity-EW)	0.260***	0.261***	0.088***	
	[0.004]	[0.004]	[0.005]	
Missing Labor Productivity	3.218***	3.229***	1.030***	
	[0.050]	[0.050]	[0.062]	
Fraction of Missing Estab Labor Productivity	-0.033***	-0.035***	0.077***	
	[0.007]	[0.007]	[0.006]	
Log(Total Employment, D&B)	0.209***	0.205***	0.157***	0.119***
	[0.031]	[0.030]	[0.028]	[0.021]
CZ × OCC FE	Y	Y	Y	Y
Year FE	Y			
CZ × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CZ × Year FE				Y
Adj. R^2	0.338	0.340	0.366	0.384
N	7,223,866	7,223,866	7,223,866	7,223,866

	Panel C: add sales-based HHI			
	(1)	(2)	(3)	(4)
Log(Employment HHI)	-0.230***	-0.227***	-0.140***	-0.148***
	[0.034]	[0.030]	[0.026]	[0.025]
Log(Sale HHI)	0.022***	0.022***	0.011***	
	[0.001]	[0.001]	[0.001]	
Sales HHI Missing	0.035	0.043	0.067**	
	[0.029]	[0.029]	[0.030]	
Log(Labor Productivity-EW)	0.244***	0.245***	0.082***	
	[0.004]	[0.004]	[0.005]	
Missing Labor Productivity	3.011***	3.020***	0.900***	
	[0.057]	[0.057]	[0.066]	
Fraction of Missing Estab Labor Productivity	-0.075***	-0.077***	0.079***	
	[0.006]	[0.006]	[0.006]	
Log(Total Employment, D&B)	0.211***	0.207***	0.156***	0.119***
	[0.031]	[0.030]	[0.028]	[0.021]
CZ × OCC FE	Y	Y	Y	Y
Year FE	Y			
CZ × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CZ × Year FE				Y
Adj. R^2	0.339	0.341	0.366	0.384
N	7,223,866	7,223,866	7,223,866	7,223,866

	Panel D: add individual-level controls			
	(1)	(2)	(3)	(4)
Log(Employment HHI)	-0.127***	-0.125***	-0.076***	-0.077***
	[0.024]	[0.021]	[0.019]	[0.019]
Log(Sale HHI)	0.016***	0.016***	0.009***	
	[0.001]	[0.001]	[0.001]	
Sales HHI Missing	0.055**	0.068***	0.073***	
	[0.026]	[0.026]	[0.027]	
Log(Labor Productivity-EW)	0.164***	0.164***	0.062***	
	[0.003]	[0.003]	[0.004]	
Missing Labor Productivity	1.983***	1.980***	0.663***	
	[0.040]	[0.040]	[0.055]	
Fraction of Missing Estab Labor Productivity	-0.033***	-0.034***	0.066***	
	[0.005]	[0.005]	[0.005]	
Log(Total Employment, D&B)	0.138***	0.131***	0.098***	0.076***
	[0.022]	[0.021]	[0.021]	[0.016]
Log(Age)	0.692***	0.692***	0.672***	0.671***
	[0.004]	[0.004]	[0.003]	[0.004]
Male	0.166***	0.166***	0.159***	0.156***
	[0.002]	[0.002]	[0.002]	[0.002]
White	0.087***	0.087***	0.085***	0.085***
	[0.003]	[0.003]	[0.002]	[0.002]
Black	0.007**	0.007**	0.004	0.003
	[0.003]	[0.003]	[0.003]	[0.003]
Married	0.135***	0.135***	0.128***	0.126***
	[0.001]	[0.001]	[0.001]	[0.001]
Hispanic	-0.020***	-0.020***	-0.019***	-0.018***
	[0.001]	[0.001]	[0.001]	[0.001]
Bachelor's Degree	0.277***	0.277***	0.258***	0.254***
	[0.004]	[0.004]	[0.003]	[0.003]
Bachelor's Degree Missing	0.126***	0.126***	0.118***	0.117***
	[0.006]	[0.006]	[0.005]	[0.005]
CZ × OCC FE	Y	Y	Y	Y
Year FE	Y			
CZ × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CZ × Year FE				Y
Adj. R^2	0.440	0.441	0.453	0.468
N	7,223,866	7,223,866	7,223,866	7,223,866

Table A.12: **Effect of labor-market concentration based on commuting zones (CZ) on employer-sponsored health insurance coverage using OLS**

The dependent variable in all estimations is a dummy variable indicating whether an individual has health insurance through a current or former employer or union. All estimations are weighted by the worker's personal weight. Standard errors in brackets allow clustered errors at the CZ-occupation level.

