How Labor Market Institutions Matter for Worker Compensation

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Abstract

Economists increasingly understand labor markets to deviate substantially from the competitive ideal, with considerable scope for policies and institutions to affect worker outcomes. Over the last 45 years, the dramatic increase in compensation of high earners and weak or stagnant growth for low and middle earners have shone a spotlight on the ways in which labor market institutions sometimes work to the detriment of lower-paid workers. In this article, we survey several institutions—minimum wages, private-sector unions, non-compete agreements, and occupational licensing—considering how their evolution affects worker outcomes in a labor market characterized by economic rents. We describe a modern labor market that to a substantial degree features alternative work arrangements and labor market concentration, both of which have implications for optimal public policies. Those policies, along with the surveyed institutions, are the focus of our final section that discusses key options for improving worker outcomes.

Introduction

For most Americans, the labor market is the primary or only substantial source of income, and for working-age Americans it is the primary source of health insurance. Understanding the determinants of worker compensation is therefore crucial for improving the well-being of Americans. Even as labor economists' understanding of the labor market has grown with time, the labor market itself has been changing. Core labor market institutions have changed radically in ways that correlate with significant changes in worker outcomes, especially increased wage inequality, and with changes in employer practices.

In this chapter, we present basic facts about wage and non-wage compensation, describe important labor market context like alternative work arrangements and limited labor market competition, and briefly discuss wage setting. We then discuss some key modern labor market institutions that might reflect or contribute to lower worker bargaining power: the declining federal

real minimum wage, the historically low rate of private section union membership, non-compete agreements, and the rise in occupational licensing. We conclude with a discussion of ways in which public policies could be changed to improve worker outcomes.

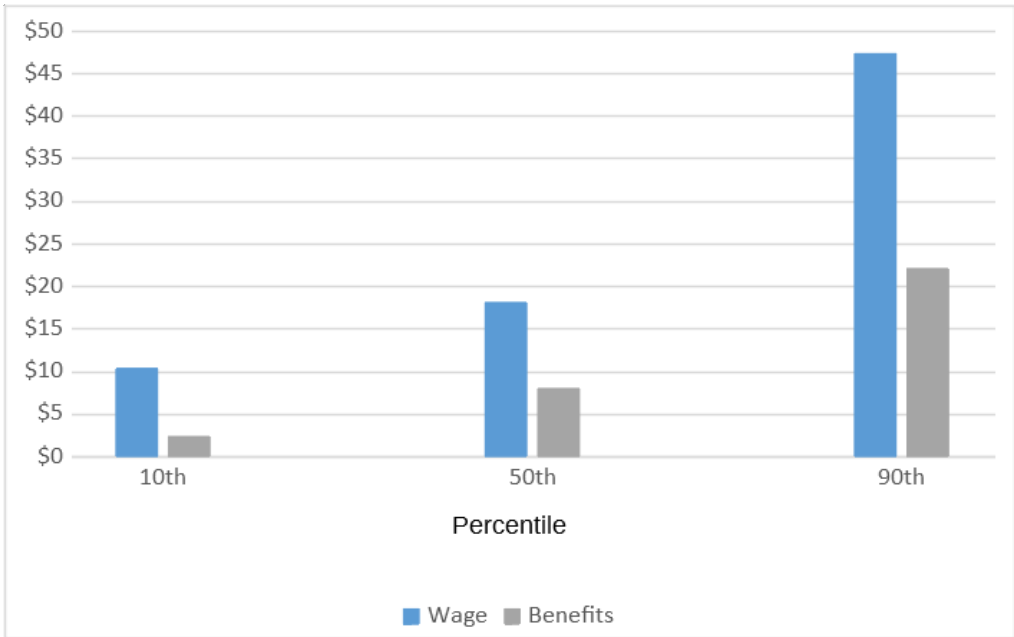
The Distribution of Wage and Non-wage Benefits

For families in the lowest, second, and third quartiles of income (i.e., the bottom 75 percent of all families), on average between 70.2 and 79.4 percent of total income was from wages in 2016 (Board of Governors of the Federal Reserve System 2017). The poorest families receive means-tested government transfers from programs like the Supplemental Nutrition Assistance Program (formerly the Food Stamp program), and the wealthiest families receive considerable capital income. But for everyone else, the wages and non-wage benefits constitute all or nearly all of total income.

Figure 1 makes clear that workers have very different experiences. At the bottom (10^{th} percentile) of the distribution, workers earned only $10.32 per hour in the first quarter of 2020. At the top (90^{th} percentile), workers earned $47.29 per hour. Inequality in hourly wages has been rising since 1979, an evolution studied in depth elsewhere in the volume.

Total labor compensation, including non-wage benefits, tends to receive less attention than wages despite its importance for understanding worker welfare. Figure 1 also shows percentiles of these non-wage benefits, expressed in terms of employers' cost of provision.[2] These include health insurance, life insurance, retirement savings contributions, and other components of compensation for which employers incur explicit monetary costs.

Figure 1. Percentiles of Hourly Wages and Hourly Benefits



Source: Employer Costs for Employee Compensation 2020, and authors' calculations.
Note: estimates are for private industry workers in 2020Q1.

