Fighting monopsony, a lack of competition that harms workers

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EXECUTIVE SUMMARY[1]

New research indicates that **the majority of US labor markets are highly concentrated** (Azar et al. 2018), with just a few employers dominating hiring. Higher concentration is associated with significantly lower posted wages for new jobs. On average, a **10% increase in concentration is associated with a 0.3% to 1.3% decrease in posted wages** (Azar, Marinescu, and Steinbaum 2017). Labor market concentration has increased since 1977, and increased concentration has been associated with lower wages for workers in manufacturing (Benmelech, Bergman, and Kim 2018). These findings should have implications for how regulators think about competition in the labor market.

As with conventional **merger analysis**, antitrust regulators could screen for mergers that threaten to increase concentration in the labor market, and could use calculations of labor market concentration to determine when any given merger would likely lead to anticompetitive wage suppression (Marinescu and Hovenkamp 2018). The Horizontal Merger Guidelines 2010 support such an analysis.

Agreements by companies not to poach each other's workers are unlawful and contribute to increasing labor market concentration by limiting workers' opportunities. An **anti-poaching agreement** shows that two companies compete for workers in the same market, and that collusion is profitable. Therefore, an anti-poaching agreement is evidence that a merger will likely lead to anti-competitive wage suppression.

Non-competition agreements limit workers' opportunities to work for a company's competitors after they leave their employer. Such non-competition agreements increase labor market concentration by limiting the number of employers who can effectively compete for workers. Therefore, non-competition agreements should be added to other factors mentioned in the Merger Guidelines as affecting the significance of a given concentration level.

The majority of US labor markets are highly concentrated

Measuring labor market concentration requires no new tools or methods. We can measure labor market concentration using the Herfindahl-Hirschman Index (HHI), which is what regulators already use for product markets. HHI is equal to the sum of the squares of the market shares of each firm in the market. In this case, market shares are based on the share of job vacancies of all the firms that post vacancies in that market. HHI has become conventional in industry concentration measures and has been used in the government's Horizontal Merger Guidelines for some thirty-five years. The same HHI thresholds apply to

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both seller and buyer power. For example, an HHI above 1,500 is "moderately concentrated," an HHI above 2,500 is "highly concentrated," and a merger that increases the HHI by more than 200 points, leading to a highly concentrated market, is "presumed likely to increase market power."

To calculate an HHI for the labor market, the challenge is to determine a robust definition of a labor market. Based on our research, we suggest this provisional definition: commuting zone by 6-digit Standard Occupational Classification (SOC) by quarter. This would be, for example, accountants and auditors in the Philadelphia commuting zone in the first quarter of 2011. The justifications for each element of this definition are as follows (Marinescu and Hovenkamp 2018; Azar et al. 2018):

Geography: Markets for many non-perishable manufactured products are nationwide or even worldwide, while service markets tend to be a bit smaller. Measuring geographic markets for labor, however, can be more complex. We recommend using the observed Commuting Zones (CZs) developed by the USDA, as noted above. The CZs are based on data from the 2000 Census on commuting patterns across counties to capture local economies and local labor markets in a way that is more economically meaningful than county boundaries. On CareerBuilder.com, 81% of job applications occur where the job applicant and prospective employer are within the same commuting zone (Marinescu and Rathelot 2018).

Occupation: The 6-digit SOC codes can assist in defining markets by occupational category. Surprisingly, within a 6-digit SOC occupation, job postings with higher wages attract significantly fewer applicants than jobs with lower wages (Marinescu and Wolthoff 2016). This negative relationship between wages and the number of applicants prevails on average across all 6-digit SOC codes and is driven by the fact that workers within a 6-digit SOC code can be very different from each other. For example, among accountants and auditors, which is a 6-digit SOC code, job postings with the title "senior accountant" pay higher wages and attract fewer applicants than job postings with the title "junior accountant." This shows that, in general, a 6-digit SOC is likely too broad a definition of the labor market. However, because it may underestimate effective labor market concentration, a 6-digit SOC is still a good presumptive definition of a labor market.

Time: The selection of the time period is particularly important for the labor market because job seekers can only afford to be unemployed and looking for a job for a limited period of time. The median duration of unemployment is about 10 weeks in 2016 according to the Bureau of Labor Statistics. That is, unemployed job seekers typically are hired or drop out of the market within about one quarter. This is why it is presumptively sensible to calculate labor market concentration over a quarter.

