

## Reflections on Dwindling Worker Bargaining Power and Monetary Policy

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August 24, 2018 Luncheon Address at the Jackson Hole Economic Symposium

Thank you President George for your kind introduction. I commend the Kansas City Federal Reserve Bank for exploring the topic of changing market structures and monetary policy. Many of the product market developments discussed at this year's symposium have important implications for wages, employment, and wage setting. I will focus my remarks on changes in labor market competition and worker bargaining power in the U.S., and their implications for Central Bankers. My theme is that declining competition and worker bargaining power can help explain the puzzle *du jour* of relatively weak wage growth despite historically low unemployment in the U.S.

Although economists' go-to model of the labor market is often one with perfect competition -- where bargaining power is irrelevant because supply and demand determine the wage, and there is nothing firms can do about it -- in many applications I think it is more appropriate to model the labor market as imperfectly competitive, subject to monopsony-like effects, collusive behavior by firms, search frictions, and surpluses that are bargained over. As a result of these labor market features, firms should be viewed as wage-setters or wage-negotiators, rather than wage-takers.\* This perspective can explain many well-documented phenomenon in the labor market, such as the high variability in pay for workers with identical skills in different industries or firms, the lack of evidence that minimum wage increases reduce employment, and the reluctance of firms to raise wages when vacancies are hard to fill.

I have noticed that many economists are skeptical of the notion that markets are manipulable, that firms or traders have some sway over prices or wages. When I worked at the U.S. Treasury Department in 2009, some of the best finance economists in the world thought it inconceivable that foreign exchange markets or LIBOR could be manipulated. After all, these are the largest and most liquid markets in the world. Only later did we learn that several traders have been convicted of colluding on exchange rates, and that LIBOR was totally rigged.

One economist who thought that labor markets are imperfect and subject to manipulation, however, was Adam Smith. In *The Wealth of Nations* he wrote that employers "are always and everywhere in a sort of tacit, but constant and uniform combination, not to raise the wages of labour above their actual rate. To violate this combination is everywhere a most unpopular action, and a sort of reproach to a master among his neighbors and equals." And he ridiculed naysayers who doubted that employers colluded "as ignorant of the world as of the subject." In full conspiracy mode, he added that, "We seldom, indeed, hear of this combination, because it is the usual, and one may say, the natural state of things, which nobody ever hears of."

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\* Notice that I don't call these features "imperfections". They are the way the labor market works. The assumption of perfect competition is the deviation from the norm of "imperfection" as far as the labor market is concerned.

Broadly speaking, there are two varieties of economic models that give employers some discretion over wage setting: 1) the first, pioneered by Joan Robinson, is a static monopsony model where a single employer faces the upward sloping market labor supply curve. This could easily be extended to oligopsony, where a small number of employers dominate a market and face upward sloping labor supply curves, or to a Smith-like situation where employers collude to suppress pay below the competitive rate; 2) the second class of models, pioneered by Ken Burdett, Dale Mortensen, Chris Pissarides, and Peter Diamond, and extended by Alan Manning (2003), rests on search frictions. It takes time and effort for workers to search for job openings and for firms to search for workers. As a consequence, if a firm pays a little less than the “going wage”, it would not lose all of its workers or find it impossible to hire new ones. In fact, there is no single “going wage” in these models, but a range of plausible offers that firms could make, or bargains that firms and workers can strike.<sup>1</sup>

As a practical matter, both models are equivalent to assuming that the labor supply curve to a firm is upward sloping, instead of infinitely elastic. Firms operate with costly vacancies in these models, yet resist raising wages because pay would need to be increased for all workers, not just the incremental worker hired. And if employers collude to hold wages to a fixed, below-market rate, or if monopsony power increases over time, then wages could remain stubbornly resistant to upward pressure from increased labor demand in a booming economy.

With this framework as background, I want to make six observations about the labor market that are relevant to the current conundrum of weak wage growth despite low unemployment, and then turn to some reflections on the implications of these observations for monetary policy.

## **Six Observations on Labor Markets**

*1. A high-pressure labor market tends to boost wages and opportunities for low-wage workers.* This was convincingly demonstrated by Arthur Okun in a 1973 Brookings paper, and confirmed by experience in subsequent recoveries, including the current one.<sup>2</sup> In a 1999 Brookings paper follow-up to Okun’s work, Larry Katz and I similarly found that the Wage Phillips Curve relationship is steeper at the lower deciles. In other words, wage growth is more responsive to unemployment for less skilled and lower paid workers. Given the tremendous rise in earnings inequality and deterioration in opportunities for workers in the bottom half of the income distribution, the benefits of a high pressure economy cannot be understated. Katz and I also found that the Wage Phillips Curve moves around over time. For a worker paid the median wage, the unemployment rate threshold required to generate positive real wage growth for the median worker (which we infelicitously called URZERCG, for unemployment rate associated with zero expected real compensation growth), fell from 6.8 percent in the late 1970s and 1980s to 5.4 percent in the 1990s. It appears to have fallen even further in the 2000s (see Bivens 2014), suggesting a tighter labor market is now required to support real wage growth.