Workers with higher wages tend to also receive higher non-wage compensation. From 1987–2007, compensation inequality between high- and middle-wage earners increased slightly faster than did wage inequality, driven by faster growth in leave and retirement benefits for high-wage earners. Rising health insurance costs helped account for increasing compensation inequality between high- and *low*-wage earners (Pierce 2010).

Wages and Economic Surplus

The compensation patterns shown above are the result of a labor market that distributes economic surplus to workers and employers. It is time-consuming and costly for employers and prospective workers to search for one another, which introduces search and matching frictions (Mortensen and Pissarides 1994; Burdett and Mortensen 1998). Workers and firms consequently

have market power that derives from the inability of the counterparty to immediately and costlessly find a replacement, which implies the worker-firm match has an economic surplus to be bargained over.[3] In turn, the distribution of surplus can be shaped by labor market institutions.

For example, private sector unions can help workers to obtain a larger share of match surplus than they would be able to obtain through their individual efforts. Rules governing pay transparency affect the information available to workers, again influencing worker leverage in compensation negotiations (Harris 2018). And non-compete agreements—as well as the laws that provide for their enforcement—directly affect workers' outside options, with meaningful implications for their bargaining power and compensation.

How Labor Market Institutions Affect Workers

In this section we explore some of the long-run trends that have shaped employment relationships, focusing on those that matter for how returns to work and labor market rents are distributed.[4] We examine key labor market patterns and institutions that matter for worker bargaining power, some of which have shifted over time. The direction of causality between changing labor market institutions and market-driven changes in wages, the latter caused by factors such as improved technology and the emergence of global supply chains, is not well understood. Nevertheless, an assessment of contemporary labor market institutions is a prerequisite for formulating public policies that can improve worker outcomes.

Alternative Work Arrangements

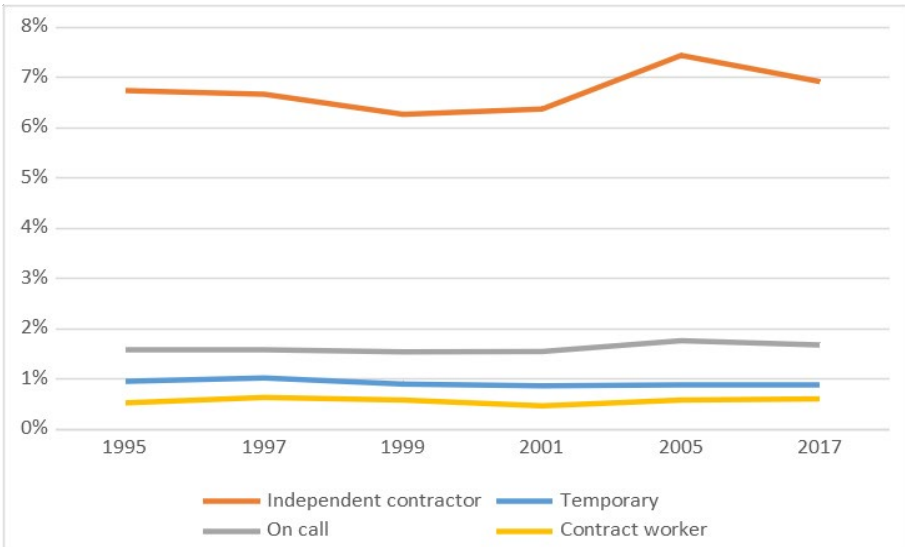
The dominant structure for a worker-firm relationship is traditional employment: a long-term economic connection with a firm whereby workers receive some degree of insurance against labor market volatility and (for lower-wage workers) possibly some benefit from norms

that support within-firm wage equality. But other work arrangements also exist, many of which are more precarious and worse paid on average; on call and temporary agency work are two examples (Weil 2014). Since the Great Recession, an even newer type of worker has emerged: the gig worker, working as an independent contractor through an online platform (Dokko, Mumford, and Schanzenbach 2015).

Labor market outcomes for workers in alternative arrangements tend to be worse than for traditional workers. Full-time workers in alternative arrangements earn between 3.7 percent less (independent contractors) and 41.1 percent (temp workers) less per week than full-time traditional workers, with the exception of workers provided by contract firms, who earn 21.8 percent more (Nunn and O'Donnell 2020). Workers in non-standard arrangements are also at a disadvantage in terms of access to non-wage benefits: they are 10.7–44.5 percentage points less likely to have health insurance coverage through an employer and 8–39 percentage points less likely to be covered by a retirement plan, depending on the employment arrangement (Nunn and O'Donnell 2020).

To the surprise of many, the most recent data from the Bureau of Labor Statistics' Contingent Worker Survey shows no clear upward trend in the numbers of workers in such alternative work arrangements in the period since 1995. Figure 2 shows the fraction of workers over time who reported (as their primary employment activity) alternative arrangements including independent contracting, temporary agency work, on call employment, and work for contract firms. From 1995 to 2017, about 9 to 11 percent of employed workers have reported one of these arrangements.

Figure 2. Percent of Workers in Alternative Arrangements, Selected Years



Source: Bureau of Labor Statistics (1995–2018) as cited in Nunn and O'Donnell (2020).

Note: The sample is restricted to employed persons aged 16 and older. Workers in alternative work arrangements are those designated as such by the Bureau of Labor Statistics: independent contractors, temp agency workers, on-call workers, and workers provided by contract firms.