Regulators can thus compute the HHI for the labor market based on vacancy shares in the commuting zone, 6-digit SOC, and quarter, using data from Burning Glass Technologies (http://burningglass.com/), EMSI (http://www.economicmodeling.com/) or Indeed (https://www.indeed.com/). Regulators can then use the thresholds from the Horizontal Merger Guidelines to make a prima facie case against a merger that significantly increases labor market concentration and runs the risk of anticompetitively suppressing wages or salaries.

To calculate the share of each firm among posted vacancies, we use data on all vacancies listed online in 2016 as collected by burningglass.com (Azar et al. 2018). We find that U.S. labor markets tend to be highly concentrated, with an average HHI of 3,953, which is equivalent to 2.5 firms hiring in the case of equal number of job vacancies for each firm. Overall, 54 percent of labor markets are highly

concentrated, having an index above 2,500 HHI, which corresponds to four firms hiring with equal shares in hiring. These highly concentrated markets account for 17 percent of U.S. employment. Larger cities generally have lower labor market concentration while labor markets are more concentrated in rural areas (see map below from (Azar et al. 2018)). Labor market concentration also varies across regions of the country, with higher concentration across a broad swath of the middle of the country, and by occupation; among the 30 largest occupations, the least concentrated occupation is "Registered nurses" while the most concentrated is "Marketing Managers."
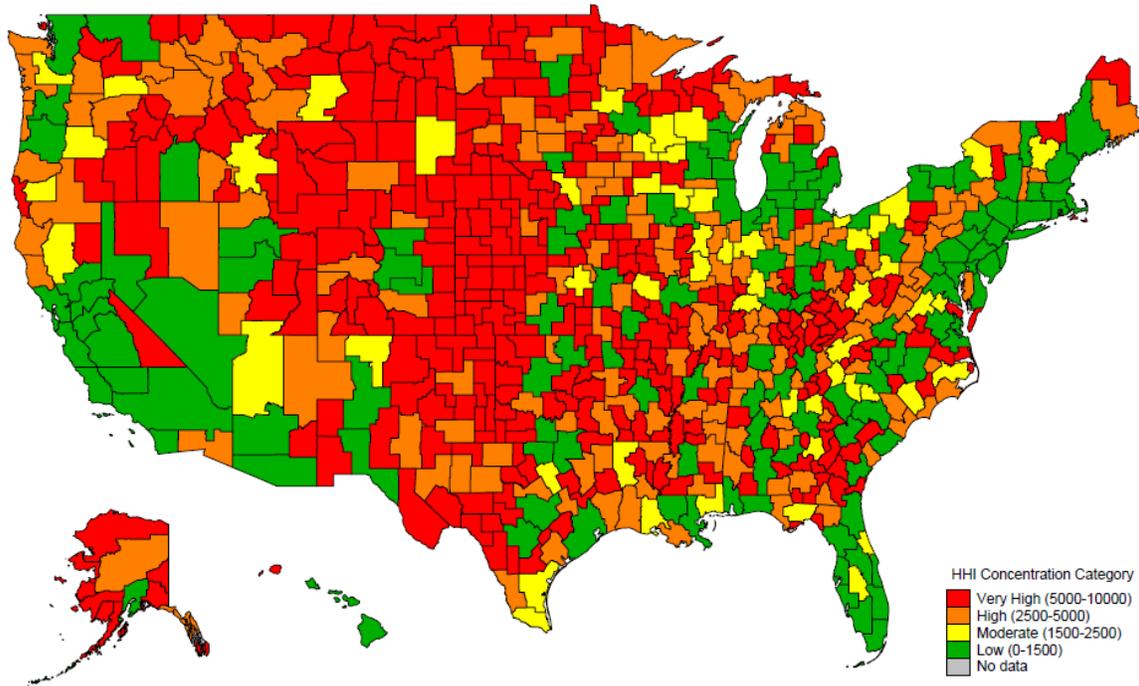

HHI Concentration Category
- Very High (5000-10000)
- High (2500-5000)
- Moderate (1500-2500)
- Low (0-1500)
- No data

Figure 1. Average HHI by commuting zone, based on vacancy shares. This figure shows the average of the Herfindahl-Hirschman Index by commuting zone code for the top 200 SOC-6 occupations (ranked based on the number of vacancies) over the period 2016Q1–2016Q4 in the Burning Glass Technologies dataset. The categories we use for HHI concentration levels are: "Low": HHI between 0 and 1500; "Moderate": HHI between 1500 and 2500; "High": HHI between 2500 and 5000; "Very High": HHI between 5000 and 10000. These categories correspond to the DOJ/FTC guidelines, except that we add the additional distinction between high and very high concentration levels around the 5,000 HHI threshold. Market shares are defined as the sum of vacancies by a given firm in a given market (6-digit SOC by commuting zone) and year-quarter divided by total vacancies posted in that market and year-quarter.

