

The State of Labor Market Competition

March 7, 2022

Executive Summary

On July 9, 2021, President Biden signed an historic executive order on Promoting Competition in the American Economy. That order underscored the importance of competition in the labor market, stating that “a competitive marketplace creates more high-quality jobs and the economic freedom to switch jobs or negotiate a higher wage.” The order tasked the Treasury Department, in consultation with the Department of Justice, the Department of Labor, and the Federal Trade Commission to investigate the effects of a lack of labor market competition on the United States labor market.

The purpose of the report is to summarize the prevalence and impact of uncompetitive firm behavior in labor markets. In particular, the report catalogues the ways in which insufficient labor market competition hurts workers, documents the proliferation of barriers to job mobility, and illustrates how a lack of labor market competition can hold back the broader macroeconomy, while also providing an assessment of the degree to which lack of competition lowers wages. **This analysis is followed by a description of Biden Administration actions to improve competition, including a commitment by the Department of Justice and Federal Trade Commission to vigorously enforce antitrust laws in labor markets.**

In discussing the market characteristics that enable monopsony power, this report describes how monopsony power emerges when a single firm can restrain its hiring to lower wages and boost profits. While most labor markets do not literally feature a single employer, a market with a small set of employers may mimic a monopsony by each engaging in practices that give them market power over workers. Concentration in particular industries and locations can lead to workers receiving less pay, fewer benefits, and worse conditions than what they would under conditions of greater competition.

There is also increasing recognition that market power may be *inherent* in the firm-worker relationship. Much of the theory of labor markets and wage setting is premised on the idea that individual workers and firms search for one another, seek and find matches that maximize productivity and wages, and bargain over employment terms. Workers often find themselves at an *informational* disadvantage relative to firms, not knowing what other, similarly placed workers earn, the competitive wages for their labor, or the existence of workplace problems like discriminatory conduct or unsafe working conditions. Workers also may have a limited or no ability to switch locations and occupations quickly and may lack the financial resources to support themselves while they search for jobs that pay more and better match their skills and abilities. These conditions can enable firms to exert market power, and consequently offer lower wages and worse working conditions, even in labor markets that are not highly concentrated.

The report details the range of practices that firms use to restrain competition for workers, most clearly to lower wages and benefits, but also potentially to negatively impact job characteristics beyond just compensation. Firms can engage in tacit collusion by sharing wage information for different occupations, conspiring to fix wages, adopting no-poach agreements where firms agree not to hire other firms’ workers, or forcing workers to sign non-compete agreements that limit their ability to switch jobs. Non-disclosure agreements can be so broad as to effectively operate as non-compete agreements. Mandatory arbitration agreements prevent workers from legal recourse to rectify violations of labor laws, antitrust laws, or employment terms. Lack of pay transparency, from firms’ use of salary history, pay secrecy, and punitive practices against workers sharing pay information, also restrains competition.

A growing literature in economics seeks to measure the labor market power exerted by firms over workers. As David Card, the most recent recipient of the Nobel Prize in Economics, stated in his presidential address to the American Economic Association, “I will try to make the case that the time has come to recognize that many—or even most—firms have some wage-setting power.”

Measuring the extent of labor market power can be challenging, as it requires extensive insight into the relationship between firms and workers that goes beyond standard measures collected. **As this report highlights, a careful review of credible academic studies places the decrease in wages at roughly 20 percent relative to the level in a fully competitive market.** In some industries and occupations, like manufacturing, estimates of wage losses are even higher.

Wage-setting power is also evident in the large number of workers who are subject to rules and agreements that limit their ability to switch jobs and occupations and, hence, their bargaining power. For example, a recent paper estimates that one-in-five workers is currently subject to non-compete agreements and double that number report having been bound by a non-compete agreement in the past. As the report discusses, many workers are also subject to excessive occupational licensing requirements that impede their ability to switch jobs across states or their ability to enter a new occupation.

The report also highlights the ways in which employers alter the structure of their own work relationships to lower their labor costs and undercut competition at the expense of workers. The labor market has become “fissured,” a wide variety of roles ranging from cafeteria workers and janitors to lawyers that were once “in-house” are now contracted out. This domestic outsourcing is estimated to reduce wages from 4 percent to 24 percent in some industries and occupations. Moreover, when firms misclassify workers, they offload labor costs and risks onto workers—for example, by avoiding unemployment insurance taxes and workers’ compensation premiums—and make it difficult for workers to organize or join a union and bargain collectively for better wages and conditions.

The decline in union density rates further weakens workers’ bargaining power, leaving them with less ability to counterbalance firms’ wage setting power.

The impacts of insufficient labor market competition often fall hardest on women and workers of color, who make up a larger share of workers in lower-paid occupations. These workers often have diminished bargaining power because they lack the resources to easily switch jobs or occupations, to reject or negotiate against signing restrictive employment agreements, or to seek legal recourse for violations of labor and employment law.

The report also highlights the ways in which a lack of labor market competition can impact the broader economy. Lack of labor market competition contributes to high levels of income inequality, diminishes incentives for firms to invest, inhibits the creation and expansion of new firms, and reduces productivity growth through lower reallocation of labor across firms and industries.

The Biden Administration is committed to promoting robust competition in labor markets and has directed a government-wide effort to support labor market competition. The Department of Justice and Federal Trade Commission are committing to the vigorous enforcement of antitrust laws in labor markets, to combat anticompetitive agreements, conduct, or mergers. The Administration has called on

Congress to raise the minimum wage and support increased worker power through increased organizing and collective bargaining facilitated by the Protecting the Right to Organize Act and other legislation.

The President's Task Force on Worker Organizing and Empowerment recommended 70 actions that executive branch agencies and departments will implement to facilitate greater union organizing and collective bargaining. As part of his Executive Order on competition, the President encouraged the Federal Trade Commission to consider banning or limiting the use of non-compete agreements. The President's Executive Order increasing the minimum wage for federal employees and contractors raised wages for more than 300,000 private-sector employees and 70,000 federal employees.

Finally, in addition to education, compliance assistance, and enforcement of workplace laws, the Department of Labor's administrative actions include addressing worker misclassification, supporting worker organizing, and working to improve job quality, including access to jobs with higher wages and better working conditions.

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Introduction

On July 9, 2021, President Biden signed a historic Executive Order on Promoting Competition in the American Economy. The Order affirms the importance of competition for workers, stating that “a competitive marketplace creates more high-quality jobs and the economic freedom to switch jobs or negotiate a higher wage.” Yet, as the Order explains, empirical evidence suggests that anti-competitive forces and practices have weakened workers’ bargaining positions and, consequently, worsened outcomes for workers. The Order outlined a whole-of-government approach to addressing the excessive concentration of labor markets in the United States. As part of this comprehensive approach, the Order directed the Secretary of the Treasury, in consultation with the Attorney General, the Secretary of Labor, and the Chair of the FTC, to produce a report on the effects of lack of competition on labor markets.

This report reaffirms the urgent need to promote competition in labor markets and increase workers’ bargaining power. A central finding is that the American labor market is characterized by high levels of employer power. Sources of this market power include natural labor market frictions, employer concentration, and anti-competitive labor market practices. Employers exploit this market power by holding wages and certain non-wage benefits beneath their competitive level. Simultaneously, the decline in unionization reduced worker bargaining power.¹ As a result, workers are forced to accept lower wages and worse benefits than in a competitive market. These impacts are often disproportionately felt by socioeconomically vulnerable people, such as low-income workers, workers of color, women, and immigrants. Problems stemming from lack of competition harm more than just the well-being of workers and their families; it also holds back our entire economy, contributing to income inequality, inhibiting innovation, and curbing economic growth.

Employer market power can manifest in forms beyond reductions in workers’ earnings that are challenging to measure. Many of today’s jobs impose unpredictable just-in-time schedules, detailed on-the-job monitoring coupled with demanding speed requirements and punitively short breaks, inadequate safety systems, and no opportunity for advancement. While these determinants of job quality are harder to measure than wages, and therefore less well studied, they also suggest that labor markets are not perfectly competitive.

First, this report begins by exploring some of the theoretical underpinnings of firm labor market power. We then survey the empirical literature on many of the primary developments that have contributed to persistently low labor market competition and worker bargaining power in recent decades. Topics surveyed include shifting firm boundaries (fissuring of the workplace), restrictive employment agreements (e.g., non-compete agreements), mandatory arbitration clauses, and occupational licensing. We also document the decline in worker mobility and bargaining power and note the literature on the divergence between labor productivity and labor income, labor’s share of overall income, and declining enforcement actions, among other things. We highlight how these developments have impacted specific industries and sectors of the economy, including hospitals and nursing, agricultural inputs and food processing, and minor league baseball.

¹ Farber, Henry S., Daniel Herbst, Ilyana Kuziemko, and Suresh Naidu. 2021. “Unions and Inequality over the Twentieth Century: New Evidence from Survey Data.” *The Quarterly Journal of Economics* 136 (3): 1325–1385.

Empirical studies of labor market power have proliferated recently, as academic interest in the topic enjoys a renaissance. As papers address the empirical problem using a variety of methods, economists can increasingly paint a nuanced picture of labor market power as it exists today. Considerable debate over details—big and small—persist, but recent literature agrees on the broader picture: many employers exert market power when hiring workers, and those workers are compensated less as a result.

We conclude the analysis portion of the paper by highlighting the implications of diminished labor market competition on the broader economy. This includes growing income inequality, declining business investment and productivity growth, declining worker mobility and productivity growth through less reallocation, and lower levels of firm formation and innovation.

The extent to which this area has gained traction was demonstrated by an address by economist David Card, the most recent recipient of the Nobel Prize in Economics, at the annual meeting of the American Economic Association. In his address, Card calls on the field of economics to study the role of imperfect competition in labor markets, while observing that widespread lack of competition has become the consensus view in economics. Card concludes his address by noting:

One of the most exciting developments in the field today is the evidence of labor economists taking questions about wage setting seriously. This effort began with Manning's (2003) landmark book: I hope that the growing body of work since then finds its way into the classroom and into the textbooks soon. I also expect this work to lead to some re-thinking on policies such as minimum wages, the regulation of trade unions, and anti-trust (see Longella and Manning 2021, and Naidu and Posner 2022). Perhaps we may even see a re-evaluation of the widespread belief that excessive wages are the root cause of many economic problems. After all, if your employer set your wage, it's hard to believe that it's too high.²

With a similar spirit, the Biden Administration has prioritized policies to restore labor market competition and increase the relative bargaining power of workers. The report concludes with the Administration's policies to counteract the decline in labor market competition, including a policy favoring full enforcement of the antitrust laws in labor markets, expanding opportunities for collective bargaining, raising the minimum wage, and extending health insurance coverage to reduce job lock and boost mobility.

² Card, David. 2022. "Who Set Your Wage?" *National Bureau of Economic Research Working Paper 29583*.

Theories of Labor Market Power

Defined simply, the labor market matches workers and firms, creating jobs. Jobseekers offer their skills and time to firms, which in turn offer pay and benefits. Simplicity, however, insufficiently describes the labor market. It misses the pervasive variety: on one side of the market, each worker brings a unique set of skills, dispositions, and circumstances to an employer. On the other side, there is an enormous variety of jobs in the United States.³ In this sense, labor markets are very different than some product markets, like commodity markets, where the product is relatively homogenous, and buyers are usually indifferent to who is selling and vice-versa. In the labor market, both buyers (firms) and sellers (workers) take great interest in their counterpart's characteristics.