This stability may be misleading, as it is based on workers' primary job only, missing secondary jobs in alternative arrangements. Furthermore, the stable share of alternative employment may belie changes in the nature of that alternative work: gig work has certainly grown during this period (Katz and Krueger 2019).

These alternative arrangements are part of a larger story of changes in worker sorting. High-paid workers have become increasingly sorted into high-productivity firms (Song et al. 2019). Some research suggests that domestic outsourcing—the use of alternative work arrangements shown in figure 2—leads to substantially reduced wages for affected workers (Goldschmidt and Schmieder 2017; Drenik, Jäger, Plotkin, and Shoefer 2020).

Labor Market Concentration

If an employer is hiring in a concentrated labor market—one with little competition from other employers—the employer is able to change its hiring practices to take advantage of the workers' lack of employment options.[5] Just as a monopolist is able to raise prices and sell a smaller volume, a labor market monopsonist is able to lower wages and hire fewer workers than would be the case in a competitive market.

Recent research has shown that there is substantial labor market concentration in many markets, particularly in smaller occupations in rural places, and has confirmed that such concentration depresses wages. In areas like the Great Plains, Herfindahl-Hirschman Index (HHI) values are often above 5,000 (Azar et al. 2020; Rinz 2018).[6] An increase from the median to the 75th percentile of market concentration lowers wages by 8.7–10 percent (Qui and Sojourner 2019; Rinz 2018). However, while labor market concentration is substantial in many markets, recent research indicates that labor market concentration has not risen for the labor market overall (Hershbein, Macaluso, and Yeh 2018; Qiu and Sojourner 2019; Rinz 2018).[7]

Minimum Wages

The Fair Labor Standards Act of 1938 provides a nationwide wage floor—currently $7.25 per hour—below which it is illegal to pay employees. Congress has periodically raised the nominal value of this wage floor, such that the inflation-adjusted value of the federal minimum wage rises discontinuously and then slowly deteriorates in real terms between legislated increases. Today, its real value lies well below its 1968 level of $10.46 (in February 2020 dollars).

Changes in the real minimum wage have been closely linked to changes in wage inequality, particularly for the deterioration of the real minimum wage during the 1980s (Lee 1999).

Since the Great Recession, the federal real minimum wage has again deteriorated, but many states have raised their minimum wages substantially. This is associated with substantial increases in wages at the bottom of the distribution and a narrowing of the gap with middle wages (Cooper, Gould, and Zipperer 2019; Nunn and Shambaugh 2020).

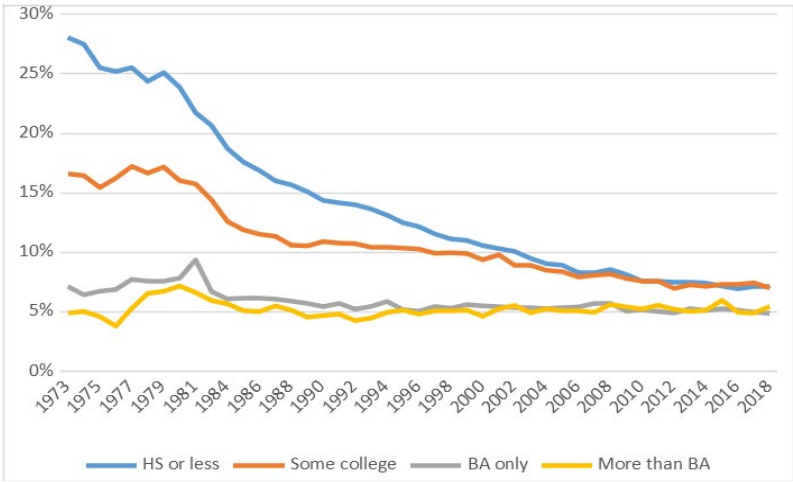
Private-Sector Unions

Perhaps the most important change in the U.S. labor market over the past fifty years has been the decline of private sector union membership. In 1973 24.2 percent of private-sector workers belonged to a union; by 2019 this share had fallen to 6.4 percent (see figure 3).[8] This decline was most dramatic for workers with a high school degree or less, falling from 28.1 percent in 1973 to 7.1 percent in 2018. In 1973 only 7.1 percent of private-sector workers with a four-year degree (but no further education) were union members; this share dropped to 4.9 percent in 2018.

Unions' ability to bargain collectively—and to go on strike if necessary—raises worker bargaining power, allowing workers to receive a larger share of the economic surplus generated by their employment. Most estimates suggest that unions raise the wages of their members by about 15–20 percent (Card 1996; Farber et al. 2018).[9] Since private-sector union members were not among the highest-paid workers, unions tended to lower wage inequality (in addition to raising workers' share of income generally), and consequently, their decline was significant in raising inequality, particularly in the 1980s (Lee and Mas 2012; Card, Lemieux, and Riddell 2004; Fortin, Lemieux, and Lloyd 2019).[10] Unions also improve worker voice and secure both improved working conditions and more generous non-wage benefits (Buchmueller, DiNardo, and

Valletta 2004; Freeman and Kleiner 1990). However, this could theoretically come at the cost of reduced employment, and the empirical literature is in disagreement on this point (Hirsch 2008).