	Panel A: only fixed effects				
	(1)	(2)	(3)	(4)	(5)
Log(Employment HHI)	-0.001	-0.001	0.002	0.002	0.000
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
CZ × OCC FE	Y	Y	Y	Y	Y
Year FE	Y				
CZ × Year FE		Y	Y	Y	
OCC × Year FE			Y	Y	Y
Ind × Year FE				Y	
Ind × CZ × Year FE					Y
Adj. R^2	0.177	0.177	0.177	0.202	0.221
N	3,536,391	3,536,391	3,536,391	3,536,391	3,536,391
	Panel B: add market-level controls				
	(1)	(2)	(3)	(4)	(5)
Log(Employment HHI)	-0.001	-0.001	0.001	0.002	0.001
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Log(Labor Productivity-EW)	0.128***	0.129***	0.133***	0.031***	
	[0.002]	[0.002]	[0.002]	[0.003]	
Missing Labor Productivity	1.495***	1.497***	1.549***	0.349***	
	[0.023]	[0.023]	[0.024]	[0.042]	
Fraction of Missing Estab Labor Productivity	0.088***	0.088***	0.086***	0.044***	
	[0.002]	[0.002]	[0.003]	[0.003]	
Log(Total Employment, D&B)	-0.007*	-0.010***	-0.002	-0.004	-0.008
	[0.004]	[0.004]	[0.007]	[0.007]	[0.007]
CZ × OCC FE	Y	Y	Y	Y	Y
Year FE	Y				
CZ × Year FE		Y	Y	Y	
OCC × Year FE			Y	Y	Y
Ind × Year FE				Y	
Ind × CZ × Year FE					Y
Adj. R^2	0.186	0.187	0.187	0.202	0.221
N	3,536,391	3,536,391	3,536,391	3,536,391	3,536,391

	Panel C: add sales-based HHI				
	(1)	(2)	(3)	(4)	(5)
Log(Employment HHI)	-0.001	-0.001	0.001	0.002	0.001
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Log(Sales HHI)	0.011***	0.011***	0.011***	0.005***	
	[0.000]	[0.000]	[0.000]	[0.000]	
Sales HHI Missing	-0.002	-0.005	-0.010	-0.004	
	[0.019]	[0.019]	[0.019]	[0.019]	
Log(Labor Productivity-EW)	0.120***	0.120***	0.124***	0.027***	
	[0.002]	[0.002]	[0.002]	[0.003]	
Missing Labor Productivity	1.397***	1.402***	1.457***	0.317***	
	[0.028]	[0.028]	[0.028]	[0.044]	
Fraction of Missing Estab Labor Productivity	0.066***	0.066***	0.066***	0.045***	
	[0.003]	[0.003]	[0.003]	[0.003]	
Log(Total Employment, D&B)	-0.005	-0.009**	-0.004	-0.005	-0.008
	[0.004]	[0.004]	[0.007]	[0.007]	[0.007]
CZ × OCC FE	Y	Y	Y	Y	Y
Year FE	Y				
CZ × Year FE		Y	Y	Y	
OCC × Year FE			Y	Y	Y
Ind × Year FE				Y	
Ind × CZ × Year FE					Y
Adj. R^2	0.187	0.188	0.188	0.202	0.221
N	3,536,391	3,536,391	3,536,391	3,536,391	3,536,391

	Panel D: add individual-level controls				
	(1)	(2)	(3)	(4)	(5)
Log(Employment HHI)	-0.002**	-0.001	0.001	0.001	0.001
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Log(Sales HHI)	0.010***	0.010***	0.010***	0.004***	
	[0.000]	[0.000]	[0.000]	[0.000]	
Sales HHI Missing	0.003	0.001	-0.002	-0.002	
	[0.020]	[0.020]	[0.020]	[0.020]	
Log(Labor Productivity-EW)	0.102***	0.102***	0.106***	0.021***	
	[0.002]	[0.002]	[0.002]	[0.003]	
Missing Labor Productivity	1.176***	1.179***	1.226***	0.238***	
	[0.028]	[0.028]	[0.028]	[0.043]	
Fraction of Missing Estab Labor Productivity	0.075***	0.075***	0.074***	0.043***	
	[0.003]	[0.003]	[0.003]	[0.003]	
Log(Total Employment, D&B)	-0.003	-0.008*	-0.005	-0.005	-0.010
	[0.004]	[0.004]	[0.007]	[0.007]	[0.007]
Log(Age)	0.065***	0.065***	0.064***	0.057***	0.054***
	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
Male	-0.009***	-0.009***	-0.009***	-0.009***	-0.009***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
White	0.075***	0.075***	0.075***	0.073***	0.072***
	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
Black	0.024***	0.024***	0.024***	0.021***	0.019***
	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
Married	0.085***	0.085***	0.085***	0.083***	0.081***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Hispanic	-0.038***	-0.038***	-0.038***	-0.037***	-0.036***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Bachelor's Degree	0.057***	0.057***	0.057***	0.052***	0.050***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Bachelor's Degree Missing	-0.051***	-0.051***	-0.051***	-0.051***	-0.050***
	[0.004]	[0.004]	[0.004]	[0.004]	[0.004]
CZ × OCC FE	Y	Y	Y	Y	Y
Year FE	Y				
CZ × Year FE		Y	Y	Y	
OCC × Year FE			Y	Y	Y
Ind × Year FE				Y	
Ind × CZ × Year FE					Y
Adj. R^2	0.214	0.214	0.215	0.226	0.244
N	3,536,391	3,536,391	3,536,391	3,536,391	3,536,391

Table A.13: **Effect of labor-market concentration based on commuting zones (CZ) on employer-sponsored health insurance coverage using IV**

The dependent variable in all the estimations is a dummy variable indicating whether an individual has health insurance through a current or former employer or union. All the estimations are weighted by the personal weight. Standard errors in brackets are clustered at the CZ-occupation level.