In a strong and expanding economy, a well-functioning labor market typically delivers wage growth, low unemployment rates, regular job switching, and improved job quality. This dynamic benefits society: when workers and firms can easily match and separate, it increases the average productivity of each job. Over their careers, workers find jobs that increasingly suit them, and employers find workers who best fit their needs. However, "well-functioning" is not the default state of labor markets. The job search is beset by frictions, among them time, information, diverse worker preferences, and geography. Alongside other factors, these frictions can frequently generate market power for employers of all sizes, decreasing the market's efficiency and reducing the gains that would otherwise accrue to society.

We define "labor market power" (herein, "monopsony" or "market power") as a firm's power to reduce the compensation it pays to its workers, paying less than an equivalent job would, in a hypothetical perfectly competitive market. Market power allows a firm to decrease its compensation without losing its entire workforce, where compensation refers to not just wages, but also benefits, job quality and working conditions.⁴ Likewise, the firm can expand its workforce by raising compensation.⁵ Lower pay is the effective outcome of a labor market characterized by "monopsony"—the situation when an individual firm has some control over the market and thus can affect compensation. Still, monopsony does not imply a complete absence of market forces. So long as workers have *any* alternatives, markets help dictate the extent of a monopsonist's power.

Monopsony's counterpart is perfect competition, an economic model in which both workers and firms take wages as given—meaning they cannot raise or lower the prevailing wage. Under perfect competition, the residual labor supply curve (or firm-specific labor supply curve) is flat, meaning each firm can hire whatever amount of labor it wants but only at the market wage. Therein lies the key technical distinction between monopsony and competition: an upward sloping versus flat residual labor supply curve. Note that in both contexts, the aggregate (market-level) labor supply curve is typically upward-sloping.

³ Not only are there 867 detailed occupations recognized by the Bureau of Labor Statistics' (BLS) 2018 Standard Occupational Classification, but there are plenty of differences within those occupations. Further, similar jobs offer unique requirements and benefits, which by itself is evidence of some level of monopsony in labor markets.

⁴ Throughout the paper, we intend compensation or wages to refer to not just money, but also benefits, job quality, and working conditions.

⁵ In economist jargon, a firm that has an "upward-sloping residual labor supply curve" also has market power. The "residual" part of that phrase distinguishes the firm-specific labor supply curve from the aggregate (market-level) labor supply curve.

To illustrate the contrast between competition and market power, consider this question: if an employer cut their wages by 5 percent, what fraction of their workers would quit? In a perfectly competitive market, all workers would leave. Yet, we know that this is not true in practice—indicating that many employers have some degree of market power.

A labor market monopsonist leverages their position to pay their workers less than the competitive rate for a given job. In a perfectly competitive labor market, each worker earns the market value of what they contribute to production—known as the “marginal revenue product of labor” (herein, MPL_R). A labor-market monopsonist instead sets its compensation below the MPL_R , which reduces its cost of production and therefore raises profits. Practically, the strength of a firm’s market power is indicated by the difference between compensation and MPL_R . Throughout, we refer to this difference—in effect, the amount by which a firm suppresses a worker’s compensation—as either a firm’s “markdown,” or a worker’s “lost wages.” This is analogous to monopoly’s better-known concept of a markup, where a firm charges a price for a good above the firm’s costs of production.

Broadly speaking, two distinct classes of economic theories might help explain the source of employers’ labor market power. The first class is based on labor market structure: pure monopsony, monopsonistic competition, and oligopsony. These are demand-side counterparts to the more familiar models of monopoly, monopolistic competition, and oligopoly. If only one or a few firms are buying labor in a given labor market, they have the power to set wages in that market and will keep wages below what workers might be able to charge in a competitive market, so workers have nowhere else to turn.

The second class of theories stems from “search and matching” models of labor markets. Search and matching models explicitly account for the frictions and opportunity costs inherent to job searches, both from the worker’s and firm’s perspectives. In these models, employers account for the worker’s difficulties in finding a new job. These difficulties include the direct costs of a job search (e.g., time), as well as indirect costs such as uncertainty about the suitability of a new job, a lack of knowledge about wages or benefits offered by other firms, or foregone pay during unemployment. It also encompasses the fact that jobs are more than just compensation to a worker, who also values the nature of work, company culture, coworkers, managers, and commute times—and different workers may value the same aspects of a job differently. If one worker highly values a specific facet of a job, then they would accept a lower wage than other workers for the same position. Consequently, the employer can reduce its compensation and still maintain many of its workers. For the purposes of this report, both theories share the same core outcome: they result in the reduction of worker compensation.

We now detail those theories and their implications.

Pure Monopsony

Pure monopsony describes a market with a single buyer. This is the mirror image of a monopoly model (a single firm selling final goods and services), except a single firm is purchasing inputs (like labor). In the labor context, monopsony exists if some workers have only one option for employment, such as a “company town” where there is a single dominant employer in the community. As such, it is rarely the ideal model to describe U.S. labor markets. The model nonetheless remains useful, both to help

understand the market power problem in a simple context and to establish nearly all the foundation for the more realistic model of monopsonistic competition.

Practically, an upward-sloping labor supply curve implies two costs to hiring a new worker: the first is the wages directly paid to the new worker, and the second is the increased wages paid to workers already employed by the firm. By the same logic, a monopsonist enjoys these two sources of reduced costs by constraining employment below the competitive level.

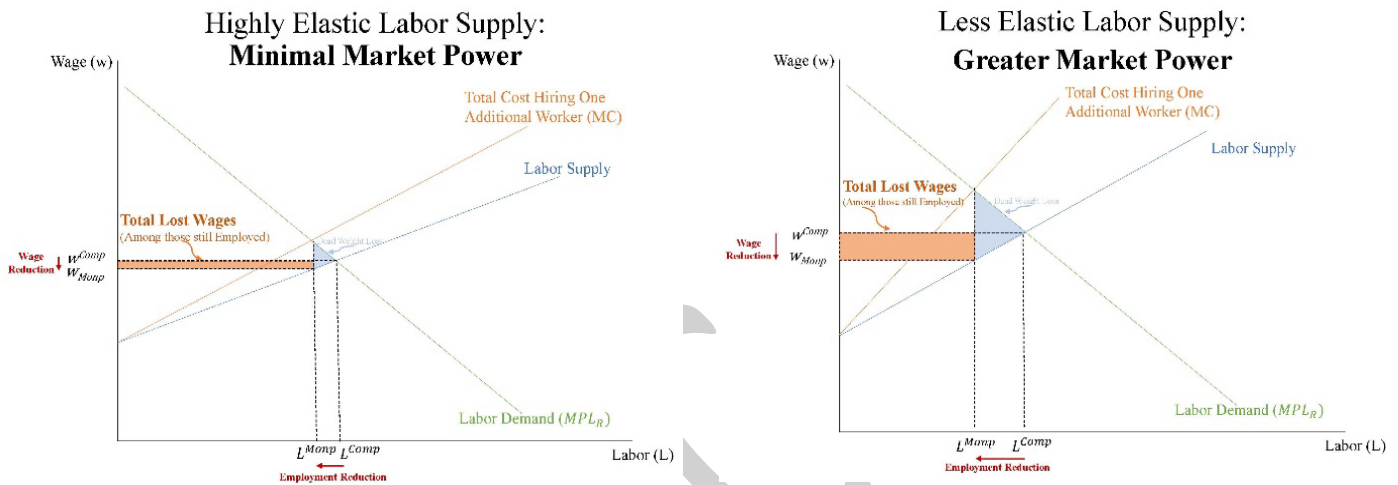


Figure 1 - Pure Monopsony: Elasticity Drives the Scale of Wage Loss

In market structure models, *the elasticity of labor supply* lives at the heart of market power. Loosely defined, this elasticity measures how strongly the workforce reacts when wages change. In turn, the elasticity of labor supply dictates the markdown in wages. When the labor supply is highly elastic, a small decrease in wages results in a large decrease in the number of workers who are willing to work for the firm. In this case, a monopsonist has little to gain from markdowns since it stands to lose too much of its labor force. With lower elasticities, however, the same decrease in wages prompts a weaker response from the workforce. This effectively grants the monopsonist increased pricing power, as wage cuts induce fewer quits than in a higher-elasticity environment. Simply put, when workers are prepared to walk away from a job, their employer has less power over them.

Monopsonistic Competition

At a national level, pure monopsony is clearly an inappropriate descriptor for labor markets. A more realistic model of labor markets in the United States is that of monopsonistic competition.

Monopsonistic competition is similar to pure monopsony, except the firm faces a residual labor supply curve rather than the aggregate supply curve. To reiterate, a firm's residual labor supply curve is specific to that firm, after accounting for the labor supply curves facing the rest of the market. When wages fall economy-wide, workers will more readily switch from a firm that lowers its wages than out of employment altogether. In other words, residual labor supply curves are more elastic than aggregate labor supply curves. Taken further, the more similar employment is between firms, the more readily workers will switch and the greater the elasticity of residual labor supply curves.

An example of a monopsonistically competitive labor market might be a city with many restaurants. Though there might be many restaurants employing chefs, they are not identical. A chef has skills that can be used in a multitude of restaurants, but this does not mean the chef is indifferent to where they are employed. Some restaurants may provide a more suitable menu, have better or more predictable work schedules, or be more conveniently located. In this case, the chef may be willing to accept a discounted wage to work at a particular restaurant, giving that restaurant some degree of market power.

Search and Matching Models of Labor Markets

Search and matching models introduce important nuance to theories of labor market power.⁶ Specifically, these models provide conditions where all employers, to varying degrees, possess market power; but crucially, these models also account for the frictions involved in job searches, among them time and considerable uncertainty. Aware of these frictions, employers can discount wages while retaining their workforce and hiring new employees. A worker will sometimes prefer to accept a job with a discounted wage than to continue a job search that may not yield a better alternative quickly or at all.

A friction is any factor that makes job searches or switches more difficult than the theoretical ideal of switching between two identical consumer goods, such as pantry staples. The job search process is also characterized by considerable information gaps. For example, consumers can easily compare airfare prices on travel aggregator websites, but it is typically impossible for workers to learn the compensation associated with every potential employment opportunity. Real-world labor markets feature significantly more frictions than consumer markets.

Broadly speaking, there are two types of search and matching models relevant to labor market power. The first is characterized by “ex-ante wage posting,” where employers announce their wages with every job offer. This is often applicable to lower wage jobs—think of a sign outside a fast-food restaurant that states, “Positions starting at \$15.” The second is characterized by “ex-post wage bargaining,” where the worker and firm negotiate wages and benefits in the final stage of the hiring process. This is more typical in higher-paying jobs, where the job postings often include an ambiguous statement that the job pays “competitively.”

In an “ex-ante wage posting” model⁷, workers do not simply pick a job—they must be offered the job first, and the offer comes at a known wage. Upon receiving a job offer, they can accept or decline, which they will do based on their understanding of the rest of the market. If a worker thinks they are likely to receive a significantly better offer elsewhere, they decline the current offer and keep searching. If the worker does not believe they are likely to receive a better offer elsewhere (relative to the continued costs of job search and, for those not currently employed, unemployment), then they will accept the offer. In this way, it is possible for firms offering the same employment to offer different wages—a key characteristic of monopsony models. Firms can choose to raise their wages and induce more workers to

⁶ For a reference and considered argument, see Manning, Alan. 2003. *Monopsony in Motion: Imperfect Competition in Labor Markets*. Princeton: Princeton University Press.

⁷ For example, Burdett, Kenneth, and Dale T. Mortensen. 1998. “Wage Differentials, Employer Size, and Unemployment.” *International Economic Review* 39 (2): 257–273.

accept their offers while simultaneously keeping more of their existing workers, displaying the key characteristic of a monopsonist: to face an upward-sloping residual labor supply curve. One critical insight to these models is that a firm may be *neither large nor dominant* in its market but still exercise market power.