Figure 3. Private-sector Union Density by Educational Attainment, 1973–2018



Source: CPS 1973–1983; CPS 1983–2018; authors' calculations.

Note: union density is defined as the fraction of private-sector workers (with a given level of educational attainment) who belong to a union.

Perhaps less obvious are the ways in which the decline of private-sector union density has opened the door to new employer practices. At the most basic level, employment negotiations have shifted from union-employer to worker-employer. Workers may agree to contract provisions that a union would not, whether because the union possessed better information—about employer finances, pay distribution outside the firm, and legal information, for example—or because the union possessed a superior bargaining position.

Non-compete Agreements

Non-compete contracts and other restrictive covenants are an important example. Non-compete agreements (NCAs) prevent workers from taking (some) alternative employment opportunities, anti-solicitation agreements prevent workers from soliciting former coworkers and/or customers, and mandatory arbitration limits workers' ability to access courts of law in the event of a legal dispute (Treasury 2016; Colvin 2018; Colvin and Shierholz 2019; Brodsky 2019). NCAs are often especially restrictive: they can prohibit an employee from leaving her current employer to start a business or work for another employer; in some states NCAs are enforceable even after firing. It is difficult to imagine that the NCA patterns observed today could have exist in a more unionized environment.

Researchers have found that workers are very poorly informed about the enforceability of NCAs, which varies at the state and occupation level (Prescott and Starr 2020). Moreover, some workers are asked to sign NCAs after or on the first day of employment (47 percent of NCA-signing workers in Marx 2011), which means they are unlikely to have the leverage and legal background to engage in a genuine negotiation over the NCA: indeed, only 10 percent of workers report such bargaining (Starr et al. 2020).

While it is not known how prevalent non-compete agreements (NCAs) were in the past, researchers have recently gathered detailed, population-representative information about their use. These worker surveys suggest that between 16 and 18 percent of workers are currently bound by an NCA (Starr et al. 2020; Krueger and Posner 2018). This fraction is lower but still substantial for those with less education—13 percent for this with a high school degree—and for those with less income, as shown in figure 4.

Figure 4. Percent of Workers with a Non-compete, by Income Group

Source: Starr et al. (2020).

After adjusting for differences in worker characteristics, wages are lower in states that more stringently enforce NCAs (Treasury 2016). But more compelling evidence of NCA wage effects comes from a 2008 legislative reform that rendered new NCAs unenforceable for hourly paid workers in Oregon. This change raised wages for affected workers relative to unaffected workers (Lipsitz and Starr 2020).

Occupational Licensing

Along with the decline of private sector unions, the dramatic rise in occupational licensing constitutes one of the most important developments in U.S. labor market institutions over the last fifty years.[11] Whereas in the 1950s only about 5 percent of employed workers were required

to hold occupational licenses, in 2019 this had more than quadrupled to 22 percent (Kleiner and Krueger 2013; BLS 2020).

Though it did rise at the same time union density declined, occupational licensing has very different functions and labor market implications. A principal function of private sector unions is to reallocate economic surplus from capital to labor, as discussed above. By contrast, an occupational licensing requirement reallocates surplus from consumers, licensure applicants, and unlicensed workers to licensed workers and training providers (Nunn 2018; Zapletal 2019; Kleiner and Soltas 2019).

A body of evidence suggests that licensing requirements lower employment in the licensed sector (Blair and Chung 2019) and raises wages for licensed workers (Kleiner and Krueger 2013; Gittleman, Klee, and Kleiner 2018), as predicted by economic theory. The details of how state-based licensure is implemented matter for a range of economic outcomes, including interstate migration (Johnson and Kleiner 2020), consumer access to services (see for example Adams and Markowitz 2018), and non-wage labor market outcomes (Nunn 2018). For example, Johnson and Kleiner (2020) find that licensed workers are less likely to move across state lines when they are subject to variable licensing requirements, as opposed to a harmonized licensing regime (in the form of a national licensing exam).

What Policy Strategies Would Make Labor Markets More Worker-Friendly?

Previous sections emphasized the ways in which today's labor market institutions fail to support worker bargaining power and compensation. Restoring some institutions or curbing others could therefore be part of an effort to improve compensation, especially for low- and middle-wage workers. Policy should consider possible efficiency costs associated with gains in equity,

as well as the possibility that the nature of any efficiency-equity trade-off may change with the changing economy.[12] For those policies that have efficiency costs, the aim is to seek an appropriate balance.

We categorize potential policy responses as follows: first, worker bargaining power could be enhanced with unions that cover more workers and have more ability to influence compensation. Second, employer practices could be regulated directly when they are judged to put workers at an undue disadvantage. Third, worker bargaining power and compensation growth could be increased by weakening those institutions impeding competitive and dynamic labor markets without any equity gain. The policies described below are some of the options available in each category.

Bolstering Unions

Since union decline is an important cause of stagnant or falling wages for many workers, bolstering unionization seems a logical antidote. It is unclear whether there is an efficiency-equity trade-off associated with unionization that policymakers should consider. Unions are known to reduce firm profits, but whether this implies a reduction in efficiency depends upon whether the firms in question are in a competitive market or earning rents. A decline in union membership in a large number of high-income countries and the decline in the U.S. union wage premium may indicate that firm rents have declined or disappeared (perhaps driven by increased international trade and other competition-enhancing factors) (Hirsch 2008). If this is the case, it may be difficult to strengthen unions.