	Panel A: only fixed effects			
	(1)	(2)	(3)	(4)
Log(Employment HHI)	-0.011	-0.012	-0.037**	-0.036**
	[0.016]	[0.016]	[0.017]	[0.015]
CZ × OCC FE	Y	Y	Y	Y
Year FE	Y			
CZ × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CZ × Year FE				Y
Adj. R^2	0.176	0.177	0.201	0.221
N	3,536,391	3,536,391	3,536,391	3,536,391
	Panel B: add market-level controls			
	(1)	(2)	(3)	(4)
Log(Employment HHI)	0.008	0.006	-0.024**	-0.026**
	[0.011]	[0.011]	[0.011]	[0.011]
Log(Labor Productivity-EW)	0.128***	0.129***	0.031***	
	[0.002]	[0.002]	[0.003]	
Missing Labor Productivity	1.495***	1.497***	0.352***	
	[0.023]	[0.023]	[0.042]	
Fraction of Missing Estab Labor Productivity	0.088***	0.088***	0.045***	
	[0.002]	[0.002]	[0.003]	
Log(Total Employment, D&B)	-0.019	-0.020	0.036**	0.029**
	[0.016]	[0.016]	[0.017]	[0.014]
CZ × OCC FE	Y	Y	Y	Y
Year FE	Y			
CZ × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CZ × Year FE				Y
Adj. R^2	0.186	0.187	0.202	0.221
N	3,536,391	3,536,391	3,536,391	3,536,391

	Panel C: add sales-based HHI			
	(1)	(2)	(3)	(4)
Log(Employment HHI)	0.005	0.003	-0.024**	-0.026**
	[0.011]	[0.010]	[0.011]	[0.011]
Log(Sales HHI)	0.011***	0.011***	0.005***	
	[0.000]	[0.000]	[0.000]	
Sales HHI Missing	-0.002	-0.005	-0.003	
	[0.019]	[0.019]	[0.020]	
Log(Labor Productivity-EW)	0.120***	0.120***	0.028***	
	[0.002]	[0.002]	[0.003]	
Missing Labor Productivity	1.397***	1.402***	0.319***	
	[0.028]	[0.028]	[0.044]	
Fraction of Missing Estab Labor Productivity	0.066***	0.066***	0.045***	
	[0.003]	[0.003]	[0.003]	
Log(Total Employment, D&B)	-0.014	-0.015	0.036**	0.029**
	[0.016]	[0.015]	[0.017]	[0.014]
CZ × OCC FE	Y	Y	Y	Y
Year FE	Y			
CZ × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CZ × Year FE				Y
Adj. R^2	0.187	0.188	0.202	0.221
N	3,536,391	3,536,391	3,536,391	3,536,391

	Panel D: add individual-level controls			
	(1)	(2)	(3)	(4)
Log(Employment HHI)	0.008	0.007	-0.021**	-0.022**
	[0.010]	[0.010]	[0.010]	[0.010]
Log(Sales HHI)	0.010***	0.010***	0.005***	
	[0.000]	[0.000]	[0.000]	
Sales HHI Missing	0.003	0.001	-0.002	
	[0.020]	[0.020]	[0.020]	
Log(Labor Productivity-EW)	0.102***	0.102***	0.021***	
	[0.002]	[0.002]	[0.003]	
Missing Labor Productivity	1.176***	1.179***	0.240***	
	[0.028]	[0.028]	[0.043]	
Fraction of Missing Estab Labor Productivity	0.075***	0.075***	0.043***	
	[0.003]	[0.003]	[0.003]	
Log(Total Employment, D&B)	-0.019	-0.020	0.031*	0.024*
	[0.015]	[0.015]	[0.017]	[0.014]
Log(Age)	0.065***	0.065***	0.057***	0.054***
	[0.002]	[0.002]	[0.002]	[0.002]
Male	-0.009***	-0.009***	-0.009***	-0.009***
	[0.001]	[0.001]	[0.001]	[0.001]
White	0.075***	0.075***	0.073***	0.072***
	[0.002]	[0.002]	[0.002]	[0.002]
Black	0.024***	0.024***	0.021***	0.019***
	[0.002]	[0.002]	[0.002]	[0.002]
Married	0.085***	0.085***	0.083***	0.081***
	[0.001]	[0.001]	[0.001]	[0.001]
Hispanic	-0.038***	-0.038***	-0.037***	-0.036***
	[0.001]	[0.001]	[0.001]	[0.001]
Bachelor's Degree	0.057***	0.057***	0.052***	0.050***
	[0.001]	[0.001]	[0.001]	[0.001]
Bachelor's Degree Missing	-0.051***	-0.051***	-0.051***	-0.050***
	[0.004]	[0.004]	[0.004]	[0.004]
CZ × OCC FE	Y	Y	Y	Y
Year FE	Y			
CZ × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CZ × Year FE				Y
Adj. R^2	0.214	0.214	0.226	0.244
N	3,536,391	3,536,391	3,536,391	3,536,391

Table A.14: **Effect of labor-market concentration based on commuting zones (CZ) on workers' education using OLS**

The dependent variable in all estimations is a dummy variable indicating whether a worker has a bachelor degree. All the estimations are weighted by the personal weight. Standard errors in brackets are clustered at the CZ-occupation level.