In “ex-post bargaining” models, a jobseeker does not know the wage in advance. The worker and firm bargain over the wage in the final stages of the hiring process. In these models, each job generates a “surplus,” defined as the gap between the worker’s lowest acceptable wage (their “reservation wage”) and the highest wage an employer can profitably pay (i.e., the worker’s MPL_R). Firms and workers then bargain over how to allocate that surplus. The share of this surplus going to firms represents profits, while the share accruing to workers represents wages above their reservation wage. If labor markets were perfectly competitive, wages would simply be a function of worker productivity (as wages would be competed upward to the maximum that firms could profitably pay)—meaning workers would be paid their MPL_R . Like the “ex-ante wage posting” models, job search frictions in “ex-post bargaining” models give employers room to pay sub-competitive wages.

Various factors impact how firms and workers allocate the surplus of the worker’s employment. Generally, the greater the bargaining power one side has, the larger a share of the surplus they can capture. The bargaining power of employees largely rests on their alternative (“outside”) options and the degree to which they are substitutable with other workers. For example, a worker who has unique and highly specialized training that is valued by many other firms generally has greater bargaining power over their share of the surplus than an employee that is relatively easily replaceable and has relatively non-transferable skills. On the other hand, a nurse living in a rural town with only a single hospital within driving distance may have lower bargaining power because that worker lacks alternative local employment options.

While some job search frictions arise naturally, employers can also actively take steps to increase frictions or generate new ones. These frictions are the underlying source of market power in both types of search and matching models, giving employers an incentive to increase frictions. Some frictions are “natural” in the sense that they are not erected by the worker’s employers. For example, high costs of moving (including implicit costs like the loss of access to one’s social network) may induce someone to stay in their current job despite better alternatives elsewhere. Personal preferences are another natural factor that can give employers leverage. Insofar as a worker is willing to accept a lower wage to work for a given employer, for any personal reason, the firm has the potential power to reduce that worker’s wage below MPL_R and still retain the worker. This holds true even if the worker knows that they can be paid more at a rival firm.

Information asymmetry regarding potential wages is another crucial friction. If workers underestimate the wages paid by similar employers, then they will be less likely to actively search for a new employer. For workers, acquiring information about outside options is often more costly than for firms.⁸ Recent evidence from Jäger et al. (2021) suggests that worker beliefs about outside options are strongly and unduly influenced by their current wage, which harms the lowest-paid workers the most.⁹ They estimate

⁸ This is a result of economies of scale. Firms benefit from information when dealing with every worker they employ or potentially employ. Workers only benefit from this information when it relates to themselves.

⁹ Jäger, Simon, Christopher Roth, Nina Rousille, and Benjamin Schoefer. 2021. “Worker Beliefs about Outside Options.” *National Bureau of Economic Research Working Paper 29623*.

that 10 percent of German jobs could not continue at their current wages if workers had the correct understanding of their outside options. These “non-viable” jobs were concentrated in lower-paid positions. Importantly, these asymmetries arise naturally, but employers can increase them by concealing wages.

Employers can also act to decrease the value of a worker’s outside options. For example, restrictive employment agreements that require workers to repay training costs if they leave the firm or non-compete agreements (both discussed in greater detail below) reduce worker power by increasing the costs of leaving the firm. Those costs are explicit in the case of training repayment programs but implicit in non-compete agreements. By preventing a worker from accepting positions well-suited to their skills, firms decrease the expected gains from a worker’s job search.

Finally, regulations can also increase the frictions in a job search. Occupational licensing is a notable example, and one that is growing more common over time. These frictions are growing in several ways: the number of occupations covered by licensing; the requirements, costs, and complexity of securing a license; and the patchwork of licenses across states. With non-reciprocity in licensing, two states may have similar goals and standards for a given occupation, yet it remains costly for a worker to move between states.

Licensing does benefit some workers, specifically incumbent workers, in many circumstances. By increasing barriers to entry, licensing restricts the supply of new workers, thereby increasing incumbents’ bargaining power. This comes at the expense of other workers who would like to take up the trade, as well as firms and consumers in the form of higher prices. However, licensing *can* harm incumbents too: if licensure differs across states, then a worker who is licensed in one state will find it costly to move, despite professional or personal reasons to want to do so. Licensing can also protect public safety, help consumers distinguish high-quality from low-quality service, and even play a role in ensuring a market for certain goods and services exists (as in Akerlof 1970).¹⁰ On the other hand, licensing can be misused to protect already powerful job occupations and incumbents.

Racial Inequality under Search and Matching Frictions

The frictions arising within search and matching models help explain the link between racial discrimination and racial wage gaps. Models of racial discrimination in the style of Gary Becker’s *Economics of Discrimination* (1957) apply within the classical monopsony framework, with the implication that if some *employers* discriminate based on race, then market forces will eventually close the racial pay gaps that result from discrimination.¹¹ This sanguine result does not hold within search and matching models, as shown by Black (1995).¹² Within a search and matching model, discrimination by even a few employers has a market-wide impact. For example, if some employers discriminate against Black workers, then Black workers face a worse set of potential outside wage offers than their

¹⁰ Akerlof, George. 1970. “The Market for “Lemons”: Quality Uncertainty and the Market Mechanism.” *The Quarterly Journal of Economics* 84 (3): 488–500.

¹¹ Becker, Gary S. 1957. *The Economics of Discrimination*. Chicago: University of Chicago Press. Note that the specific source of discrimination is important. The model predicts that discrimination coming from *consumers* (or co-workers) results in a wage gap that will not be rectified by market forces.

¹² Black, Dan A. 1995. “Discrimination in an Equilibrium Search Model.” *Journal of Labor Economics* 13 (2): 309–334.

non-Black counterparts. As a direct result, the expected value of a job search is lower for Black workers than it is for non-Black workers.

This lower expected value of search results in a lower average wage through two mechanisms. First, it decreases the returns to a job search for Black workers, meaning they will dedicate fewer resources to search in equilibrium. Second, if employers without proclivity towards discrimination know of the decreased expected returns to search, then they also know they can offer Black workers lower wages than non-Black workers, all while maintaining an equal chance that the offer is accepted.

We have considerable empirical evidence to document discrimination faced by Black workers searching for a job. A substantial literature that has developed submits fake resumes to firms, en masse, with names that are randomized to be “white-sounding” or “Black-sounding.”¹³ The results consistently show that resumes with stereotypically white names receive callbacks at higher rates than otherwise identical fake resumes with stereotypically Black names. Bertrand and Mullainathan (2004), for example, find that “white-sounding” names receive 50 percent more callbacks than “Black-sounding” names among applications submitted to Boston- and Chicago-area newspapers. Though subsequent papers have typically found smaller effects, the direction of the results have held consistently. To reiterate, this dynamic results in lower wages for Black applicants, all else equal. In search and matching models, wages are a function of outside options—having fewer (or worse) outside options leads to lower average wages, regardless of cause.

Platforms/Regulatory Arbitrage

Regulation is one tool to ameliorate the pernicious effects of monopsonistic power. In a standard example, a judiciously determined price floor (minimum wage) can simultaneously increase wages and employment in the basic monopsony model. For the same reasons, regulations on working conditions can potentially accomplish desirable outcomes without job loss.

Regulatory arbitrage occurs when a company attempts to circumvent enforcement of regulations by availing themselves of different regulatory schemes. Regulatory arbitrage often comes about from ambiguities (“loopholes”) in regulations that allow firms to operate in a type of grey space.¹⁴ These ambiguities can weaken regulatory action, including those meant to curb monopsonistic power.

The rise of e-commerce has created new opportunities for regulatory arbitrage as regulatory schemes of the twentieth century meet twenty-first century innovations. Critics argue regulatory arbitrage is widespread in these new markets and gives firms an unfair advantage over their competitors. For example, Amazon was essentially exempt from sales taxes for the first 15 years of its existence, giving it

¹³ See, e.g., Bertrand, Marianne, and Sendhil Mullainathan. 2004. “Are Emily and Greg more employable than Lakisha and Jamal? A field experiment on labor market discrimination.” *American Economic Review* 94 (4): 991–1013; and Banerjee, Rupa, Jeffrey G. Reitz, and Phil Oreopoulos. 2018. “Do large employers treat racial minorities more fairly? An analysis of Canadian field experiment data.” *Canadian Public Policy* 44 (1): 1–12.

¹⁴ See, e.g., Brief of the United States Department of Justice as Amicus Curiae at 4, *The Atlanta Opera, Inc.*, 10-RC-276292 (NLRB Feb. 10, 2022). Cites potential for the National Labor Relations Board’s (NLRB) regulatory ambiguity to “creat[e] opportunities for employers to undercut competition by misclassifying their own employees.”

an 8–10 percent price advantage over competitors (Kahn 2017, footnote 204).¹⁵ Such a large price advantage can allow a company to quickly gain dominance in the product space, which may contribute to the firm also gaining increased monopsony power.

Regulatory arbitrage can also weaken worker protections when a firm uses terminology to take advantage of regulatory arbitrage in employment laws. For example, critics of ride-hailing companies, argue that these companies engage in a type of regulatory arbitrage by claiming their drivers are independent contractors when they may more aptly be classified as employees. This distinction, known as misclassification, is discussed in more detail in the next section.

Fissuring of the Workplace

Changes in organizational structure of firms since the 1980s have dramatically reduced the bargaining power of some workers. Prior to the 1980s, large corporations tended to directly employ workers across many occupations.

By the late 1980s, firms began to favor a management style that emphasized firms' focus on the handful of areas where their companies have a comparative advantage, known as their "core competencies."¹⁶ Accordingly, firms began to shed workers by outsourcing, and in some cases offshoring, large parts of their employment, particularly among jobs near the lower end of the income and skill distribution.¹⁷ For example, instead of directly hiring janitorial services, companies began to contract with janitorial service companies. David Weil, former Administrator of the Wage and Hour Division at the Department of Labor (DOL), has termed this process of outsourcing labor as the fissuring of the workplace.¹⁸ Consequently, the modern large business looks more like a "small solar system with a lead firm at its center and smaller workplaces orbiting around it" rather than a large single entity (Weil 2014, 42). At the center of some of the biggest solar systems are firms that Autor et al. (2020) have dubbed "superstar firms."¹⁹

Jobs that are fissured do not necessarily disappear—they are reorganized, although often under very different terms. Fissured jobs may be restructured in several ways, including sub-contracting, franchising, greater reliance on temporary staffing agencies, and classifying workers as independent contractors.

Fissuring Considerations

Fissuring potentially benefits firms and consumers. Contracting out areas of relative weakness can allow management to focus on areas where they have a comparative advantage. Accordingly, firms are more productive per retained worker, which could lead to lower prices for consumers and potentially more

¹⁵ Khan, Lina M. 2017. "Amazon's Antitrust Paradox." *The Yale Law Journal* 126 (3): 710–805. <https://www.yalelawjournal.org/note/amazons-antitrust-paradox>.

¹⁶ Prahalad, C. K., and Gary Hamel. 1990. "The core competence of the corporation." *Harvard Business Review* 68 (3): 79–91.

¹⁷ Offshoring is a special case of outsourcing. While both involve contracting out tasks or processes to a third party, offshoring specifically refers to contracting out those tasks or processes to entities outside of the country.

¹⁸ Weil, David. 2014. *The Fissured Workplace: Why Work Became So Bad for So Many and What Can Be Done to Improve It*. Cambridge: Harvard University Press.

¹⁹ Autor, David, David Dorn, Lawrence F. Katz, Christina Patterson, and John Van Reenen. 2020. "The Fall of the Labor Share and the Rise of Superstar Firms." *The Quarterly Journal of Economics* 135 (2): 645–709.

innovation. In certain circumstances, fissuring can benefit smaller businesses as well. Very small firms may lack the funds to hire a full-time custodial employee or accountant and contracting out such tasks could free up mental bandwidth for small firms to focus on their core competencies.