However, some recent research suggests that firm rents have actually increased and competition has declined (Gutierrez and Philippon 2017; de Loecker, Eeckhout, and Unger 2020;

Basu 2019 believes the evidence is not clear-cut). If firm rents are indeed substantial, certain reforms could be effective in strengthening unions. Since U.S. penalties for illegal actions such as firing or threatening union organizers are typically insufficient to deter employer misbehavior (Kleiner and Weil 2012), an obvious first response would to strengthen enforcement and increase penalties for noncompliance.

One approach to further reforms would be to learn from Canada, whose union membership has declined relatively little despite a collective bargaining system fundamentally similar to that of the United States. Frequent changes to industrial relations laws at the provincial level have allowed scholars to identify laws that bolster unionization by impeding employer resistance. One is a requirement for employer and union to submit to binding arbitration if a first contract is not agreed within a certain time after union certification. Although the arbitration is little used, the law increases the likelihood of a contract being signed (even compared to optional mediation) (Riddell 2013) and reduces strikes (Johnson 2010).

Increased penalties for employer misbehavior and binding first-contract arbitration were two of three main reforms proposed in the Employee Free Choice Act, which has repeatedly been introduced to Congress but never passed. The third proposed reform of the act would replace union certification elections with the so-called card check system, which would allow certification if a majority of workers simply sign a card of support. Canadian evidence confirms this would boost unionization (Riddell 2004), but most workers in Canada are now subject to a certification regime that assuages concerns about card check while nevertheless boosting certification compared to the U.S. status quo (Campolieti, Riddell, and Slinn 2007): an election is required for certification, but it must be held within one or two weeks of a legally acceptable worker petition for a union. Such “quick votes” make employer resistance less effective.

A more ambitious reform approach would look to countries with a fundamentally different industrial relations system. Germany's system of industry-level bargaining over wages, extension of contracts to non-union workers and firms, and works councils at the establishment level is a natural choice and appears to be the model for a detailed reform proposal by Harvard Law School's Labor and Worklife Program (Block and Sachs 2019). Industry-level bargaining should defuse employer opposition to organization, because unionization would not disadvantage any particular employer compared to his or her rivals, while works councils might possibly boost efficiency through worker voice.[13] Nevertheless, such features have sufficed neither to prevent declining unionization in Germany nor to keep wages rising, and the recent flexible contracts with "opening clauses" for renegotiation in hard times are variously seen as a feature keeping unemployment at bay or a regrettable sign of union weakness.

Labor Market Regulation

Another way to address ways in which low- and middle-paid workers are disadvantaged is through direct labor market regulation. The most widely discussed such policy instrument is the minimum wage, which as described above has declined considerably in inflation-adjusted terms since the late 1960s. In the presence of monopsony, a suitable minimum wage corrects a market failure. In recent years, many states and cities have raised their minimum wages to be higher than the federal minimum wage. It is appropriate for minimum wages to be set regionally rather than nationally: a minimum of $12 per hour in Massachusetts affects a much smaller fraction of the state workforce than would a minimum of $12 in Mississippi. But a marginal increase in the federal minimum wage would likely boost wages for the lowest-paid workers without substantial disemployment (Cengiz et al. 2019).

Similar reforms include making practices like just-in-time scheduling subject to bonus pay requirements, thus increasing pay for affected workers and addressing unstable schedules (Ansel and Boushey 2017). To ensure that employers cannot illegitimately evade all of the labor protections just discussed, an additional component could be added to the "ABC" test for whether a worker is an independent contractor—namely, whether the worker assumes the risk for profits or losses (Report of the Expert Panel on Modern Federal Labour Standards 2019) —and enforcement of the test enhanced.

Dynamic Labor Markets

A third set of policies could boost worker wages by making markets more dynamic and hence more efficient, without any cost in equity. Dynamism refers to fluid movement of workers across geographic areas, employers, and occupations to improve worker-firm matches, and an abundance of young firms that can compete on a level playing field with long-established incumbents, providing the competition that boosts productivity and worker compensation (Shambaugh et al. 2018). Migration and job-changing do have both psychic and pecuniary costs for workers and families, but for most workers these should be outweighed by increased wages. However, there is evidence that dynamism has been declining in the U.S. economy in recent decades (Molloy et al. 2016; Davis and Haltiwanger 2014).

Enhancing labor market dynamism requires that unnecessary institutional impediments be removed and that anticompetitive market practices be discouraged. One important example is the existence and enforcement of non-compete agreements. As described above, NCAs appear to reduce wages, in part by diminishing worker mobility. Limiting NCAs and their enforcement,

particularly when they bind low-wage workers in ways that appear abusive, would enhance dynamism and improve worker outcomes (Treasury 2016; Marx 2018; Starr 2019). Similarly, policymakers should reform occupational licensing rules so that they protect public safety with a minimum of economic distortion. One instance of this would be making it possible for licensed workers to move across state lines without burdensome relicensure requirements (Treasury, CEA, and DOL 2015).