	Panel A: only fixed effects				
	(1)	(2)	(3)	(4)	(5)
Log(Employment HHI)	0.001**	0.001	0.001*	0.001	0.001
	[0.001]	[0.001]	[0.000]	[0.000]	[0.001]
CZ × OCC FE	Y	Y	Y	Y	Y
Year FE	Y				
CZ × Year FE		Y	Y	Y	
OCC × Year FE			Y	Y	Y
Ind × Year FE				Y	
Ind × CZ × Year FE					Y
Adj. R^2	0.356	0.356	0.357	0.370	0.384
N	7,163,583	7,163,583	7,163,583	7,163,583	7,163,583
	Panel B: add market-level controls				
	(1)	(2)	(3)	(4)	(5)
Log(Employment HHI)	0.001	-0.000	0.001	0.001	-0.000
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Log(Labor Productivity-EW)	0.030***	0.031***	0.033***	0.032***	
	[0.001]	[0.002]	[0.002]	[0.003]	
Missing Labor Productivity	0.399***	0.403***	0.433***	0.381***	
	[0.019]	[0.019]	[0.020]	[0.036]	
Fraction of Missing Estab Labor Productivity	-0.020***	-0.020***	-0.022***	0.000	
	[0.003]	[0.003]	[0.003]	[0.003]	
Log(Total Employment, D&B)	0.005**	0.010***	-0.000	-0.001	0.007**
	[0.002]	[0.002]	[0.003]	[0.003]	[0.004]
CZ × OCC FE	Y	Y	Y	Y	Y
Year FE	Y				
CZ × Year FE		Y	Y	Y	
OCC × Year FE			Y	Y	Y
Ind × Year FE				Y	
Ind × CZ × Year FE					Y
Adj. R^2	0.357	0.357	0.358	0.370	0.384
N	7,163,583	7,163,583	7,163,583	7,163,583	7,163,583

	Panel C: add sales-based HHI				
	(1)	(2)	(3)	(4)	(5)
Log(Employment HHI)	0.000	-0.001	0.001	0.001	-0.000
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Log(Sale HHI)	0.009***	0.009***	0.009***	0.004***	
	[0.000]	[0.000]	[0.000]	[0.000]	
Sales HHI Missing	-0.038	-0.039	-0.039	-0.021	
	[0.035]	[0.036]	[0.037]	[0.034]	
Log(Labor Productivity-EW)	0.024***	0.025***	0.027***	0.030***	
	[0.001]	[0.001]	[0.001]	[0.003]	
Missing Labor Productivity	0.364***	0.369***	0.396***	0.377***	
	[0.039]	[0.040]	[0.041]	[0.049]	
Fraction of Missing Estab Labor Productivity	-0.036***	-0.037***	-0.038***	0.001	
	[0.003]	[0.003]	[0.003]	[0.003]	
Log(Total Employment, D&B)	0.007***	0.011***	0.001	-0.000	0.007**
	[0.002]	[0.002]	[0.003]	[0.003]	[0.004]
CZ × OCC FE	Y	Y	Y	Y	Y
Year FE	Y				
CZ × Year FE		Y	Y	Y	
OCC × Year FE			Y	Y	Y
Ind × Year FE				Y	
Ind × CZ × Year FE					Y
Adj. R^2	0.357	0.357	0.358	0.370	0.384
N	7,163,583	7,163,583	7,163,583	7,163,583	7,163,583

	Panel D: add individual-level controls				
	(1)	(2)	(3)	(4)	(5)
Log(Employment HHI)	-0.000	-0.001	0.000	0.000	-0.000
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Log(Sale HHI)	0.009***	0.009***	0.009***	0.003***	
	[0.000]	[0.000]	[0.000]	[0.000]	
Sales HHI Missing	-0.036	-0.038	-0.038	-0.020	
	[0.035]	[0.036]	[0.037]	[0.034]	
Log(Labor Productivity-EW)	0.016***	0.016***	0.018***	0.029***	
	[0.001]	[0.001]	[0.001]	[0.003]	
Missing Labor Productivity	0.261***	0.266***	0.288***	0.364***	
	[0.038]	[0.039]	[0.040]	[0.048]	
Fraction of Missing Estab Labor Productivity	-0.029***	-0.029***	-0.030***	0.001	
	[0.003]	[0.003]	[0.003]	[0.003]	
Log(Total Employment, D&B)	0.009***	0.013***	0.002	0.000	0.007**
	[0.002]	[0.002]	[0.003]	[0.003]	[0.004]
Log(Age)	0.021***	0.021***	0.021***	0.019***	0.018***
	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
Male	0.039***	0.039***	0.039***	0.042***	0.042***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
White	-0.029***	-0.029***	-0.029***	-0.028***	-0.028***
	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
Black	-0.090***	-0.091***	-0.090***	-0.089***	-0.090***
	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
Married	0.029***	0.029***	0.029***	0.028***	0.027***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Hispanic	-0.028***	-0.028***	-0.028***	-0.026***	-0.027***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
CZ × OCC FE	Y	Y	Y	Y	Y
Year FE	Y				
CZ × Year FE		Y	Y	Y	
OCC × Year FE			Y	Y	Y
Ind × Year FE				Y	
Ind × CZ × Year FE					Y
Adj. R^2	0.365	0.365	0.366	0.377	0.391
N	7,163,583	7,163,583	7,163,583	7,163,583	7,163,583