Although it potentially benefits firms and consumers, fissuring can have a detrimental impact on workers. Fissuring can, and empirically does, reduce labor's share of surplus by weakening worker bargaining power and reducing wages for outsourced workers. For example, Dube and Kaplan (2010) estimate that outsourcing among janitors and guards reduced wages by 4–24 percent.²⁰ They also find substantially lower rates of non-wage benefits, such as health insurance coverage, among outsourced workers. For some workers, this may underestimate the effect of outsourcing if outsourced workers must spend more out-of-pocket to pay for equipment previously supplied by their employer. Using German administrative data that allowed them to follow workers over time, Goldschmidt and Schmieder (2017) show that wages fell by 10–15 percent among outsourced workers in the food, cleaning, security, and logistics service industries compared to similar workers who did not experience outsourcing.²¹

To some extent, the lower wages and decreased benefits that fissured workers receive are the point of fissuring in the first place. Within a firm, a rising tide may lift all boats, but when firms fissure their workforce, they exclude certain people from that boat. Economists have long recognized that there are substantial wage differences between directly employed and outsourced workers doing similar work, even controlling for industry, work environment, and, to some extent, unobserved skills.²² These “wage premia” are regularly observed to be larger in larger firms, although there is evidence that the scale of the large-firm wage premium may be decreasing over time.²³

One reason for the higher wages paid to direct employees at some firms is that certain employers, especially profitable ones, pay so-called “efficiency wages” (higher wages than their employees could likely earn elsewhere in the market) to increase retention and worker productivity. Intra-firm dynamics and social norms can discourage providing these higher efficiency wages to only a subset of the firm's workers.²⁴ In this way, a janitor employed at a large profitable firm may well earn above the market rate for their employment. Efficiency wages can also benefit similarly situated workers in other firms by improving their outside options, thereby strengthening their bargaining position with their current employer. These outside pressures, however, abate when firms contract out their “non-core” workforce.

²⁰ Dube, Arindrajit, and Ethan Kaplan. 2010. “Does Outsourcing Reduce Wages in the Low-Wage Service Occupations? Evidence from Janitors and Guards.” *Industrial and Labor Relations Review* 63 (2): 287–306.

²¹ 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.

²² See e.g., Krueger, Alan B., and Lawrence H. Summers. 1988. “Efficiency wages and the inter-industry wage structure.” *Econometrica* 56 (2): 259–293. For a more general empirical view of the large-firm wage premia, see the large literature starting with Abowd, John M., Francis Kramarz, and David N. Margolis. 1999. “High Wage Workers and High Wage Firms.” *Econometrica* 67 (2): 251–333.

²³ Bloom, Nicholas, Fatih Guvenen, Benjamin S. Smith, Jae Song, and Till von Wachter. 2018. “The Disappearing Large-Firm Wage Premium.” *American Economic Association Papers and Proceedings* 108 (May): 317–22.

²⁴ See, e.g., Piketty, Thomas. 2014. *Capital in the Twenty-First Century*. Cambridge: Harvard University Press. For some firms, especially unionized ones, this aversion to intra-firm income inequality may be mechanical: unions may require that the top paid employee earns no more than some multiple of the lowest earning full-time employee. Fissuring can circumvent such rules by no longer considering the lower-paid workers their employees (Dube and Kaplan 2010).

After having their jobs outsourced, fissured workers lose some of their bargaining power because they no longer benefit from the larger workforce dynamics at that employer. Additionally, fissured workers likely miss out on the internal career opportunities that would have been available if they were considered employees, which compounds the impact of lost career opportunities for intra-firm mobility. Moreover, if workers from multiple firms are outsourced to a single staffing agency, the labor market in which those workers participate will have greater employer market power.

It is difficult to assess exactly which occupations have been the most fissured; however, Weil (2019) provides a compilation of industries where fissuring has been well documented and appears to be widespread.²⁵ Weil's compilation broadly suggests industries where fissuring has been most prevalent, including telecommunications sub-industries (e.g., telephone call centers), food service industries (e.g., mobile food services), temporary help services, construction subindustries (e.g., landscaping), janitorial services, security services (e.g., security guards), and transportation subindustries (e.g., taxi and limousine services). In some of these industries, women and minority groups are disproportionately represented.²⁶ For example, Hispanic workers make up roughly twice as large a share of janitors and building custodians compared to their share of employment in the overall economy (31.5 percent versus 18.0 percent).²⁷ Hispanic workers also make up a much greater share of construction laborers than their share of employment (48.9 percent versus 18.0 percent). Similarly, women represent approximately 87 percent of registered nurses, even though they only represent about 47 percent of employment.²⁸ Although fissuring is not exclusively a phenomenon among low-income workers, many of the industries where fissuring appears widespread are industries with low average pay. For example, in November 2021, the average worker in the overall economy earned about \$1,100 a week, but telephone call center workers only earned an average of about \$775 a week and hotel and motel workers (except casinos) earned only about \$650 a week.²⁹ Janitorial service workers earned even less—about \$575 a week.³⁰

Fissuring also reduces the power of collective action. By removing the immediate nexus between workers and the firm for which they perform services, workers are prevented from bargaining directly with the entity that has the economic power. Further, workers whose jobs are contracted out typically end up in a much more competitive pool of relatively substitutable workers. As Kaplan and Dube (2010) explain, contracting reduces union power because contracted workers can be permanently replaced by

²⁵ Weil, David. 2019. "Understanding the Present and Future of Work in the Fissured Workplace Context." *RSF: The Russell Sage Foundation Journal of the Social Sciences* 5 (5): 147–165.

²⁶ Weil (2019) reports employment figures by industry. These data do not report demographic data. The demographic data reported below are based on a slightly different classification of employment (based on occupation rather than industry); therefore, demographic decompositions do not perfectly correspond to subindustries identified in Weil (2019). However, both sets of employment estimates originate from surveys conducted or sponsored by BLS.

²⁷ U.S. Bureau of Labor Statistics. 2022. "Labor Force Statistics from the Current Population Survey: Household Data Annual Averages: 11. Employed persons by detailed occupation, sex, race, and Hispanic or Latino ethnicity." Last modified January 20, 2022. <https://www.bls.gov/cps/cpsaat11.htm>.

²⁸ Nurses are much more likely to work for temporary staffing agencies. See, e.g., Seo, Sukyong, and Joanne Spetz. 2013. "Demand for temporary agency nurses and nursing shortages." *INQUIRY: The Journal of Health Care Organization, Provision, and Financing* 50 (3): 216–228.

²⁹ U.S. Bureau of Labor Statistics. 2022. "Current Employment Statistics – CES (National): Employment and Earnings." Table B-3a. Last modified February 4, 2022. <https://www.bls.gov/web/empsit/ceseeeb3a.htm>. Values rounded to the nearest \$25 a week.

³⁰ *Id.*

a switch in the contractor of record, even if they are unionized. This reduces the incentive to try to unionize. In some cases, employers use new structures that make it difficult to form unions. For example, in the janitorial services industry, workers are commonly considered independent contractors (Weil 2014). Most worker protection laws, including the National Labor Relations Act, do not cover or protect bona fide independent contractors, so these workers lack collective bargaining rights. Furthermore, they face possible antitrust constraints when they try to act collectively in their economic interest.

The intra-firm dynamics highlighted above have a substantial impact on income inequality. Song et al. (2019) notes that a third of the rise in income inequality from 1978 to 2013 occurred because of changes within firms (as opposed to between them).³¹ They further note that one of the two dominant explanations for this increase in inequality within firms was that high-wage workers became more likely to work with each other, which is a natural consequence of fissuring lower-wage workers from the firm.³² Goldschmidt and Schmieder (2017) similarly find domestic outsourcing deepened income inequality in Germany. We discuss the consequences of rising income inequality later in the paper.

Misclassification of Workers

A firm misclassifies a worker when it treats a worker, who should be classified as an employee, as an independent contractor instead.³³ This concept is related to fissuring because both misclassification and fissuring describe a process by which the purchasers of labor attempt to sever what would typically be considered an employee-employer relationship. The employee-employer relationship has historically been the basis for worker protection laws, income tax collection, social security collection, health insurance coverage, and other economic and social constructs. Although fissuring is typically not a per se violation of the law, misclassifying a worker violates some laws.³⁴

Firms misclassify workers and outsource labor for similar reasons—it is cheaper and reduces their risk. For example, assigning work to an independent contractor does not entail as many legal obligations, such as tax and overtime obligations, as the hiring of an employee. Classifying workers as independent contractors can especially reduce costs by shifting non-wage costs typically paid by employers (e.g., healthcare benefits) onto the employee.³⁵ These costs are non-trivial—approximately 30 percent of per-

³¹ In this context “income inequality” is defined as the variance in the natural log of earnings. 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.

³² The other explanation is the rise of sorting high-wage workers into high-wage firms.

³³ Note, worker misclassification involves an incorrect statement by the firm, but does not necessarily imply (nor does it legally need to imply) intentional misclassification on the part of the firm. They may genuinely consider their interaction with a worker to be considered more like an independent contractor relationship than an employee relationship.

³⁴ For example, in the District of Columbia, illegal misclassification is considered a form of payroll fraud. See, e.g., Belman, Dale, and Aaron Sojourner. 2019. “Illegal Worker Misclassification: Payroll Fraud in the District’s Construction Industry.” Office of the Attorney General for the District of Columbia. <https://oag.dc.gov/sites/default/files/2019-09/OAG-Illegal-Worker-Misclassification-Report.pdf>.

³⁵ The true cost of such burden shifting largely depends on the sensitivity (elasticity) of each side (employer/employee) to the costs. However, it is unlikely that employees are so sensitive as to effectively make it impossible for employers to reduce employment costs by shifting nominal burdens to the employee.

hour employer costs come from costs other than wages and salaries.³⁶ Accordingly, a misclassified worker and a worker that is outsourced via fissioning face similarly negative consequences. The ability of a firm to misclassify workers without successful pushback from employees (who clearly would have an incentive to not be misclassified) can itself be viewed as a demonstration of the market power firms have over workers.

The distinction between an employee and an independent contractor has developed over time and the legal standards are not uniform. Fundamentally, the difference depends on the nature of the work and the relationship between the firm and worker. In some jurisdictions, courts determine whether a person should be classified as an employee instead of an independent contractor using a three-part (“ABC”) test. Under this test, a worker is an independent contractor only if their work relationship allows a “yes” answer to all of the following questions:³⁷

- Part A: The worker is free from the control and direction of the hiring entity in the performance of the work, both under the contract for the performance of the work and in fact.
- Part B: The worker performs work that is outside the usual course of the hiring entity’s business.
- Part C: The worker is customarily engaged in an independently established trade, occupation, or business of the same nature as the work performed for the hiring entity.

If the answer to any of these questions is “no,” the court should classify the worker as an employee. Although different jurisdictions have adopted various exceptions to this ABC test, the test clarifies that, in general, workers are only properly classified as independent contractors if their relationship with the business is sufficiently arm’s length and the worker maintains a large degree of autonomy. The ABC test is only one of several types of tests that is used to determine whether a worker is misclassified and is not used under federal law. Other tests include the common-law test and the economic realities test under the Fair Labor Standards Act.

Worker misclassification has garnered particular attention around whether so-called “gig workers,” especially people working for ride-sharing companies are properly classified. However, worker misclassification expands way beyond gig workers and appears to be becoming more common. A 2018 study in Washington state found that the proportion of employers that misclassify at least one of their workers almost tripled between 2008 and 2017 (from around 5 percent to 14.4 percent).³⁸ Among firms that misclassify at least some of their workers, they tended to misclassify about 10–25 percent of their workforce. Using administrative data, that study estimated an overall misclassification rate of a little over one percent between 2013 and 2017. Both the incidence and intensity of misclassification varies widely by industry and occupation. The same report found that the industries with the greatest

³⁶ U.S. Bureau of Labor Statistics. 2021. “National Compensation Survey – Employer Costs for Employee Compensation.” Civilian workers dataset spreadsheet. Last modified December 16, 2021. <https://www.bls.gov/web/ecec/ecec-civilian-dataset.xlsx>.