Achieving robust labor market competition also requires careful scrutiny of labor markets that are dominated by a small number of employers (Krueger and Posner 2018). Just as merger effects on product market competition are a vital consideration for antitrust policy, merger effects on labor market competition must be as well. In addition, existing norms and practices can create a playing field that is tilted against workers, as in the case of opaque compensation. Encouraging employers to divulge information about pay distributions, and making it fully legal for employees to discuss pay, would both help workers to negotiate on a more equal basis (Harris 2018).

Many non-labor market policies—outside the scope of this paper—are also relevant to labor market dynamism and worker compensation. For instance, excessive land-use restrictions can prevent workers from moving to better labor market opportunities. Perhaps most importantly, fiscal policies that avoid and minimize the duration of economic downturns are vital for workers (Boushey, Nunn, and Shambaugh 2019), especially including disadvantaged workers (Aaronson et al. 2019).

Conclusion

American workers live in a labor market with a set of labor market institutions that are unusual from an international perspective. The influence of private-sector unions has declined to a low level, as has the inflation-adjusted federal minimum wage. Restrictive covenants like non-compete contracts impede workers' ability to move across jobs and secure wage increases. Due to labor market concentration and frictions, many workers must bargain with their employers in a setting that little resembles the classic competitive labor markets of economics textbooks.

The promising policy options for improving worker outcomes are, to a large extent, aimed at addressing these institutions. Reforming the industrial relations system—with the aim of allowing private-sector unions to boost wages without reducing firm productivity—and raising minimum wages are two key examples. But policymakers can also craft reforms that would enhance labor market dynamism and competition, which are often inhibited by the existing array of labor market institutions.

References

Aaronson, Stephanie, Mary C. Daly, William Wascher, and David W. Wilcox. 2019. Okun revisited: who benefits most from a strong economy? *Brookings Papers on Economic Activity*, Spring 2019: 333–404.

Adams, E. Kathleen and Sara Markowitz. 2018. Removing anticompetitive barriers for advanced practice registered nurses and physician assistants." *The Hamilton Project*.

Ansel, Bridget and Heather Boushey, Modernizing U.S. labor standards for 21st-century families. 2017. In *The 51%: Driving growth through Women's Economic Participation*, eds. Diane Whitmore Schanzenbach and Ryan Nunn. The Hamilton Project, 35–56.

Azar, Jose, Ioana Marinescu, Marshall Steinbaum, and Bledi Taska. 2020. Concentration in US labor markets: Evidence from online vacancy data." *Labour Economics* 66.

Basu, Susanto. 2019. Are price-cost markups rising in the United States? A discussion of the evidence. *Journal of Economic Perspectives* 33 (3): 3–22.

Blair, Peter Q. and Bobby W. Chung. 2019. How much of a barrier to entry is occupational licensing? *British Journal of Industrial Relations* 57 (4): 919–943.

Block, Sharon and Benjamin Sachs. 2019. Clean slate for worker power: building a just economy and democracy." *Labor and Worklife Program.*

Board of Governors of the Federal Reserve System. 2017. *Survey of Consumer Finances.*

Boushey, Heather, Ryan Nunn, and Jay Shambaugh, eds. 2019. *Recession Ready: Fiscal Policies to Stabilize the American Economy.* Washington, DC: The Hamilton Project and the Washington Center for Equitable Growth.

Brodsky, Stephen L. 2019. Restrictive covenants in employment and related contracts: key considerations you should know. *American Bar Association*.

Buchmueller, Thomas C., John DiNardo, and Robert Valletta. 2004. A submerging labor market institution? Unions and the nonwage aspects of work. in Richard B. Freeman, Joni Hersch, and Lawrence Mishel, eds., *Emerging Labor Market Institutions for the Twenty-First Century*, NBER, 231–263.

Burdett, Kenneth and Dale Mortensen. 1998. Wage differentials, employer size, and unemployment. *International Economic Review* 39 (2): 257–273.

Bureau of Labor Statistics. *2020. Labor force statistics from the Current Population Survey.*

Campolieti, Michel, Chris Riddell, and Sara Slinn. 2007. Labor law reform and the role of delay in union organizing empirical evidence from Canada. *ILR Review* 61 (1): 32–58.

Card, David. 1996. The effect of unions on the structure of wages: a longitudinal analysis. *Econometrica* 64 (4): 957–979.

Card, David, Thomas Lemieux, and W. Craig Riddell. 2004. Unions and wage in- equality. *Journal of Labor Research 25:* 519–559.

Cengiz, Doruk, Arindrajit Dube, Attila Lindner, and Ben Zipperer. 2019. The effect of minimum wages on low-wage jobs. *The Quarterly Journal of Economics* 134 (3): 1405–1454.

Colvin, Alexander J.S. 2017. The growing use of mandatory arbitration. *Economic Policy Institute*.

Colvin, Alexander J.S. and Heidi Shierholz, Noncompete agreements. 2019. *Economic Policy Institute.*

Cooper, David, Elise Gould, and Ben Zipperer. 2019. Low-wage workers are suffering from a decline in the real value of the federal minimum wage. *Economic Policy Institute*.

Davis, Steven J. and John Haltiwanger. 2014. Labor market fluidity and economic performance. *NBER Working Paper* 20479.

DiNardo, John and David S. Lee, Economic impacts of new unionization on private sector employers: 1984–2001. 2004. *The Quarterly Journal of Economics* 119 (4): 1383–1441.