Table A.15: **Effect of labor-market concentration based on commuting zones (CZ) on workers' education using IV**

The dependent variable in all estimations is a dummy variable indicating whether a worker has a bachelor degree. All the estimations are weighted by the personal weight. Standard errors in brackets are clustered at the CZ-occupation level.

	Panel A: only fixed effects			
	(1)	(2)	(3)	(4)
Log(Employment HHI)	-0.163***	-0.160***	-0.105***	-0.101***
	[0.029]	[0.026]	[0.022]	[0.019]
CZ × OCC FE	Y	Y	Y	Y
Year FE	Y			
CZ × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CZ × Year FE				Y
Adj. R^2	0.335	0.338	0.362	0.378
N	7,163,583	7,163,583	7,163,583	7,163,583
	Panel B: add market-level controls			
	(1)	(2)	(3)	(4)
Log(Employment HHI)	-0.114***	-0.109***	-0.068***	-0.072***
	[0.018]	[0.015]	[0.014]	[0.013]
Log(Labor Productivity-EW)	0.031***	0.031***	0.033***	
	[0.002]	[0.002]	[0.003]	
Missing Labor Productivity	0.406***	0.411***	0.382***	
	[0.020]	[0.020]	[0.036]	
Fraction of Missing Estab Labor Productivity	-0.015***	-0.017***	0.003	
	[0.003]	[0.003]	[0.003]	
Log(Total Employment, D&B)	0.107***	0.112***	0.080***	0.065***
	[0.016]	[0.015]	[0.015]	[0.011]
CZ × OCC FE	Y	Y	Y	Y
Year FE	Y			
CZ × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CZ × Year FE				Y
Adj. R^2	0.347	0.349	0.367	0.381
N	7,163,583	7,163,583	7,163,583	7,163,583

	Panel C: add sales-based HHI			
	(1)	(2)	(3)	(4)
Log(Employment HHI)	-0.113***	-0.108***	-0.068***	-0.072***
	[0.018]	[0.015]	[0.014]	[0.013]
Log(Sale HHI)	0.009***	0.009***	0.004***	
	[0.000]	[0.000]	[0.000]	
Sales HHI Missing	-0.039	-0.042	-0.022	
	[0.034]	[0.035]	[0.033]	
Log(Labor Productivity-EW)	0.025***	0.025***	0.030***	
	[0.001]	[0.001]	[0.003]	
Missing Labor Productivity	0.367***	0.376***	0.377***	
	[0.038]	[0.039]	[0.048]	
Fraction of Missing Estab Labor Productivity	-0.033***	-0.034***	0.004	
	[0.003]	[0.003]	[0.003]	
Log(Total Employment, D&B)	0.108***	0.113***	0.079***	0.065***
	[0.016]	[0.015]	[0.015]	[0.011]
CZ × OCC FE	Y	Y	Y	Y
Year FE	Y			
CZ × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CZ × Year FE				Y
Adj. R^2	0.348	0.350	0.367	0.381
N	7,163,583	7,163,583	7,163,583	7,163,583
	Panel D: add individual-level controls			
	(1)	(2)	(3)	(4)
Log(Employment HHI)	-0.105***	-0.100***	-0.065***	-0.069***
	[0.017]	[0.014]	[0.013]	[0.013]
Log(Sale HHI)	0.009***	0.009***	0.004***	
	[0.000]	[0.000]	[0.000]	
Sales HHI Missing	-0.038	-0.040	-0.021	
	[0.034]	[0.035]	[0.033]	
Log(Labor Productivity-EW)	0.016***	0.017***	0.029***	
	[0.001]	[0.001]	[0.003]	
Missing Labor Productivity	0.264***	0.273***	0.363***	
	[0.037]	[0.038]	[0.048]	
Fraction of Missing Estab Labor Productivity	-0.026***	-0.027***	0.004	
	[0.003]	[0.003]	[0.003]	
Log(Total Employment, D&B)	0.103***	0.107***	0.077***	0.064***
	[0.015]	[0.014]	[0.014]	[0.011]
Log(Age)	0.020***	0.021***	0.019***	0.018***
	[0.002]	[0.002]	[0.002]	[0.002]
Male	0.039***	0.039***	0.042***	0.042***
	[0.001]	[0.001]	[0.001]	[0.001]
White	-0.029***	-0.029***	-0.028***	-0.028***
	[0.002]	[0.002]	[0.002]	[0.002]
Black	-0.091***	-0.091***	-0.089***	-0.090***
	[0.002]	[0.002]	[0.002]	[0.002]
Married	0.029***	0.029***	0.028***	0.027***
	[0.001]	[0.001]	[0.001]	[0.001]
Hispanic	-0.028***	-0.028***	-0.026***	-0.027***
	[0.001]	[0.001]	[0.001]	[0.001]
CZ × OCC FE	Y	Y	Y	Y
Year FE	Y			
CZ × Year FE		Y	Y	
Ind × Year FE			Y	
Ind × CZ × Year FE				Y
Adj. R^2	0.356	0.359	0.374	0.388
N	7,163,583	7,163,583	7,163,583	7,163,583