³⁷ The language presented in this test come from Labor & Workforce Development Agency. 2022. “ABC Test.” State of California. <https://www.labor.ca.gov/employmentstatus/abctest/>. Exact language and interpretation of the ABC test will vary from state to state.

³⁸ Xu, Lisa, and Mark Erlich. 2019. “Economic Consequences of Misclassification in the State of Washington.” Harvard Law School: Labor and Worklife Program. https://lwp.law.harvard.edu/files/lwp/files/wa_study_dec_2019_final.pdf.

incidence of misclassification were construction, clerical services, and hospitality (hotels and restaurants).

Worker misclassification has broader implications beyond its direct impact on the employee-employer dynamic. Whereas employees' income and Social Security taxes and employers' payments of unemployment insurance and other payroll taxes are managed by the employer, tax compliance among independent contractors, who are required to file taxes on their own, is much lower.³⁹ Therefore, when an employer misclassifies an employee, payments on that worker's behalf are not made into social safety-net programs that otherwise would have if the employers had properly classified their workers.

The Questionable Tax Employment Practices (QTEP) program, a joint state/federal program that audits tax data to uncover tax non-compliance, has found large-scale misclassification.⁴⁰ Among the roughly 30,000 audits conducted between (fiscal years) 2015 and 2020, the program reclassified more than 275,000 workers, resulting in the reclassification of about \$4 billion in wages.⁴¹

Fissured workplaces may result in worker misclassification, and, in turn, worker misclassification impacts labor market competition. Workers that are misclassified as independent contractors are deprived most methods by which they can bargain for a greater share of labor market surplus. When the employer offloads the burdens of labor costs on to the worker (including taxes, unemployment insurance, and social security), while continuing to benefit from their productivity, the worker has very little recourse.

Restrictive Employment Agreements and No-Poach Agreements

Terms of employment contracts often extend well beyond simply defining compensation from the employer and job duties of the employee. Employers often include a variety of clauses that restrict employees' behavior, even going so far as to dictate what they can do after they leave the company.⁴² As a result, workers are limited in their ability to—or outright prohibited from—seeking higher-paying work in their field, which reduces their bargaining and earning power. In some cases, such as no-poach agreements (in which employers agree not to solicit or hire each other's employees), employees are not even a party to the agreement.

In practice, restrictive employment agreements can both result from and reinforce employer market power; for example, an employer who has market power for other reasons, such as high market share, may be able to increase its power over both employees and customers by requiring its employees to agree to restrictive clauses. The potential relationship runs in reverse, as well: in a labor market

³⁹ See, e.g., Bruckner, Caroline, and Thomas L. Hungerford. 2019. "Failure to Contribute: An Estimate of the Consequences of Non- and Underpayment of Self-Employment Taxes by Independent Contractors and On-Demand Workers on Social Security." *Center for Retirement Research at Boston College Working Paper 2019-1*. https://crr.bc.edu/wp-content/uploads/2019/01/wp_2019-1.pdf.

⁴⁰ See, e.g., Levine, Suzan G. 2021. "Questionable Employment Tax Practices (QTEP) Program." *Employment and Training Administration, U.S. Department of Labor Training and Employment Notice 3-21*. https://wdr.doleta.gov/directives/attach/TEN/TEN_03-21.pdf.

⁴¹ Note, QTEP reclassifications include, but are not limited to, reclassifications due to worker misclassification. For example, they also include reclassification due to the creation of shell companies to avoid tax payments.

⁴² In some instances, firms may even demand independent contractors to sign such agreements, although some courts may find such clauses unenforceable on public policy grounds.

characterized by pervasive use of restrictive agreements, a merger that increases employer concentration may have greater detrimental effects on competition than would otherwise be the case.

The table below outlines several types of restrictive employment agreements.

Clause	Description
Non-compete agreements	Former employee cannot work for a competitor following separation. Typically applies for a certain amount of time, over a certain geographic area, and within a specific industry.
Non-solicitation agreements	Employee agrees to not solicit a company's clients or customers for their own benefit, or the benefit of a competitor, after leaving the company.
Non-recruitment agreements	Employee or former employee is forbidden from recruiting employers' employees away from employer for a period.
Training repayment agreements	Employee must repay the cost of training provided by employer if they leave employment prior to some period. Agreement is typically pro-rated based on length of employment following training.
Non-disclosure agreements	Prevents employee or former employee from disclosing information. Meant to protect information that is both confidential and valuable.
No-poach agreements	Two or more employers agree to not solicit or hire each other's current or former employees.

Heterogeneity in Enforcement and Legality of Restrictive Agreements

The mere statement of a restrictive term in an employment contract does not automatically make it enforceable. Employment contracts are typically evaluated at the state-level pursuant to statute and case law. Therefore, the degree to which courts will enforce such contract provisions varies between states. For example, Texas statutory law allows for non-compete covenants but only “to the extent that it contains limitations as to time, geographical area, and scope of activity to be restrained that are reasonable and do not impose a greater restraint than is necessary.”⁴³ Enforceability also sometimes varies by occupation. For example, Texas places further conditions on the enforceability of non-compete clauses in medical occupations.⁴⁴ California, in contrast, prohibits enforcement of non-compete agreements.⁴⁵

Employers who illegally use restrictive covenants rarely face sanctions, such as monetary damages. Instead, courts normally either refuse to enforce the covenant or limit the breadth of overly expansive covenants. As such, employers rarely face strong disincentives to including questionable restrictive covenants.

⁴³ Tex. Bus. & Com. Code Ann. §15.50(a) (West 2021).

⁴⁴ *Id.* at §15.50(b).

⁴⁵ Cal. Bus. & Prof. Code § 16600 (West 2021).

However, federal law has placed limitations on some restrictive employment agreements. For example, in 2016, the Department of Justice (DOJ) and Federal Trade Commission (FTC) jointly issued guidance to human resource professionals explaining (inter alia) that naked wage-fixing or no-poach agreements among competitors are per se violations of the antitrust laws.⁴⁶ In early 2021, DOJ announced the first indictments charging naked no-poach or wage-fixing conspiracies.⁴⁷ No-poach agreements are common in highly concentrated and high-skilled industries, as well as in the franchise context, although some chains have ended them in recent years amidst legal and public pressure.⁴⁸ No-poach agreements are also subject to challenge under state antitrust law.

Theory

Non-compete agreements are among the most common form of restrictive employment agreements, but many of the lessons from that literature also apply to other forms of these agreements.⁴⁹ Non-compete agreements (and other similar post-employment restrictive employment agreements) potentially solve a problem that would otherwise limit a firm's investments in their employees—namely, that workers would leave before a firm was able to recoup the value they had invested in training a worker. At the same time, these agreements introduce frictions into the labor market, weaken workers' bargaining positions, and reduce competition over wages (McAdams 2019).⁵⁰ Non-compete agreements are also attractive to employers because employers typically cannot subject employees to term contracts (i.e., a contract that requires the employee to work at a firm for a fixed period of time) because courts refuse to issue injunctions compelling employees to stay in a job. The non-compete agreement indirectly accomplishes this goal by depriving the employee of the most attractive alternative employment opportunities.

⁴⁶ Department of Justice Antitrust Division and Federal Trade Commission. 2016. "Antitrust Guidance for Human Resource Professionals." Last accessed March 2, 2022. <https://www.justice.gov/atr/file/903511/download>. See also, Federal Trade Commission. n.d. "Antitrust Red Flags for Employment Practices." Last accessed March 2, 2022. https://www.ftc.gov/system/files/documents/public_statements/992623/ftc-doj_hr_red_flags.pdf.

⁴⁷ Department of Justice. 2021. "Health Care Company Indicted for Labor Market Collusion." Press release 21-14. Last modified March 4, 2021. <https://www.justice.gov/opa/pr/health-care-company-indicted-labor-market-collusion>; and Department of Justice. 2021. "Health Care Staffing Company and Executive Indicted for Colluding to Suppress Wages of School Nurses." Press release 21-284. Last modified March 30, 2021. <https://www.justice.gov/opa/pr/health-care-staffing-company-and-executive-indicted-colluding-suppress-wages-school-nurses>.

⁴⁸ Starr, Evan. 2019. "The Use, Abuse, and Enforceability of Non-Compete and No-Poach Agreements: A Brief Review of the Theory, Evidence, and Recent Reform Efforts." Economic Innovation Group. <https://eig.org/wp-content/uploads/2019/02/Non-Competes-Brief.pdf>. See also allegation contained in United States v. Adobe Systems Inc., et al., No. 1:10-cv-01629, 2011 U.S. Dist. (March 18, 2011). <https://www.justice.gov/atr/case/us-v-adobe-systems-inc-et-al>; Starr (2019); and Abrams, Rachel. "8 Fast-Food Chains Will End 'No-Poach' Policies." *New York Times*, August 20, 2018. <https://www.nytimes.com/2018/08/20/business/fast-food-wages-no-poach-franchisees.html>.

⁴⁹ Balasubramanian, Natarajan, Evan Starr, and Shotaro Yamaguchi. 2021a. "Bundling Employment Restrictions and Value Capture from Employees." *SSRN*, November 14, 2021. <http://dx.doi.org/10.2139/ssrn.3814403>. Nondisclosure agreements are more common than non-compete agreements, but firm survey data suggest at least some employees have non-compete agreements at approximately two-thirds of firms.

⁵⁰ McAdams, John M. 2019. "Non-Compete Agreements: A Review of the Literature." *SSRN*, December 31, 2019. <https://dx.doi.org/10.2139/ssrn.3513639>. Many of the papers cited in the following section were drawn from this literature review.

In theory, non-compete agreements can increase a firm's investment in their employees by reducing the "hold-up" effect, wherein firms face a disincentive to invest in their employees (including training, access to trade secrets, client lists, etc.) for fear of employees quitting and appropriating the value of their investments before the firm can recoup the lost investment value (Rubin and Shedd 1981).⁵¹ This type of agreement could increase the probability that an employer will be comfortable investing in employee human capital, even if those skills are transferable to other firms, rather than simply relying on firm-specific training (Becker 1962).⁵² Such training can be mutually beneficial for both the employer and employee.

By design, non-compete agreements limit employees' outside options, which, in turn, weakens workers' bargaining power and raises hiring costs for other firms. The limits are typically within a geographic area for a specific period and within a set of relatively similar occupations or industries but may be much broader. Balasubramanian (2017) models the effects of non-competes to show how this narrowing of outside options reduces employee bargaining power relative to their employer.⁵³ All else equal, this leads to what they call a "lock-in" effect: lower worker mobility and longer tenure, as well as a flat or declining wage profile.⁵⁴

Both the mitigation of the "hold-up" effect and "lock-in" effect mentioned above can reduce worker mobility. Lower worker mobility increases recruitment costs for all firms as fewer workers are seeking to switch jobs than otherwise would, absent the post-employment restrictive employment agreement. The increases in recruitment costs can lead to worse matches between employers and employees, lowering wages and aggregate productivity (Jovanovic 2015).⁵⁵

The "hold-up" and "lock-in" effects can coexist. The net effect of these two mechanisms on wages, tenure, and mobility is theoretically ambiguous since the subset of employees who are aware of being asked to sign non-compete agreements may demand higher wages in return (i.e., a compensating differential). Additionally, since mitigation of the "hold-up" channel can create mutually beneficial investments for both the employee and the employer, longer tenure does not necessarily imply the employee is worse off.