Dokko, Jane, Megan Mumford, and Diane Whitmore Schanzenbach. 2015. Workers and the online gig economy. *The Hamilton Project*.

Drenik, Andres, Simon Jäger, Miguel Pascuel Plotkin, and Benjamin Schoefer. 2020. Paying outsourced labor: direct evidence from linked temp agency-worker-client data. *NBER Working Paper* 26891.

Farber, Henry S., Daniel Herbst, Ilyana Kuziemko, and Suresh Naidu. 2018. Unions and inequality over the twentieth century: new evidence from survey data. *NBER Working Paper* 24587.

Fortin, Nicole M., Thomas Lemieux, and Neil Lloyd. 2019. Labor market institutions and the distribution of wages: the role of spillover effects. *Working paper*.

Frandsen, Brigham R. 2017. Party bias in union representation elections: testing for manipulation in the regression discontinuity design when the running variable is discrete. in Matias D. Cattaneo and Juan Carlos Escanciano, eds., *Regression Discontinuity Designs*, Vol. 38, Emerald Publishing Ltd, 281–315.

Freeman, Richard B. and Morris M. Kleiner. 1990. The impact of new unionization on wages and working conditions. *Journal of Labor Economics* 8 (1): S8–S25.

Gittleman, Maury, Mark A. Klee, and Morris M. Kleiner. 2018. Analyzing the labor market outcomes of occupational licensing. *Industrial Relations* 57 (1): 919–943.

Goldschmidt, Deborah and Johannes F. Schmieder. 2017. The rise of domestic outsourcing and the evolution of the German wage structure. *The Quarterly Journal of Economics* 132 (3): 1165–1217.

Gutierrez, German and Thomas Philippon. 2017. Investmentless growth: an empirical investigation. *Brookings Papers on Economic Activity* Fall 2017: 89–190.

Harris, Benjamin. 2018. Information is power: fostering labor market compe- tition through transparent wages. In *Revitalizing Wage Growth: Policies to Get American Workers a Raise*, eds. Jay Shambaugh and Ryan Nunn, 157–176. Washington, DC: The Hamilton Project.

Hirsch, Barry T. 2008. Sluggish institutions in a dynamic world: can unions and industrial competition coexist. *Journal of Economic Perspectives 22 (1):* 153–176.

Johnson, Janna E. and Morris M. Kleiner. 2020. Is occupational licensing a barrier ot interstate migration? *American Economic Journal: Economic Policy* 12 (3): 347–373.

Johnson, Susan J.T. 2010. First contact arbitration: effects on bargaining and work stoppages. *ILR Review* 63 (4): 585–605.

Katz, Lawrence F. and Alan B. Krueger. 2019. Understanding trends in alternative work arrangements in the United States. *RSF: The Russell Sage Foundation Journal of the Social Sciences* 5 (5): 132–146.

Kleiner, Morris M. and Alan B. Krueger. 2013. Analyzing the extent and influence of occupational licensing on the labor market. *Journal of Labor Economics* 31 (2): S173–S202.

Kleiner, Morris M. and David Weil. 2012. Evaluating the effectiveness of National Labor Relation Act remedies: analysis and comparison with other workplace policies. In Cynthia L. Estlund and Michael L. Wachter, eds., *Research Handbook on the Economics of Labor and Employment Law*, Elgar Publishing 209–247.

Kleiner, Morris M. and Evan J. Soltas. 2019. A welfare analysis of occupational licensing in U.S. states. *NBER Working Paper* 26383.

Krueger, Alan and Eric Posner. 2018. A proposal for protecting low-income workers from monopsony and collusion. In *Revitalizing Wage Growth: Policies to Get American Workers a Raise*, eds. Jay Shambaugh and Ryan Nunn, 139–156. Washington, DC: The Hamilton Project.

Lee, David S. 1999. Wage inequality in the United States during the 1980s: rising dispersion or falling minimum wage? *The Quarterly Journal of Economics* 114 (3): 977–1023.

Lee, David S. and Alexandre Mas. 2012. Long-run impacts of unions on firms: new evidence from financial markets, 1961–1999. *The Quarterly Journal of Economics* 127 (1): 333–378.

Lipsitz, Michael and Evan Starr. 2020. Low-wage workers and the enforce- ability of non-compete agreements. *Working paper*.

Loecker, Jan De, Jan Eeckhout, and Gabriel Unger. 2020. The rise of market power and the macroeconomic implications. *The Quarterly Journal of Economics* 135 (2): 561–644.

Macaluso, Claudia, Brad Hershbein, and Chen Yeh. 2019. Concentration in U.S. local labor markets: evidence from vacancy and employment data. *Working paper*.

Marx, Matt. 2011. The firm strikes back: non-compete agreements and the mobility of technical professionals. *American Sociological Review* 76 (5): 696–712.

Marx, Matt. 2018. Reforming non-competes to support workers. In *Revitalizing Wage Growth: Policies to Get American Workers a Raise*, eds. Jay Shambaugh and Ryan Nunn, 119–138. Washington, DC: The Hamilton Project.

Molloy, Raven, Christoper L. Smith, Riccardo Trezzi, and Abigail Wozniak. 2016. Understanding declining fluidity in the U.S. labor market. *Brookings Papers on Economic Activity* Spring 2016: 183–259.