Table A.16: **Heterogeneous Effects of Labor Market Concentration using OLS**

This table reports the heterogenous effects of labor market concentration on labor compensation using OLS estimations. The dependent variables in Panels A and B are the natural logarithm of real hourly wage and a dummy variable indicating whether an individual has health insurance through a current or former employer or union, respectively. *Unionization Rate* is the 5-year average unionization rate in a major occupation group-state cell centered around a year in CPS. *Offshorability* measures the extent to which the tasks performed by occupations are offshorable and the data is from David Dorn's webpage. In column (1) in both panels, we drop observations in which *Sales HHI* is missing. The control variables are the same as the ones in column (4), Panel D of Table 3. All the estimations are weighted by the personal weight. Standard errors in brackets are clustered at the CZ-occupation level.

	Panel A: Log(Hourly Wage)		
	(1)	(2)	(3)
Log(Employment HHI)	-0.005***	0.001	-0.000
	[0.002]	[0.002]	[0.001]
Log(Employment HHI)*Log(Sale HHI)	-0.002***		
	[0.000]		
Log(Employment HHI)*Unionization Rate		-0.014	
		[0.012]	
Unionization Rate		-0.060	
		[0.068]	
Log(Employment HHI)*Offshorability			0.001
			[0.001]
Log(Total Employment, D&B)	0.007	0.004	0.004
	[0.007]	[0.007]	[0.007]
Log(Age)	0.671***	0.671***	0.671***
	[0.004]	[0.004]	[0.004]
Male	0.156***	0.156***	0.156***
	[0.002]	[0.002]	[0.002]
White	0.085***	0.085***	0.085***
	[0.002]	[0.002]	[0.002]
Black	0.003	0.003	0.003
	[0.003]	[0.003]	[0.003]
Married	0.126***	0.126***	0.126***
	[0.001]	[0.001]	[0.001]
Hispanic	-0.018***	-0.018***	-0.018***
	[0.001]	[0.001]	[0.001]
Bachelor's Degree	0.254***	0.254***	0.254***
	[0.003]	[0.003]	[0.003]
Bachelor's Degree Missing	0.116***	0.116***	0.116***
	[0.005]	[0.005]	[0.005]
Controls	Y	Y	Y
CZ × OCC FE	Y	Y	Y
Ind × CZ × Year FE	Y	Y	Y
Adj. R^2	0.469	0.469	0.469
N	7,216,453	7,223,866	7,223,273

	Panel B: Employer-sponsored Health Insurance		
	(1)	(2)	(3)
Log(Employment HHI)	-0.005***	0.001	0.001
	[0.001]	[0.002]	[0.001]
Log(Employment HHI)*Log(Sales HHI)	-0.002***		
	[0.000]		
Log(Employment HHI)*Unionization Rate		-0.002	
		[0.012]	
Unionization Rate		-0.020	
		[0.067]	
Log(Employment HHI)*Offshorability			0.001
			[0.001]
Log(Total Employment, D&B)	-0.006	-0.010	-0.011
	[0.007]	[0.007]	[0.007]
Log(Age)	0.054***	0.054***	0.054***
	[0.002]	[0.002]	[0.002]
Male	-0.009***	-0.009***	-0.009***
	[0.001]	[0.001]	[0.001]
White	0.072***	0.072***	0.072***
	[0.002]	[0.002]	[0.002]
Black	0.019***	0.019***	0.019***
	[0.002]	[0.002]	[0.002]
Married	0.082***	0.081***	0.081***
	[0.001]	[0.001]	[0.001]
Hispanic	-0.036***	-0.036***	-0.036***
	[0.001]	[0.001]	[0.001]
Bachelor's Degree	0.050***	0.050***	0.050***
	[0.001]	[0.001]	[0.001]
Bachelor's Degree Missing	-0.050***	-0.050***	-0.050***
	[0.004]	[0.004]	[0.004]
Controls	Y	Y	Y
CZ × OCC FE	Y	Y	Y
Ind × CZ × Year FE	Y	Y	Y
Adj. R^2	0.244	0.244	0.244
N	3,533,827	3,536,391	3,536,166

Table A.17: **First stage regressions for Table A.18**

The dependent variable in columns (1), (3), and (5) is *Log(Employment HHI)*. The dependent variables in columns (2), (4), and (6) are *Log(Employment HHI)*×*Log(Sales HHI)*, *Log(Employment HHI)*×*Unionization Rate*, and *Log(Employment HHI)*×*Offshorability*, respectively. For each CZ-occupation-year cell, IV is the average of the natural logarithm of one over the number of firms in the same occupation but in other CZs in a year. All the estimations are weighted by the personal weight. Standard errors in brackets are clustered at the CZ-occupation level.