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<sup>1</sup> Flinn (2006) explicitly models bargaining between firms and workers over the value that each unique worker-firm match creates. Even absent search frictions, monopsony power would exist if workers have heterogeneous preferences toward working at various companies, such as because of varying commuting costs.

<sup>2</sup> See Furman (2018) for evidence on the current recovery.

This is a reminder that the wage Phillips Curve is a useful relationship, but it shifts around from time to time. One reason why it may have shifted in recent decades is because of increased employer monopsony power and declining worker bargaining power.

2. *Average wage growth is weaker than one would expect from conventional relationships.*<sup>3</sup> (If Powerpoint were allowed over lunch, I could document this assertion beyond a shadow of a doubt for a variety of wage series and specific specifications, but for now you'll have to trust me.) Although nominal wage growth has been creeping up throughout this recovery, over the past 12 months, nominal wage growth has not kept pace with CPI inflation. Popular explanations that have been put forth to explain low wage growth in this recovery include: 1) low price inflation; 2) low productivity growth; 3) hidden labor market slack; and 4) demographic changes. These factors likely contribute to slow wage growth to varying extents, but I doubt that they fully explain the wage puzzle.

Based on the Wage Phillips Curve that I have been estimating for years – which predicts year  $t$ 's wage growth less year  $t-1$ 's inflation as a function of the unemployment rate – annual wage growth is 1 to 1.5 p.p. below what one would expect today. Demographic shifts perhaps shave 0.2 to 0.3 p.p. from wage growth.<sup>4</sup> Slower productivity growth could explain as much as an additional percentage point of the wage growth puzzle, but less in the last year since productivity growth has picked up yet real wage growth has declined. Moreover, one could argue that productivity growth is endogenously determined as a function of wages. And the role of unmeasured slack is probably minimal because the quit rate (a measure of worker confidence) is back to where it was at the previous business cycle peak, and the prime age employment-to-population rate and labor force participation rate are basically on their long run trend.<sup>5</sup>

3. *There is growing evidence supporting an important role of monopsony power in the job market stemming from both employer concentration and dynamic labor market considerations.* First consider employer concentration. On the one hand, Benmelech, Bergman and Kim (2018) find that the Herfindahl index of establishment-level *employment* at the county-level for firms classified by four-digit SIC manufacturing industries grew steadily from 1977 to 2009. They further find that wages are lower in more highly concentrated labor markets, and the connection between wages and employer concentration increased over time. On the other hand, Azar, Marinescu and Steinbaum (2017) find that labor markets -- defined as occupational categories within commuting zones -- with a higher Herfindahl index of *job openings* (meaning more employer concentration in terms of hiring) have lower wages. Both studies find surprisingly high degrees of employer concentration, and this is especially for job openings in less populated areas.

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<sup>3</sup> Chairman Powell (2018) has likewise stated, “there is still a bit of a puzzle in that we're hearing about labor shortages now all over the country in many, many different occupations in different geographies. And one would have expected, I would have expected, that wages would move up a little bit more.”

<sup>4</sup> I derived this range by estimating a standard cross sectional age-earnings profile, and shifting the age distribution of the workforce back to 1979. Younger workers tend to receive greater annual wage increases, and they represent a shrinking share of the workforce.

<sup>5</sup> On slack, see Furman (2018), Krugman (2018), and Krueger (2017).

Studies of particular professions also find evidence of monopsony power. Perhaps the most studied occupation has been nursing. Sullivan (1989) and Staiger, Spetz and Phibbs (2010), for example, find substantial evidence of monopsony power on the part of hospitals.

Other recent studies have provided evidence of dynamic monopsony power. Using the Longitudinal Employer Household Dynamics (LEHD) data set, for example, Douglas Webber (2015) estimates that the average labor supply elasticity to a firm is 1.08, although there is considerable variability across firms. This is a lot less than infinity! And he finds that firms with more inelastic labor supply pay lower wages, suggesting that they exploit their monopsony power.<sup>6</sup>

4. *Monopsony power has probably always existed in labor markets, but the forces that traditionally counterbalanced monopsony power and boosted worker bargaining power have eroded in recent decades.* Union membership, for example, has fallen from a quarter of the U.S. workforce in 1980 to only 10.7 percent in 2017. Collective bargaining, which is much less common in the U.S. today, was an effective counterweight to employer monopsony power. And the effect of this trend on wages is even broader because of what is known as the “union threat effect”; unlike in the past, few employers today preemptively raise pay to head off a possible union drive.