However, the share of people who negotiate over a non-compete agreement appears to be quite small. Starr, Prescott, and Bishara (2021) find only about 10 percent of employees negotiate over their non-

⁵¹ Rubin, Paul H., and Peter Shedd. 1981. "Human capital and covenants not to compete." *The Journal of Legal Studies* 10 (1): 93–110.

⁵² Becker, Gary S. 1962. "Investment in human capital: A theoretical analysis." *Journal of Political Economy* 70 (5): 9–49.

⁵³ Balasubramanian, Natarajan, Jin Woo Chang, Mariko Sakakibara, Jagadeesh Sivadasan, and Evan Starr. 2017. "Locked In? The Enforceability of Covenants Not to Compete and the Careers of High-Tech Workers." *Center for Economic Studies, U.S. Census Bureau Working Paper CES-17-09*. <https://www.census.gov/library/working-papers/2017/adrm/ces-wp-17-09.html>.

⁵⁴ A person's wage profile describes their wages over their lifetime. Typically, a person's wages increase from their 20s through their 60s until falling off as people cut back on work hours and transition into retirement. A flatter wage profile means the increase in wages is slower than otherwise expected, which could have compounding effects on lifetime earnings.

⁵⁵ Jovanovic, Boyan. 2015. "Matching, Turnover, and Unemployment." *Journal of Political Economy* 92 (1): 108–122.

compete agreements.⁵⁶ Therefore, it is unlikely that most employees demand (or receive) a compensating differential from signing a non-compete agreement. Furthermore, a worker with little bargaining power (e.g., low-income workers) or who is unaware they are bound by a non-compete (which may be more likely for less-educated workers) is unlikely to be able to secure a compensating differential in exchange for signing a non-compete agreement. To the extent that a compensating differential requires an explicit negotiation, certain workers may be less willing or able to do so—for example, Babcock and Laschever (2009) argue women are much less likely to negotiate during the hiring process.⁵⁷ Accordingly, the share of workers whose wages increase as a result of non-compete agreements is small.

While one of the main justifications for noncompete agreements (as well as other types of restrictive employment agreements) is mitigation of the “hold up” effect, there are far less restrictive means of addressing this problem. For workers with access to genuine trade secrets, there may be overlapping authority with trade secrecy laws, irrespective of the existence of a noncompete agreement.⁵⁸ For the broader workforce, sectoral-based training may provide occupation-specific skills to workers without restricting their mobility.⁵⁹ These alternative arrangements have the possibility of meeting a legitimate need of firms (to protect their intellectual property and have access to skilled employees) without some of the detrimental effects noncompete agreements can have on workers.

Since non-compete agreements increase the bargaining power of employers relative to employees, they potentially allow employers to capture a larger share of the surplus generated by the employee-employer match. Johnson and Lipsitz (2020) argues this might be especially true for low-wage workers near the minimum wage because employers are unable to capture additional surplus from offering lower wages but can nonetheless benefit from non-compete agreements in other ways.⁶⁰ For example, requiring a worker to sign a non-compete agreement could increase their tenure.⁶¹ Likewise, a non-compete agreement may sufficiently limit an employee’s outside options to flatten their wage-tenure profile (that is, how much their wage goes up over time).

Restrictive employment agreements, including non-compete, non-solicitation, and non-recruitment agreements, may reduce firm entry. In aggregate, this tends to lead to reduced demand and wage competition, leading to fewer appealing outside options for similarly situated workers. Samila and Sorenson (2011) find that increases in supply of venture capital funds has a stronger impact on firm start-ups, patent creation, and employment growth in states that have weaker enforcement of non-compete agreements, suggesting non-compete agreements may reduce certain types of entrepreneurial

⁵⁶ Starr, Evan, J.J. Prescott, and Norman D. Bishara. 2021. “Noncompete agreements in the US Labor Force.” *The Journal of Law and Economics* 64 (1): 53–84.

⁵⁷ Babcock, Linda, and Sara Laschever. 2009. *Women don't ask*. Princeton: Princeton University Press.

⁵⁸ For example, 18 U.S. Code § 1832 criminalizes theft of trade secrets (for use or intended for use in interstate or foreign commerce) by an organization.

⁵⁹ For an overview, see e.g., Holzer, Harry J. 2022. “Do sectoral training programs work? What the evidence on Project Quest and Year Up really shows.” *Brookings*, January 12, 2022. <https://www.brookings.edu/research/do-sectoral-training-programs-work-what-the-evidence-on-project-quest-and-year-up-really-shows/>.

⁶⁰ Johnson, Matthew S., and Michael Lipsitz. 2020. “Why are low-wage workers signing noncompete agreements?” *Journal of Human Resources* (May): 0619–10274R2.

⁶¹ This is beneficial to employers even in the relative absence of explicit training costs because recruitment costs are non-zero and on-the-job learning makes high turnover less profitable (all else equal) relative to low turnover.

activity.⁶² However, Carlino (2017) finds little evidence of this, at least in Michigan.⁶³ The reduction of firm entry could also reduce innovation and product variety because employees with new ideas may be restrained from capitalizing on new ideas at their current firm in ways they would not be if they could start their own business. On the other hand, this result is theoretically ambiguous since firms may be reluctant to invest in research and development (R&D) if they fear employees can quit and appropriate that research for their own business.

None of the mechanisms described above necessarily require restrictive employment agreements to be enforced, or even enforceable, to have tangible labor market effects.⁶⁴ While guaranteed enforcement would strengthen their effects, uncertainty over enforcement can nonetheless affect behavior (“in terrorem” effects). This is true even if the actual probability of a contract being enforced is zero. So long as the *perceived* probability of an employer *attempting* to enforce the contract is non-zero, restrictive employment agreements can create frictions.⁶⁵ Consistent with this, Starr, Prescott, and Bishara (2020) present survey evidence that workers with non-compete clauses frequently decline job offers because of their preexisting non-compete agreement, even in states that do not enforce such agreements.⁶⁶ Likewise, survey evidence also suggests that the incidence of non-compete clause inclusion in employment contracts is not strongly correlated with enforceability of non-compete agreements, which could suggest employers include such clauses even when they do not expect them to be enforceable.⁶⁷ This partially occurs because people tend to be risk averse.⁶⁸ Therefore, even in places where non-compete contracts are outlawed, the presence of unenforceable non-compete clauses can have a chilling effect on job-switching. The effects may be particularly severe for lower-wage workers, who may have limited access to legal counsel.

⁶² Samila, Sampsa, and Olav Sorenson. 2011. “Venture capital, entrepreneurship, and economic growth.” *The Review of Economics and Statistics* 93 (1): 338–349. See also Starr, Evan, Natarajan Balasubramanian, and Mariko Sakakibara. 2017. “Screening Spinouts? How Noncompete Enforceability Affects the Creation, Growth, and Survival of New Firms.” *Management Science* 64 (2): 552–572.

⁶³ Carlino, Gerald. 2017. “Do Non-Compete Covenants Influence State Startup Activity? Evidence from the Michigan Experiment.” *Federal Reserve Bank of Philadelphia Working Paper* 17–30.

⁶⁴ See, e.g., Starr, Prescott, and Bishara (2021).

⁶⁵ Because lawsuits can be lengthy, expensive, and mentally taxing, a rational employee may conclude it is not worth trying to switch jobs, even if they are certain they would prevail in court against an attempted enforcement action by their former employer.

⁶⁶ Starr, Evan, J.J. Prescott, and Norman Bishara. 2020. “The Behavioral Effects of (Unenforceable) Contracts.” *The Journal of Law, Economics, and Organization* 36 (3): 633–687. <https://doi.org/10.1093/jleo/ewaa018>. See also Starr, Evan, J.J. Prescott, and Norman D. Bishara. 2016. “The in Terrorem Effects of (Unenforceable) Contracts.” *University of Michigan Law & Econ Research Paper* 16–032.

⁶⁷ Prescott, J.J., Norman D. Bishara, and Evan Starr. 2016. “Understanding Noncompetition Agreements: The 2014 Noncompete Survey Project.” *Michigan State Law Review* 2016 (2): 369–464. Note, the weak correlation between the inclusion of non-compete agreements and enforceability would also indicate weak salience of the enforceability of non-compete agreements among employers. This may be especially true among smaller employers who do not have a professional human resource or legal department to craft employment contracts.

⁶⁸ For example, suppose a person is indifferent between the amenities offered by a competitor relative to their current job. A risk averse person would likely stay at their current job rather than switch to a new job if they were under a non-compete agreement, even if they were highly confident (but not certain) that the non-compete clause was unenforceable. Instead, they would require a premium to account for the possibility that their contract was enforced to their detriment.

Mandatory Pre-Dispute Arbitration and Class Action Waivers

Whereas restrictive employment agreements allow employers to limit how their employees can behave following a separation, mandatory pre-dispute arbitration clauses and class action waivers in employment contracts reduce the options employees or former employees have within the legal system.

Arbitration is a form of alternative dispute resolution in which a third-party, ostensibly neutral, arbitrator resolves the dispute instead of the worker being free to bring a lawsuit through the judicial system. The decision of the arbitrator is binding upon both parties and typically subject to strictly limited subsequent judicial review (i.e., the substance of the decision is generally not appealable). Mandatory arbitration agreements require any dispute ordinarily resolved through a judicial proceeding be, instead, addressed by arbitration, even before the worker has raised any claim that a law has been violated.

Mandatory arbitration agreements are extremely common for non-unionized workers.⁶⁹ One recent report estimated about 56.2 percent of non-union employees, or about 60 million workers, are subject to such agreements.⁷⁰ The share of workers whose employment contracts contain mandatory arbitration procedures has risen dramatically since the Supreme Court upheld their legality in 1991.⁷¹

Mandatory arbitration is more common among large firms. Nearly two-thirds of workers at firms with at least 1,000 employees are subject to mandatory arbitration clauses. Likewise, mandatory arbitration clauses are more prevalent in low-wage workplaces and industries disproportionately composed of women and Black workers (Colvin 2018).

Class action waivers in mandatory arbitration agreements are clauses that bar employees from seeking legal redress via collective legal action. The legality of such agreements has been strongly contested, but, in 2018, the Supreme Court ruled that employers could legally require them.⁷²

Proponents of mandatory arbitration generally argue the process is faster and less costly than traditional court trials. Additionally, firms may find arbitration a less volatile, more private option than jury trials. Opponents of mandatory arbitration argue arbitrators award smaller awards to employees on average and deprive them of due process. Furthermore, they argue that arbitration is less transparent than traditional litigation. Not only are most arbitration decisions non-public, but the mere existence of a decision is also rarely public, reducing awareness and potential deterrence and compliance effects associated with public results.⁷³ These information asymmetries allow firms to exert greater monopsonistic power by introducing additional search frictions for workers who may value knowing a

⁶⁹ Unionized employees usually have access to a collectively bargained grievance resolution process that culminates in binding arbitration with the employee represented by the union.

⁷⁰ Colvin, Alexander J.S. 2018. "The Growing Use of Mandatory Arbitration." *Economic Policy Institute*, April 6, 2018. <https://www.epi.org/publication/the-growing-use-of-mandatory-arbitration-access-to-the-courts-is-now-barred-for-more-than-60-million-american-workers/>.

⁷¹ *Gilmer v. Interstate/Johnson Lane Corp.*, No. 90-18, 500 U.S. 20 (1991).

⁷² *Epic Systems Corp. v. Lewis*, No. 16-285, 138 S. Ct. 1612 (2018). Justice Gorsuch strongly suggested in his opinion that Congress had the ability to change the legality of class action waivers in lawsuits via new legislation.