	Panel A: Log(Hourly Wage)					
	(1)	(2)	(3)	(4)	(5)	(6)
IV	0.102***	0.836***	0.097***	-0.013***	0.087***	0.027***
	[0.006]	[0.044]	[0.008]	[0.001]	[0.006]	[0.009]
IV*Log(Sale HHI)	0.005***	0.454***				
	[0.001]	[0.018]				
IV*Unionization Rate			-0.112	0.325***		
			[0.115]	[0.023]		
Unionization Rate			-1.370	-2.460***		
			[0.993]	[0.198]		
IV*Offshorability					0.047***	0.205***
					[0.006]	[0.012]
Log(Total Employment, D&B)	0.806***	-1.692***	0.811***	0.085***	0.810***	0.045
	[0.047]	[0.119]	[0.046]	[0.005]	[0.046]	[0.065]
Log(Age)	0.000	-0.004	0.000	0.000***	0.000	0.001
	[0.001]	[0.003]	[0.001]	[0.000]	[0.001]	[0.001]
Male	0.000	-0.003	0.000	-0.000	0.000	-0.001**
	[0.000]	[0.003]	[0.000]	[0.000]	[0.000]	[0.001]
White	-0.001**	-0.001	-0.001**	-0.000**	-0.001**	0.001
	[0.001]	[0.003]	[0.001]	[0.000]	[0.001]	[0.001]
Black	-0.001*	-0.008**	-0.001*	-0.000	-0.001*	-0.001
	[0.001]	[0.004]	[0.001]	[0.000]	[0.001]	[0.001]
Married	0.000	0.002	0.000	-0.000	0.000	0.000
	[0.000]	[0.002]	[0.000]	[0.000]	[0.000]	[0.001]
Hispanic	-0.000	0.002	-0.000*	-0.000	-0.000*	0.000
	[0.000]	[0.001]	[0.000]	[0.000]	[0.000]	[0.000]
Bachelor's Degree	0.000	-0.009***	0.000	0.000	0.000	-0.001*
	[0.000]	[0.003]	[0.000]	[0.000]	[0.000]	[0.001]
Bachelor's Degree Missing	-0.003*	0.011	-0.003*	-0.000*	-0.003	-0.001
	[0.002]	[0.008]	[0.002]	[0.000]	[0.002]	[0.002]
CZ × OCC FE	Y	Y	Y	Y	Y	Y
Ind × CZ × Year FE	Y	Y	Y	Y	Y	Y
Adj. R^2	0.932	0.978	0.945	0.990	0.932	0.993
N	7,216,453	7,216,453	7,223,866	7,223,866	7,223,273	7,223,273
Kleibergen-Paap F-stat		124.94		114.65		108.02

	Panel B: Employer-sponsored Health Insurance					
	(1)	(2)	(3)	(4)	(5)	(6)
IV	0.102***	0.873***	0.092***	-0.009***	0.103***	0.047***
	[0.007]	[0.050]	[0.008]	[0.001]	[0.007]	[0.007]
IV*Log(Sales HHI)	-0.000	0.485***				
	[0.001]	[0.021]				
IV*Unionization Rate			0.188**	0.286***		
			[0.084]	[0.017]		
Unionization Rate			1.749**	-2.944***		
			[0.703]	[0.145]		
IV*Offshorability					0.017***	0.094***
					[0.003]	[0.007]
Log(Total Employment, D&B)	1.311***	-3.016***	1.311***	0.101***	1.312***	0.413***
	[0.082]	[0.179]	[0.081]	[0.009]	[0.082]	[0.136]
Log(Age)	0.000	-0.005	0.000	0.000***	0.000	0.001
	[0.001]	[0.004]	[0.001]	[0.000]	[0.001]	[0.001]
Male	0.000	-0.004	0.000	-0.000	0.000	0.000
	[0.000]	[0.003]	[0.000]	[0.000]	[0.000]	[0.001]
White	-0.000	-0.005	-0.000	0.000	-0.000	0.000
	[0.001]	[0.003]	[0.001]	[0.000]	[0.001]	[0.001]
Black	-0.001	-0.009*	-0.001	-0.000	-0.001	-0.000
	[0.001]	[0.005]	[0.001]	[0.000]	[0.001]	[0.001]
Married	0.000	0.003	0.000	-0.000	0.000	-0.000
	[0.000]	[0.002]	[0.000]	[0.000]	[0.000]	[0.001]
Hispanic	-0.000	0.001	-0.000	-0.000	-0.000	0.000
	[0.000]	[0.001]	[0.000]	[0.000]	[0.000]	[0.000]
Bachelor's Degree	0.001**	-0.015***	0.001**	-0.000**	0.001**	0.001
	[0.000]	[0.004]	[0.000]	[0.000]	[0.000]	[0.001]
Bachelor's Degree Missing	-0.002	-0.002	-0.002	-0.000	-0.002	-0.000
	[0.002]	[0.009]	[0.002]	[0.000]	[0.002]	[0.002]
CZ × OCC FE	Y	Y	Y	Y	Y	Y
Ind × CZ × Year FE	Y	Y	Y	Y	Y	Y
Adj. R^2	0.968	0.983	0.968	0.994	0.968	0.997
N	3,533,827	3,533,827	3,536,391	3,536,391	3,536,166	3,536,166
Kleibergen-Paap F-stat		114.36		115.33		87.93