Another counterbalance to monopsony power that is weaker today is the minimum wage. The U.S. federal minimum wage is currently \$7.25 an hour, and has not been raised since July 2009. The real value of the minimum wage is down about 20 percent since 1979. In that period, by contrast, both the U.K. and Germany enacted national minimum wages that currently stand at about \$10 an hour at current exchange rates. (For the U.K., I use the rate for those age 25 and older.)

The decline in union representation and the erosion of the real value of the minimum wage have contributed to the significant rise in inequality and polarization of incomes in the U.S. since the early 1980s. These shifts have also likely contributed to the downward trend in labor’s share of national income in the U.S. since the 1990s, after decades of stability.

One might argue that these changes have made the labor market more competitive, but the fact that employment-to-population rate had trended down, and that regional shocks are now more persistent for wages, employment and labor force, suggests a less competitive labor market with weaker worker bargaining power.<sup>7</sup>

Going forward, worker bargaining power likely will be further eroded by two recent Supreme Court rulings. The *Janus* decision, which bars public sector unions from collecting agency fees from nonmembers, will encourage free riding and further weaken labor unions. And the *Epic* decision allows employers to require employees to pursue disputes in mandatory arbitration instead of filing lawsuits in court and to waive the right to class-action law suits.

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<sup>6</sup> Also see Dube, Giuliano and Leonard (2015).

<sup>7</sup> On the persistence of regional shocks, see Dao, Furceri, and Loungani (2017) and Charles, Hurst, and Schwartz (2018).

5. *There has been a proliferation of practices that enhance monopsony power and weaken worker bargaining power.* Let me highlight five such practices.

First, the reliance on temporary help agencies, staffing firms, and outsourcing has increased in the U.S. labor market. One implication of this practice is that firms can wage discriminate, which facilitates the exercise of monopsony power. If a hospital has persistent vacancies for nursing positions, for example, it can reach out to a staffing firm that pays its nurses a higher salary to supply additional nurses without having to raise its wage scale for incumbent nurses.

Second, a quarter of American workers are bound by a non-compete restriction on their current job, or from a previous job. These restrictions, which may be justified in a limited number of cases to protect returns on specific training or trade secrets, have run amuck. Even Jimmy John's employed the practice for submarine sandwich makers, until they were forced to drop it. Just over one in five workers who earn less than the median wage are bound by a non-compete restriction on their current or a previous job.<sup>8</sup> Non-compete clauses narrow workers options, and therefore reduce mobility and bargaining power.

Third, a growing fraction of the workforce is covered by occupational licensing restrictions, typically imposed by state and local authorities. Morris Kleiner and I, for example, find that over a quarter of workers are required to obtain a license to perform their job. These restrictions may be justified in some positions that require extraordinary skill or put the public at risk, but they restrict job opportunities and mobility. They restrict mobility because many states do not recognize other states' licenses, so a teacher or a nurse, for example, who is seeking to move to another location would often have to go through the burdensome and costly process of requalifying for a license in another jurisdiction.

Fourth, Orley Ashenfelter and I find that 58 percent of franchise companies have a no-poaching clause that prevents or restricts the ability of one franchisee in a chain from hiring workers employed by other franchisees. This is up from 36 percent in 1996. The practice is particularly common in fast food chains. We find that 80 percent of the 40 largest Quick Service Restaurant franchise chains have a no-poaching requirement. Since the human capital would remain within the chain, there is little business justification for such a clause other than to restrict worker mobility and opportunities.

Fifth, although no-poaching agreements among franchisees within the same chain are an unsettled area of the law, agreements among independent firms to refrain from hiring each other's workers or to set pay or pay increases at a common level are illegal. Nonetheless, as Adam Smith expected, such collusion takes place. There are many colorful recent examples. After Google's co-founder, Sergey Brin, tried to hire a programmer from Apple, for example, Steve Jobs wrote an email saying, "If you hire a single one of these people that means war." A class-action civil suit alleging collusion brought on behalf of more than 64,000 software

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<sup>8</sup> See Krueger and Posner (2017) and Starr, Prescott and Bishara (2017).

engineers and other employees of Apple, Google, Adobe, Intel, Intuit, Pixar, and Lucasfilm was settled for half a billion dollars in 2015.