Molloy, Raven, Christopher L. Smith, and Abigail Wozniak. 2011. Internal migration in the United States. *Journal of Economic Perspectives* 25 (3): 173–196.

Mortensen, Dale and Christopher Pissarides. 1994. Job creation and job destruction in the theory of unemployment. *The Review of Economic Studies* 61 (3): 397–415.

Nunn, Ryan. 2018. How occupational licensing matters for wages and careers. *The Hamilton Project*.

Nunn, Ryan and Jay Shambaugh. 2020. Whose wages are rising and why? *Brookings Institution*.

Nunn, Ryan and Jimmy O'Donnell. 2020. The labor market experiences of workers in alternative work arrangements. *The Hamilton Project*.

Nunn, Ryan, Jimmy O'Donnell, and Jay Shambaugh. 2019. The shift in private sector union participation: explanation and effects. *The Hamilton Project*.

Pierce, Brooks. 2010. *Recent trends in compensation inequality.* In *Labor in the New Economy,* eds. *Katharine G. Abraham, James R. Spletzer, and Michael Harper, 63–98*. Cambridge, MA: NBER.

Prescott, J.J. and Evan Starr. 2020. *Subjective beliefs about contract enforceability. Working paper.*

Qiu, Yue and Aaron Sojourner. 2019. *Labor-market concentration and labor compensation. IZA Working Paper* 12089.

Employment and Social Development Canada. 2019. *Report of the expert panel on modern federal labour standards*.

Riddell, Chris. 2004. Union certification success under voting versus card-check procedures: evidence from British Columbia, 1978–1998. *ILR Review* 57 (4): 493–517.

Riddell, Chris. 2013. Labor law and reaching a first collective agreement: Evidence from a quasi-experimental set of reforms in Ontario. *Industrial Relations 52 (3): 702*–736.

Rinz, Kevin. 2018. Labor market concentration, earnings inequality, and earnings mobility. *CARRA Working Paper* 2018–10.

Shambaugh, Jay, Ryan Nunn, Audrey Breitwieser, and Patrick Liu. 2018. The state of competition and dynamism: facts about concentration, start-ups, and related policies. *The Hamilton Project*.

Song, Jae, David J. Price, Fatih Guvenen, Nicholas Bloom, and Till von Wachter. 2019. Firming up inequality. *The Quarterly Journal of Economics* 134 (1): 1–50.

Starr, Evan. 2019. The use, abuse, and enforceability of non-compete and no- poach agreements. *Economic Innovation Group*.

Starr, Evan, J.J. Prescott, and Norman Bishara. 2020. Noncompetes in the U.S. labor force. *Working paper*.

U.S. Department of the Treasury, Council of Economic Advisers, and the U.S. Department of Labor. *2019. Occupational licensing: a framework for policymakers.*

U.S. Department of the Treasury. 2016. *Non-compete contracts: economic effects and policy implications.*

Webber, Douglas. 2015. Firm market power and the earnings distribution. *Labour Economics* 35: 123–134.

Weil, David. 2014. *The Fissured Workplace*, Harvard University Press.

Zapletal, Marek. 2019. The effects of occupational licensing: evidence from business-level data. *British Journal of Industrial Relations* 57 (4): 894–918.

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1 The views expressed in this document are the authors' alone and do not necessarily reflect those of the Federal Open Market Committee or anyone else in the Federal Reserve System.

2 In calculating the distribution of non-wage benefits, workers are ranked according to the expense of their non-wage benefits rather than their wages. Consequently, the 50th percentile (for instance) of the wage distribution is a different group of workers than the 50th percentile of the non-wage distribution.

3 See Webber (2015) for evidence that employers are generally able to reduce compensation without dramatic declines in employment.

4 We do not comprehensively address questions about rising inequality among workers, which we regard as outside the scope of this paper.

5 This is conceptually distinct from the more-typical type of market concentration that economists focus on, which concerns the market share controlled by top firms in a particular product market.

6 HHI is a commonly used measure of concentration that is calculated in this instance by summing the squared labor market shares of firms, then multiplying the sum by 10,000.

7 Geographic mobility has fallen dramatically in the United States since 1980 (Molloy, Smith, and Wozniak 2011). Depending on the causes of this decline, it may be more difficult for workers to leave their local labor market and access employment opportunities elsewhere.

8 See Nunn, O'Donnell, and Shambaugh (2019) for a summary of relevant research.

9 DiNardo and Lee (2004) find a much smaller union wage premium when examining close certification elections, which (as the authors note) may be attributed to the fact that close certification winners are likely to be substantially weaker unions than counterparts that win by larger margins. In addition, manipulation of the running variable—i.e., the vote share—may be a problem for identification in this context (Frandsen 2017).

10 See Nunn, O'Donnell, and Shambaugh (2019) for a discussion of this and other questions related to private sector unions. Much of the discussion here benefits from that article.

11 The rise in educational attainment is at least as significant, but we do not consider it to be a change in labor market institutions for the purpose of this paper.

12 For example, if labor market concentration were to increase, the optimal level of the minimum wage would be higher.

13 See Nunn, O'Donnell, and Shambaugh (2019) for more-detailed discussions of these policy options.