⁷³ Estlund, Cynthia L. 2018. "The Black Hole of Mandatory Arbitration." *North Carolina Law Review* 96 (3): 679–710.

firm's prior dispute history with workers (or alternatively, current workers who may update their priors on the quality of their employee if they learned about disputes).

There is some evidence that employees are more likely to win in arbitration disputes than in court, though the awards are lower on average.⁷⁴ Larger employers appear to win arbitration cases more often, potentially owing in part to repeat use of arbitrators that ruled favorably for them in the past.⁷⁵ Additionally, since employers are more likely to be repeat players than employees, arbitrators may have an incentive to favor employers in order to continue receiving their business.

Due to the lack of quality data on employer arbitration, an empirical analysis of their effect on the labor market is difficult. However, much like non-disclosure agreements, the opaqueness of arbitration agreements can enable employers' continuing bad behavior as disputes and their resolutions are not made public. In this way, they make it harder for jobseekers to identify the positions that are best suited to them or demand adequate compensation for working in sub-par conditions, which can have the effect of inefficiently matching employees and employers. Since class action lawsuits may lower the plaintiff cost of dispute resolution, mandatory arbitration agreements with class action waivers tend to discourage employee-driven arbitration. This likewise has the effect of reducing the ability of the dispute resolution system to deter future misconduct.

Occupational Licensing

Occupational licensing is a form of regulation that requires individuals who want to perform certain types of work to obtain permission from the government.⁷⁶ Licensing occurs at all levels of government (federal, state, and local), but licenses are primarily issued at the state level.

If markets were competitive, quality was freely observable, and poor (or high) quality imposed no negative (or positive) externalities upon third parties, there would be little justification for occupational licensing.⁷⁷ In such a world, consumers who highly valued quality would easily be able to differentiate low- and high-quality providers. Likewise, providers' wages would be differentiated based on their quality—with higher-quality workers commanding greater wages because of their superior skill.

However, quality is typically not easily observable. Nor are the consequences of poor quality always self-evident. Even when quality is observable, it can be costly to consumers in terms of time and resources to obtain such information. This creates a moral hazard problem wherein low-quality workers asymmetrically know their quality, but consumers do not. Low-quality workers, therefore, have an incentive to obfuscate their performance to consumers to extract greater wages than they would in a perfect information environment. Shapiro (1986) shows how licensing that raises the minimum bar for

⁷⁴ St. Antoine, Theodore J. 2008. "Mandatory Arbitration: Why It's Better Than It Looks." *U. Mich. J. L. Reform* 41 (4): 783–812

⁷⁵ Colvin, Alex, and Mark Gough. 2015. "Individual Employment Rights Arbitration in the United States: Actors and Outcomes." *Industrial and Labor Relations Review* 68 (5): 1019–1042.

⁷⁶ The focus of this section is occupational licensing, as opposed to certification. The primary difference between the two is that licensing involves government power whereas certification is typically done by a private actor, such as a non-profit trade group.

⁷⁷ Quality here is conceived of broadly to include safety.

professionals partially alleviates this moral hazard problem by excluding the lowest-quality providers. They show that licensing benefits consumers who value high-quality at the expense of those who do not.⁷⁸

Licensing can be welfare-enhancing if provider quality is not easily observable. Implicitly, this highlights how the strongest theoretical justification for the benefits (to consumers) associated with occupational licensing occur in occupations where quality meaningfully varies, differences in quality are difficult to observe, and the consequence of that variation matters. For example, the potential benefit of occupational licensing is likely higher in an occupation like medicine (where quality could vary dramatically between providers, a layperson would have difficulty in distinguishing between a high- and low-quality provider, and the consequences of being provided poor medical treatment may be large) compared to an occupation like lawn mowing services (where quality may not differ much, could relatively easily be observable by a lay person, and the consequences of poor service are unlikely to be severe).

Note, Shapiro (1986) does not consider the possibility of spillover effects of quality. For example, if a low-quality mechanic poorly fixes a car, that car may break down in the middle of the road. Even if the consumer is willing to take that risk, a broken car in the middle of the road imposes additional costs on third parties. Likewise, a low-quality healthcare provider may fail to properly diagnose a communicable disease, thereby increasing the probability that unrelated third parties are infected (i.e., imposing a negative externality on the third party). In the presence of such externalities, there is a stronger societal benefit to creating a quality floor.

However, gross benefits do not necessarily imply net benefits to consumers as there are potentially large trade-offs to occupational licensing. Licensing imposes barriers to entry into an occupation. Requirements such as continuing or additional training and education, fees, exams, and paperwork can reduce labor supplied in the licensed occupation. Workers who are liquidity constrained may be disproportionately excluded from entering a licensed occupation if these barriers require large upfront investments, even though such training and education would be worth it in the long run due to increased productivity.

Whether licensing enhances or reduces welfare depends not only on its impact on consumers, but workers as well. While benefits of a reduction in labor supply due to licensing may accrue to practitioners in that occupation in the form of higher wages, some or all of those rents may instead flow to licensing entities.⁷⁹ Thus, the economic benefit to licensed workers is at least theoretically ambiguous, especially if workers must pay to become licensed.

Since most licensing is done at the state-level, differences in licensing requirements impose inter-state barriers to workplace mobility. That is, even if a worker benefits from licensure in one state, this can come at an implicit cost of reduced mobility. Such restrictions to mobility can increase labor market frictions (i.e., require a much higher offer to induce someone to leave their current work) and reduce

⁷⁸ Shapiro, Carl. 1986. "Investment, Moral Hazard, and Occupational Licensing." *The Review of Economic Studies* 53 (5): 843–862.

⁷⁹ Department of the Treasury Office of Economic Policy, Council of Economic Advisers, and Department of Labor. 2015. "Occupational Licensing: A Framework for Policymakers." https://obamawhitehouse.archives.gov/sites/default/files/docs/licensing_report_final_nonembargo.pdf.

search quality (i.e., a place may experience a shortage of otherwise qualified workers simply because those workers live across state lines).

These restrictions to mobility imposed by occupational licensing can be particularly constraining on two-income households facing a so-called “two-body problem” wherein partners of the same (target) household with highly specialized occupations have difficulty in finding suitable work for both partners in the same geographic area. For example, spouses of military members, who frequently move, may find it difficult to find gainful employment when their spouse must relocate. Such barriers can exacerbate pre-existing inequities in household dynamics and lead to worse average job searches, especially when both workers work in licensed occupations.⁸⁰

Once a government entity decides an occupation should be licensed, they must also determine the manner of licensing. Too lax a licensing policy may not adequately screen out low-quality practitioners. This can harm consumers who, believing licensing is an implicit governmental endorsement of quality, may unknowingly visit an under-qualified practitioner. On the other hand, Shapiro (1986) noted licensing may benefit those who value high-quality services, but it harms those who do not. Setting too high of a requirement to get licensed can overly restrict the supply of labor to such a degree that very few consumers would benefit.

If quality is difficult to observe for consumers, it may also be difficult to observe for licensing entities. Therefore, licensing requirements may imperfectly screen for quality, especially when the licensing process is relatively crude. For example, a common requirement for licensing is to train for a certain number of hours before the worker can partake in an occupation. During these trainings, which can take months for some occupations, workers are often unpaid and may even be required to pay for the training.

As mentioned above, these barriers may be infeasible for individuals with less financial resources, which disproportionately includes people of color.⁸¹ Furthermore, if licensing involves a professional examination, as it often does, those tests may reflect underlying biases of the test makers more than actual quality.⁸² Thus, even if there is a benefit to screening out lower-quality practitioners, there is no

⁸⁰ For example, ex-ante differences in gender pay gaps (due to discrimination or otherwise) can be amplified because a household seeking to maximize household earnings may elect to move to a state if the higher-earning member receives a sufficiently large pay increase from moving, even if the lower-earning member’s income suffers. For a modeling example, see, e.g., Rueda, Valeria, and Guillaume Willems. 2021. “Career Paths with a Two-Body Problem: Occupational Specialization and Geographic Mobility.” *Upjohn Institute for Employment Research Working Paper 21-346*. <https://doi.org/10.17848/wp21-346>.

⁸¹ Even if capital markets allowed workers to borrow against their expected future earnings, most people are risk averse. This risk aversion may make them hesitate to take on debt to finance training in an occupation with uncertain returns. The net result remains the same: workers with fewer means are more likely to be screened out despite their underlying ability relative to workers with greater means.

⁸² A test may poorly screen for quality, even if it is standardized. For example, the Scholastic Aptitude Test (SAT) is meant to screen for college readiness, but it has long been recognized that it poorly screens students of color disproportionately (see, e.g., Freedle, Roy. 2003. “Correcting the SAT’s ethnic and social-class bias: A method for re-estimating SAT scores.” *Harvard Educational Review* 73 (1): 1-43.). Some evidence also suggests the SAT is a better predictor of family income than college readiness (see, e.g., Goldfarb, Zachary A. 2014. “These four charts show how the SAT favors rich, educated families.” *Washington Post*, March 5, 2014. <https://www.washingtonpost.com/news/wonk/wp/2014/03/05/these-four-charts-show-how-the-sat-favors-the-rich-educated-families/>).

guarantee that licensing entities can do so effectively. Certain types of screening tools may be more effective than others and may thereby avoid some of the limitations of licensing mentioned above. For example, employer-financed training can reduce the liquidity constraints imposed by some licensing bodies. Likewise, union apprenticeships, wherein workers work alongside a professional in preparation for becoming licensed may serve as a better screening mechanism than written tests, where appropriate.

Skill-Biased Technical Change and Job Polarization

As mentioned above, worker bargaining power depends largely on their unique traits. If a firm can easily replace a worker's role in production at a similar cost (i.e., the worker is substitutable), then that worker has minimal leverage during negotiations. Substitutes may come in different forms—for example, an equally qualified worker who would accept the same job at the same wage or perhaps a machine or computer that can do the same work at a similar or lower cost.

As technology changes to develop better substitutes for lower-paid workers, workers see their bargaining positions deteriorate relative to the firm. Whereas a cashier might once have been an indispensable employee at a supermarket or fast-food restaurant, viable substitutes are now available. Intuitively, this limits the worker's bargaining power: if wages grow high enough, the employer may rather pay for kiosks than cashiers.

Many tasks once done by humans are now done by machines. "Skill-biased technical change" refers to changes in technology or production that replace (or substitute) unskilled labor in favor of skilled labor since technology is complementary to skilled labor.⁸³ This process has especially disrupted routine-based work (where automation is easiest to implement) in occupations with relatively high-paying jobs. This has led to what some economists refer to as job polarization, wherein the labor market is ever more segmented into a low-skilled, low-wage sector and a high-skilled, high-wage sector. This process has contributed to both changes in the marginal product of labor (which would lead to wage divergence under conditions of perfect competition) but also likely had differential impacts on bargaining power across the income distribution.

In this framework, the result is a low-wage sector is characterized by jobs that are not easily replaced by technology (e.g., line cook), while the high-wage sector is characterized by jobs that are complementary to technological advances (e.g. accountants utilizing spreadsheets to tackle more work in a day).⁸⁴ The term "polarization" comes from the hypothesis that technology has replaced middle-skilled, middle-wage jobs (e.g., the cashiers mentioned above).⁸⁵ That said, both the existence of job polarization (especially after the 1990s) and its impact on income inequality remains hotly debated. For example,

⁸³ This pattern of substitutability and complementarity does not always hold true. Examples of the converse pattern include the power loom during the Industrial Revolution and GPS technology, which substitutes for a detailed knowledge of local geography and traffic routes.

⁸⁴ Goos, Maarten, Alan Manning, and Anna Salomons. 2014. "Explaining job polarization: Routine-biased technological change and offshoring." *American Economic Review* 104 (8): 2509–26.