Closer to home, the chairs of top U.S. economics departments used to regularly confer at the Annual Meeting of the American Economic Association to jointly agree on pay and course loads for assistant professors until the Justice Department raised concerns about the legality of the practice.

And several suits alleging collusion in hiring or wage setting have been successfully brought on behalf of nurses against hospitals. Eight major hospitals in Detroit, for example, recently reached a \$90 million settlement in a suit alleging that the hospitals colluded to reduce nurses pay. Similar cases are in various stages in Albany, Memphis, San Antonio, and Arizona.

Earlier this week, I spoke with Jeffrey Suhre, a Registered Nurse and lead plaintiff in the Detroit Nurses case, to understand the perspective of an employee who worked at a firm that colluded with other employers to suppress pay. He started working in the Emergency Room at St. John Providence Hospital in Warren, MI in 1991, and later moved to the Critical Care Unit, tending to patients with open heart surgery and other serious conditions. After 12 or 13 years, Mr. Suhre said he got an inkling that the Human Resource Department at his hospital was coordinating with other hospitals in setting nurses' pay as a result of some emails that he viewed. He said the nurses were nonunionized, and the hospitals in the area wanted to prevent nurses from jumping from one hospital to another for better pay and working conditions. The executives would often discuss these issues and exchange pay rates at conferences. One indication that the hospitals exploited their monopsony position that he mentioned is that to fill vacancies nurses were often hired from contract agencies at \$38 to \$40 an hour (plus administrative fees), while staff nurse pay at his hospital was only \$30-\$31 an hour. A class action suit was filed on behalf of Mr. Suhre and thousands of other nurses in 2006. He gave a deposition in 2007. He said the hospital "made life hell" for him after the suit was filed -- for example, by increasing his patient load to a level he considered a risk for patients -- so he quit in January 2008. Other hospitals were reluctant to hire him. He now works in home health care. The antitrust suit was settled in 2010, but Mr. Suhre did not receive any money until 2012, six years after filing suit. Under the Sherman Antitrust Act damages were limited to four years of employment. The nurses received approximately \$4,000, on average, in damages. He suspects that the collusive practices still continue, but more covertly.

It is also worth emphasizing that collusion is easier when there are fewer companies competing in the labor market. The increase in employer concentration that the U.S. has experienced thus facilitates collusion.

And collusion doesn't have to be explicit; it could take place because a certain wage, such as the minimum wage, becomes a focal point from which employers are reluctant to deviate. Natalya Shelkova (2014) provides evidence that the large and persistent spike in the wage distribution at the minimum wage is consistent with focal point collusion.

More generally, tacit collusion could come about because employers and workers were shocked by the depth of the Great Recession, making workers fearful of bargaining for higher wages and

employers disinclined to offer higher wages despite worker shortages, because they grew accustomed to having a queue of well qualified applicants during the recession and for a long period afterwards.

Pressure for collusion to break down increases when the job market becomes really tight, which, I suspect, is part of the reason for the existence of the Wage Phillips Curve relationship. But in recent years this tendency has been offset by countervailing forces that have strengthened monopsony power and weakened worker bargaining power. This could explain the simultaneous occurrence of record numbers of job openings and only modest wage increases.

When it comes to employer complaints about labor shortages, Minnesota Fed President Neil Kashkari recently said, "If you are not raising wages, then it just sounds like whining." But there is another possibility. If you are not raising wages and can't find enough workers, you may be colluding. Or resorting to anticompetitive practices.

*6. My final observation is that the occurrence of greater monopsony power would cause lower wages and worker shortages at firms, but not necessarily lower aggregate employment very much.* With lower wages and a small, but positive, labor supply elasticity, there's only a small negative effect on employment. Most estimates in the voluminous literature indicate that aggregate labor supply is fairly inelastic, especially for men (see Killingsworth, 1983 and Blundell and MaCurdy, 1999). The aggregate labor supply elasticity is probably on the order of only 0.1 or 0.2.

As another indication that aggregate labor supply is fairly inelastic, consider that from 2014:H1 to 2018:H1, the real median weekly earnings of fully time employees increased by 5.4 percent and the economy moved to full employment. Yet the civilian labor force participation rate was essentially unchanged over this period, standing at 62.9 percent in 2014:H1 and 62.8 percent in 2018:H1. Of course, aggregate labor force is being dragged down by an aging workforce, but the increase in participation by prime age workers has not been sufficient to outweigh the downward effects of an aging workforce. (From 2014:H1 to 2018:H2, the participation rate of prime age men and women increased from 81.0 percent to 81.6 percent.)

To be clear, I am not arguing that aggregate labor supply is perfectly inelastic. There is some responsiveness to wages and working conditions, and this is especially the case for the most disadvantaged workers in society.