Wages fall when labor market concentration rises

The term "monopsony" commonly refers to situations where a few companies dominate hiring in the labor market. Compared to a perfectly competitive labor market, monopsony leads to lower employment and lower wages. All else remaining equal, lower employment also entails lower production on the output (product) side. Ultimately, imperfect competition in the labor market has the same kind of depressing effect on production as we see in cases of imperfect competition in the product market. For the purpose of a merger review in labor markets, the most important question is whether a merger is likely to increase monopsony in a labor market, thus reducing wages and output.

To analyze the relationship between labor market concentration (HHI) and posted wages (Azar, Marinescu, and Steinbaum 2017), we use data from CareerBuilder.com, the largest online job board in the United States, matching millions of workers and firms. The occupations we cover include the most frequent occupations among CareerBuilder.com vacancies, plus the top occupations in manufacturing and construction. Compared to the BurningGlass data we used to calculate concentration for all occupations, the CareerBuilder data has the advantage of including better information on wages as well as information on the number of job applicants, which allows us to better tease out the relationship between wages and concentration.

We show that average posted wages are strongly and negatively correlated with labor market concentration as measured by HHI. However, this correlation alone cannot be counted as strong evidence that higher concentration depresses wages in a causal sense, as wages in depressed labor markets also tend to be lower.

Instead of simply comparing different labor markets, we look at how changes in concentration within a given market over time affect wages. The data indicate that when labor market concentration increases, posted wages decrease. Furthermore, to account for economic conditions in each specific market, we must control for the number of job postings divided by the number of job applications, also called "labor market tightness" in economic jargon. Labor market tightness is a key determinant of wages because it measures the balance of supply and demand for labor in a market, and hence determines the bargaining power of workers and employers. Even after controlling for tightness, the impact of labor market concentration on wages remains negative and statistically significant. All of these tests show that the negative effect of concentration on wages is likely to be causal and not just driven by unaccounted for market conditions.

The size of the impact of labor market concentration on posted wages depends on the specific statistical model used, but on average, a 10% increase in concentration is associated with a 0.3% to 1.3% decrease in wages. Furthermore, smaller cities are doubly disadvantaged by having higher levels of labor market concentration and by suffering more from any increase in concentration.

Using vacancy data gives the most accurate measure of competition for workers at a given point in time because it represents companies that are actively looking to hire. However, one can also use employment shares to measure labor market concentration: this includes companies that are not currently hiring, but has the advantage of drawing on data that is available and consistent over longer time periods. Labor market concentration has increased by 5.8% between the late seventies and the late 2000s (Benmelech, Bergman, and Kim 2018). Furthermore, increased concentration was associated with lower wages for workers in manufacturing (Benmelech, Bergman, and Kim 2018), even after controlling for a number of confounding factors such as productivity.

Merger review, monopsony and the consumer welfare standard

Antitrust enforcement has focused on evaluating the effects of a potential decrease in selling side competition, giving little attention to buying side competition, including competition in the labor market. No court has ever condemned a merger because of its anticompetitive effects in labor markets. This may be because it has not been clear how widespread labor market power truly is, and how much it affects wages. It also may be the result of uncertainty about the mechanisms available to courts for litigating antitrust cases grounded in concern over concentrated labor market power.

However, the evidence shows that labor market HHIs can be readily calculated and that increases in concentration can reduce workers' wages. Therefore, some mergers may be unlawful because they injure competition in the labor market by enabling a post-merger firm to suppress wages or salaries anticompetitively (Marinescu and Hovenkamp 2018).

Anticompetitive wage suppression goes hand in hand with the suppression of employment and output below the competitive level. Mergers that increase monopsony power have the indirect effect of increasing prices by suppressing output. Therefore, the consumer welfare standard is compatible with the condemnation of such mergers.