Table A.18: **Heterogeneous Effects of Labor Market Concentration using IV**

This table reports the heterogenous effects of labor market concentration on labor compensation using 2SLS estimations. We use two instrumental variables: (1) the average of the natural logarithm of one over the number of firms in the same occupation but in other CBSAs in a year and (2) the interaction between the first instrument and *Log(Sale HHI)* or *Unionization Rate* or *Offshorability*. The dependent variables in Panels A and B are the natural logarithm of real hourly wage and a dummy variable indicating whether an individual has health insurance through a current or former employer or union, respectively. *Unionization Rate* is the 5-year average unionization rate in a major occupation group-state cell centered around a year in CPS. Occupation represents the major group in CPS. *Offshorability* measures the extent to which the tasks performed by occupations are offshorable and the data is from David Dorn's webpage. In column (1) in both panels, we drop observations in which *Sales HHI* is missing. The control variables are the same as the ones in column (4), Panel D of Table 3. All the estimations are weighted by the personal weight. Standard errors in brackets are clustered at the CZ-occupation level.

	Panel A: Log(Hourly Wage)		
	(1)	(2)	(3)
Log(Employment HHI)	-0.098***	-0.095***	-0.071***
	[0.019]	[0.019]	[0.022]
Log(Employment HHI)*Log(Sale HHI)	-0.010***		
	[0.002]		
Log(Employment HHI)*Unionization Rate		0.297***	
		[0.080]	
Unionization Rate		1.739***	
		[0.414]	
Log(Employment HHI)*Offshorability			-0.013
			[0.009]
Log(Total Employment, D&B)	0.076***	0.063***	0.072***
	[0.016]	[0.017]	[0.018]
Log(Age)	0.671***	0.671***	0.671***
	[0.004]	[0.004]	[0.004]
Male	0.156***	0.156***	0.156***
	[0.002]	[0.002]	[0.002]
White	0.085***	0.085***	0.085***
	[0.002]	[0.002]	[0.002]
Black	0.003	0.003	0.003
	[0.003]	[0.003]	[0.003]
Married	0.126***	0.126***	0.126***
	[0.001]	[0.001]	[0.001]
Hispanic	-0.018***	-0.018***	-0.018***
	[0.001]	[0.001]	[0.001]
Bachelor's Degree	0.254***	0.254***	0.254***
	[0.003]	[0.003]	[0.003]
Bachelor's Degree Missing	0.117***	0.117***	0.117***
	[0.005]	[0.005]	[0.005]
Controls	Y	Y	Y
CZ × OCC FE	Y	Y	Y
Ind × CZ × Year FE	Y	Y	Y
Adj. R^2	0.467	0.468	0.468
N	7,216,453	7,223,866	7,223,273

	Panel B: Employer-sponsored Health Insurance		
	(1)	(2)	(3)
Log(Employment HHI)	-0.025**	-0.027**	-0.024*
	[0.010]	[0.012]	[0.012]
Log(Employment HHI)*Log(Sales HHI)	-0.001		
	[0.001]		
Log(Employment HHI)*Unionization Rate		0.060	
		[0.086]	
Unionization Rate		0.323	
		[0.468]	
Log(Employment HHI)*Offshorability			0.003
			[0.010]
Log(Total Employment, D&B)	0.025*	0.024*	0.025*
	[0.014]	[0.014]	[0.015]
Log(Age)	0.054***	0.054***	0.054***
	[0.002]	[0.002]	[0.002]
Male	-0.009***	-0.009***	-0.009***
	[0.001]	[0.001]	[0.001]
White	0.072***	0.072***	0.072***
	[0.002]	[0.002]	[0.002]
Black	0.019***	0.019***	0.019***
	[0.002]	[0.002]	[0.002]
Married	0.082***	0.081***	0.081***
	[0.001]	[0.001]	[0.001]
Hispanic	-0.036***	-0.036***	-0.036***
	[0.001]	[0.001]	[0.001]
Bachelor's Degree	0.050***	0.050***	0.050***
	[0.001]	[0.001]	[0.001]
Bachelor's Degree Missing	-0.050***	-0.050***	-0.050***
	[0.004]	[0.004]	[0.004]
Controls	Y	Y	Y
CZ × OCC FE	Y	Y	Y
Ind × CZ × Year FE	Y	Y	Y
Adj. R^2	0.244	0.244	0.244
N	3,533,827	3,536,391	3,536,166