On balance, however, I would argue that the main effects of the increase in monopsony power and decline in worker bargaining power over the last few decades have been to shrink the slice of the pie going to workers and increase the slice going to employers, not to reduce the size of the pie overall.

This is clearly an important issue, and goes to the heart of the Fed's maximum sustainable employment mandate, so it is a topic that deserves much greater research in the future.

## Implications for Monetary Policy

Lastly, I'll turn to the difficult part of my lecture. What does this mean for monetary policy? I readily acknowledge a tremendous amount of uncertainty, so my remarks are mainly intended to start a conversation. In addition, the ongoing structural shift in the labor market toward weaker worker bargaining power is only one factor among *many* that Central Bankers should consider in setting monetary policy.

And it almost goes without saying that the best tool to address anticompetitive practices in the labor market is antitrust enforcement. On this front, there is reason for a small measure of optimism. Toward the end of Obama administration, the Department of Justice and Federal Trade Commission issued new guidelines for human resources professionals that clearly stated that, "Agreements among employers not to recruit certain employees or not to compete in terms of compensation are illegal." The Justice Department has said that it will enforce the new guidelines, and the head of the Department's Antitrust Division, Makan Delrahim, recently said, "I've been shocked about how many of these [collusive agreements] there are, but they're real."<sup>9</sup> He has already announced one settlement in a no-poaching case involving two of the largest rail equipment manufacturers.

In addition, in the last month, Washington State's Attorney General Bob Ferguson reached landmark agreements with 15 fast food chains, including McDonald's, Auntie Anne's and Cinnabon, to drop their no-poaching restrictions.

Antitrust policy can only go so far in reversing the erosion of worker bargaining power and offsetting the inefficient aspects of monopsony, however. Is there a role for monetary policy, particularly during a long transition period when monopsony power is rising and worker bargaining power is eroding?

Fifty years ago, in his Presidential Address to the AEA, Milton Friedman (1968) wrote what was surely the longest and most influential sentence in the history of theory undergirding monetary policy:

The "natural rate of unemployment", in other words, is the level that would be ground out by the Walrasian system of general equilibrium equations, provided there is embedded in them the actual structural characteristics of the labor and commodity markets, including market imperfections, stochastic variability in demands and supplies, the cost of gathering information about job vacancies and labor availabilities, the costs of mobility and so on.

Somewhere between Adam Smith and Milton Friedman economists' lexicon evolved from "the natural state of things" to "market imperfections". Nonetheless, an implication of Friedman's view is that the *natural rate of employment* falls if monopsony power rises.

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<sup>9</sup> Comment by Assistant Attorney General Makan Delrahim at a conference hosted by the Antitrust Research Foundation at the Antonin Scalia Law School at George Mason University on January 19, 2018.



How should Central Banks respond? One view is that they should treat this new development similar to a negative productivity shock. In other words, it is too bad that the Walrasian system has shifted against workers, but that's embedded in the system and lowers potential output.

This is a reasonable response under Joan Robinson monopsony or an exogenous rise in search frictions. There is probably little a Central Bank could do to return employment to its previous level in the long run. Moreover, as I have suggested previously, the employment effect is probably small because aggregate labor supply is inelastic.

But if explicit or implicit collusion among employers is an important source of growing monopsony power, allowing the labor market to run hotter than otherwise could possibly cause collusion to break down, because the benefit to an individual firm from raising pay while others are colluding at a fixed wage is greater when demand is greater. If the collusion does wither, wages and employment would rise.

Another consideration concerns the effect of declining worker bargaining power on wages and prices. If weaker nominal wage growth is being passed through in the form of lower prices, then the price stability mandate would call for a more accommodative monetary policy in response to declining worker bargaining power.

The structural labor market shifts that I have emphasized may also have implications for the extent of downward nominal wage rigidity, which is also an important consideration for monetary policy over the business cycle. This is a worthy topic for future research and discussion, but less relevant near the peak of a business cycle.

To conclude, I think it is important for Central Bankers to be aware of the impact of the growing use of monopsony power and non-competitive labor market practices on wages, employment and output. What this means for monetary policy, however, is less clear. My tentative advice is that the optimal Central Bank response depends on: 1) the extent to which weaker wage growth is passed through to prices, or allocated to profits; 2) the elasticity of aggregate labor supply; and 3) the ability of a booming economy to counteract collusive behavior and other anti-competitive labor market forces. These considerations should be part of the conversation along with Central Banks' other weighty concerns, such as the effect of monetary policy on financial stability, the effect of tariffs and trade wars on inflation and output, and the effects of demographic shifts on potential output.

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