However, in some cases, an increase in monopsony power may not decrease output and increase prices for consumers. For example, if both workers and employers have some bargaining power, an increase in monopsony power may chiefly result in workers' getting a smaller share of the pie, even if the size of the pie stays the same (Hemphill and Rose 2018). Hemphill and Rose make a strong case for antitrust enforcement broadening its focus beyond harm to consumers by examining the anti-competitive effects of mergers on trading partners, including consumers, workers, and other suppliers.

Anti-poaching and non-competition agreements

Under conventional merger analysis, a merger is horizontal if the merging firms are competitors in some relevant product and geographic market. One useful way to think of the extent of horizontal competition in the market for employees is to look at the participants in the relatively large number of "anti-poaching" cases. Non-poaching agreements are simply collusion by another name. They occur when employers agree with each other not to hire one another's workers. The fact that two companies have entered into a non-poaching agreement is alone sufficient to suggest that the employees subject to that agreement constitute a relevant market and that a merger between the firms would be anticompetitive.

To illustrate the difference between collusive groups that involve products and those that involve labor, consider eBay, Inc., and Intuit, Inc. A federal district court approved an antitrust settlement in a state's federal antitrust challenge to a labor "non-poaching" agreement between these firms. Intuit's principal products are TurboTax, a popular income tax preparation program, and Quickbooks, a popular business program for bookkeeping and accounting. By contrast, eBay is a popular online auction site, which is not in the business of producing and selling software. Looking at the product side, a merger between eBay and Intuit would very likely be quickly approved. The firms appear not to be substantial competitors in any market in which they sell products or services. Nevertheless, the two firms found it profitable to agree with one another not to poach each other's "specialized computer engineers and scientists."

The fact that the two firms found it profitable to enter into this agreement is a strong indicator that (1) the firms were competitors in this particular portion of the labor market and (2) that between the two of them they had enough market power to make the agreement profitable. As a result, a merger between eBay and Intuit should invite very close scrutiny in this particular section of the labor market, as should similar cases (Marinescu and Hovenkamp 2018).

While no-poaching agreements are between employers, a noncompetition agreement is between an employer and an employee and restricts that employee's ability to work for a different employer in the

event that the employee quits his or her job. The historical justification for employee noncompete agreements is that they limit various forms of free riding. In particular, employees might receive costly on-the-job training or knowhow that they could then port uncompensated to a different employer. Alternatively, an employee might learn trade secrets, including such things as customers lists, that could be shared with a new employer to the older employer's detriment.

However, employee noncompetition agreements can be used in cases where they do not appear to limit employee free riding but rather may serve to increase employer's bargaining power. For example, prior to a 2017 settlement, Jimmy John's, a fast food franchisor that produces mainly sandwiches, required all of its employees to sign noncompete agreements, despite the fact that most low-wage employees knew of no trade secrets that they could have shared with a competitor. A White House Report issued in 2016 concludes that noncompetes, particularly among lower salary workers, can reduce worker welfare "and hamper the efficiency of the economy as a whole by depressing wages, limiting mobility, and inhibiting innovation."   Recently several states have enacted or considered legislation to limit the range of noncompete agreements or make them unenforceable.

Employee noncompete agreements increase labor market concentration beyond what is captured by the HHI applied to vacancies. Indeed, employees bound by a non-compete cannot apply for some of the job vacancies, and therefore the market is de facto more concentrated for these employees. Therefore, noncompetition agreements are an exacerbating factor in reducing competition in the labor market that calls for closer scrutiny.   These noncompetition agreements should thus be added to other factors mentioned in the Merger Guidelines as affecting the significance of a given concentration level.

Conclusion

In this Issue Brief, we presented evidence for monopsony in the US labor market, showing that labor market concentration is high, and increasing concentration is associated with lower wages. We discussed the market definition for the labor market and argued that HHIs based on US vacancy data can be used to make a prima facie case against a horizontal merger, while relying purely on the existing Horizontal Merger Guidelines. We explained how non-poaching agreements and non-competition agreements are factors that further limit competition in the labor market and should be taken into account in merger reviews. Non-poaching agreements are already illegal and enforcement against them should continue and strengthen. Non-competition agreements should be closely regulated. Finally, we noted that merger policy does not need to change fundamentally in order to review mergers that threaten to increase labor market concentration and allow for anticompetitive wage suppression.

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