⁸⁵ *Id.*

Michel et al. (2013) argue that the job polarization found in Acemoglu and Autor (2011) is highly sensitive to measurement error problems, choice of sample period, and empirical design.⁸⁶

Although work pertaining to skill-biased technical change originally focused on the role of education, recent work by Acemoglu and Autor (2011) and others have focused more on the role of tasks, with machine automation primarily able to replace routine non-cognitive based tasks.⁸⁷ Acemoglu (2020) built on this framework by modeling not only tasks that are effectively automated away from humans, but also modeling new task formation that flows from automation of older tasks.⁸⁸ In their model, the destruction of tasks via automation tends to increase income inequality, but the creation of new tasks resulting from automation has an ambiguous impact on income inequality.

Labor Market Power & Competition: Empirical Evidence

Having discussed theories of labor market power and related issues, we now turn to the data. Depending on the reader's perspective, several different questions addressed in this section might be deemed 'most important.' Among those questions: how large are wage losses stemming from monopsonic power on average? Have those losses increased or decreased over time? What are the sources of monopsony power, and how do employers exert it in practice?

First, we address the question of causality: does labor market power exist, and does it suppress wages? We find convincing evidence that both questions can be answered in the affirmative. Further, we argue that evidence suggests that this power derives more from labor market frictions than from market frictions. Second, we address the scale of labor market power—on average, how large are the compensation losses which stem from it? We argue that the highest quality estimates suggest wage losses of 15 percent, at minimum. Finally, we address the incomplete evidence on time-trends in labor market power, as well as discussing some alternate perspectives on the source of labor market power.

Does Labor Market Power Suppress Wages, in Practice?

Although theory predicts that labor market power will harm workers, the sources of labor market power often coincide with other market factors that might explain lower wages. For example, small rural communities with a single large factory have both a single dominant employer (the factory) and low

⁸⁶ Mishel, Lawrence, Heidi Shierholz, and John Schmitt. 2013. "Don't blame the robots. Assessing the job polarization explanation of growing wage inequality." *Economic Policy Institute and Center for Economic Policy and Research Institute* working paper. See also Hunt, Jennifer, and Ryan Nunn. 2019. "Is Employment Polarization Informative About Wage Inequality and Is Employment Really Polarizing?" *National Bureau of Economic Research Working Paper* 26064.

⁸⁷ Acemoglu, Daron, and David Autor. 2011. "Skills, tasks and technologies: Implications for employment and earnings." *Handbook of Labor Economics*, edited by Orley Ashenfelter and David Card, vol. 4 (Part B), 1043–1171. Elsevier. See also Frey, Carl Benedikt, and Michael A. Osborne. 2017. "The future of employment: How susceptible are jobs to computerisation?" *Technological Forecasting and Social Change* 114 (January): 254–280.

⁸⁸ Acemoglu, Daron, and Pascual Restrepo. 2020. "Unpacking Skill Bias: Automation and New Tasks." *American Economic Association Papers and Proceedings* 110 (May): 356–361.

costs of living, which can also partially explain low wages. Recent research has nevertheless demonstrated that labor market power *causes* lower wages, though it is not the sole contributing factors. One set of papers, discussed in later sections, argues that estimates of separation elasticities (how much workers respond to wage changes by separating with or joining a firm) directly imply labor market power, a viewpoint which is consistent with the theory discussed above. However, we focus on event-studies to directly address the question of the causal impact of labor market power on wages.

Prager and Schmitt (2021) offer some of the most compelling and nuanced evidence to address this question, although the paper's scope is restricted to hospital employment.⁸⁹ The paper studies the effect of employer labor market power by examining the evolution of wages and employment following hospital mergers- mergers that represent a potential source of increased labor market power. The empirical strategy is a "difference-in-differences" framework, which compares changes in markets with one hospital merger from 2000 to 2010 to the changes in markets without mergers during those years. In summarizing the paper, the authors write, "We find evidence of wage slowdowns, but only following mergers that induce large increases in employer concentration, and only for workers whose skills are industry specific."

We highlight two findings from Prager and Schmitt (2021). *First*, it observes wage losses only in those hospital occupations where skills are industry-specific (e.g., doctors, but not cafeteria workers), but only when market concentration substantially increases. There are no detectable wage effects of mergers that only mildly increase employer concentration, but the study does find evidence of slower wage growth following mergers that meaningfully increase concentration. Among the most substantial mergers, the paper estimates a reduction in annual wage growth of between 1.0 and 1.7 percentage points for workers with hospital-specific skills, roughly one-quarter of these occupations' typical wage growth rates. However, detectable wage slowdowns from hospital consolidation are limited to occupations with health-care specific skills, even for the most substantial mergers. For non-health-care specific occupations, those mergers have a less meaningful impact on the number of potential employers and market concentration—leading to lesser or null wage effects. This suggests that occupational-level markets are more relevant than industry-level markets when analyzing labor market power, a suggestion that is echoed in related papers.

Secondly, insofar as these mergers had detectable employment effects, they were positive.⁹⁰ This finding carries particular importance since it is inconsistent with the classical theory of monopsony power, where the monopsonist reduces wages by constricting labor demand, thereby decreasing the number of employees. However, it *is* consistent with a search and matching framework of market power, which does not require a decrease in jobs. Instead, this finding is consistent with a search and matching explanation for market power, where frictions in the labor market shield employers from competition for workers, resulting in sub-competitive wages. As mergers leave fewer potential

⁸⁹ Prager, Elena, and Matt Schmitt. 2021. "Employer Consolidation and Wages: Evidence from Hospitals." *American Economic Review* 111 (2): 397–427. This paper's results are discussed in further depth below, in the Industry Examples subsection.

⁹⁰ This positive estimate may well reflect pre-existing trends, rather than an actual effect. After including a linear time-trend in their estimated regression, the employment effects are no longer statistically significant.

employers, the employee believes that the benefits of job search are lower, so they put less effort into their search.

Prager and Schmitt (2021) is useful for this report's purposes, as it both (a) convincingly establishes a causal link from mergers to increased labor market power, and (b) furnishes evidence that search and matching is the most relevant framework for understanding monopsonistic power. Other recent papers estimate the wage effects of mergers across a broader range of industries, showing that wage suppression as a result of labor market power is not unique to the health care industry. Notably, Arnold (2021) finds similar effects across a wider range of industries, along with a higher rate of job departures from recently merged employers (the data do not allow an analysis of whether this is due to downsizing, quits, or other mechanisms).⁹¹ However, the wages lost over the course of this study are not meant to be estimates of the current *level* of average wage loss in the U.S. economy. We next turn to papers more suited to estimate those wage losses.

The Extent of Wage Losses due to Labor Market Power

How large are wages losses stemming from the exercise of monopsonist power on average? Before turning to the empirical estimates, it is worth restating a definition for "wage losses.". The "loss" is relative to the wage in a perfectly competitive and frictionless environment where workers would be paid a wage equal to the "marginal revenue product of labor" (MRP_L). Though a technical term, MRP_L reflects a relatively simple idea. If a firm adds one more worker, it can produce a little more of its product. When the firm sells that extra product, the total revenue from that sale is the MRP_L . Put differently: a worker's MRP_L equals the revenue their employer *would* lose *if* they were to quit.

Like with any complex question, studies offer a range of estimates regarding these wage losses. Among recent empirical work, Yeh, Macaluso, and Hershbein (2022) estimate that workers at the average manufacturing plant earn 65 percent of their MRP_L , or 65 cents of every dollar they produce.⁹² This is at the higher end of estimates among our selected studies, yet it has plenty of supporting evidence. The paper adopts a direct approach to estimating wage losses, marshalling detailed, plant-level Census data to do so. This is no small feat: due to considerable technical hurdles, nearly all other efforts to estimate wage loss infer the values indirectly by connecting wage loss to theoretically related statistics. One drawback to the paper is its industrial focus: extrapolating the Yeh, Macaluso, and Hershbein (2022) estimate to non-manufacturing sectors is unwarranted, therefore we do not say this is an economy-wide estimate. However, it remains a credible estimate pertaining to a crucial sector of the U.S. economy.

The bulk of our selected studies estimate average wage losses to be on the order of 15–25 cents on the dollar (alternately, workers earn between 75 and 85 cents for each dollar of value produced). Notable papers that estimate wage losses in this range include Berger, Herkenhoff, and Mongey (2021), who study how competing firms respond to changes in state taxes, leading to estimates of the scale of

⁹¹ Arnold, David. 2021. "Mergers and acquisitions, local labor market concentration, and worker outcomes." Working Paper. <https://darnold199.github.io/madraft.pdf>.

⁹² Yeh, Chen, Claudia Macaluso, and Brad Hershbein. 2022. "Monopsony in the U.S. Labor Market." *American Economic Review*, Forthcoming: https://www.dropbox.com/s/3qpxons17tuk044/monopsony_draft_January2022.pdf?dl=0.

monopsony power in local labor markets.⁹³ This paper’s estimates suggest an average wage loss of 24 cents per dollar produced. Crucially, workers do not suffer a full 24 percent loss of welfare due to labor market power—a variety of mitigating factors lead to a still-substantial average lifetime welfare loss of 4–9 percent.

Another estimate in this range comes from Bassier, Dube, and Naidu (2021), who study worker responses to changes in firm-wide wage policies.⁹⁴ Their estimate of average wage loss is 19 cents on the dollar. This paper’s estimates suggest that wage loss due to monopsony power is larger for lower-paid workers—the estimated loss for the bottom quartile of wages is 26 cents on the dollar.

On the lower end of the spectrum, Azar, Berry, and Marinescu (2019) estimate wage losses of 15 cents on the dollar.⁹⁵ Focusing on worker preferences between firms – rather than search frictions – Lamadon et al. (2022) also find wage losses on the order of 15 cents on the dollar.⁹⁶ Notably, this paper supports the view that across-firm differences in non-pecuniary amenities are both a potential result of labor market power, and a potential source of that power. Kroft et al. (2021) arrive at a similar estimate.⁹⁷ Among our selected studies, this is the lower bound of wage losses, meaning we believe the best available empirical evidence suggests that labor market power reduces wages by *at least* 15 percent.

Changes in Labor Market Power and Concentration over Time

Whether labor market power has increased or decreased over the past 50 years remains an unresolved question. Although concentration and market power are not necessarily linked, as argued throughout this report, we do have stronger evidence regarding the trend in labor market concentration. Measured at the national level, the concentration of employers in the labor market has increased since the 1980s. However, at the local level, which is the relevant level for most workers, concentration has consistently decreased over that timeframe (Rinz 2018).⁹⁸ From the late 1970s through 2015, the average local labor market Herfindahl-Hirschman Index (HHI) fell by nearly 0.06 (equivalently 600 points).⁹⁹

Nevertheless, concentration remains high. Rinz (2018) finds the average concentration of local labor markets to be around 1,500, the threshold at which DOJ may intervene to block a merger in goods

⁹³ Berger, David, Kyle Herkenhoff, and Simon Mongey. 2021. “Labor Market Power.” *National Bureau of Economic Research Working Paper* 25719.

⁹⁴ Bassier, Ihsaan, Arindrajit Dube, and Suresh Naidu. 2021. “Monopsony in Movers: The Elasticity of Labor Supply to Firm Wage Policies.” *The Journal of Human Resources*, forthcoming.

⁹⁵ Azar, José, Steven Berry, and Ioana Elena Marinescu. 2019. “Estimating Labor Market Power.” *SSRN*, September 18, 2019. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3456277.

⁹⁶ Lamadon, Thibaut, Magne Mogstad, and Bradley Setzler. 2022. “Imperfect Competition, Compensating Differentials, and Rent Sharing in the US Labor Market.” *American Economic Review* 112 (1): 169–212.

<https://www.aeaweb.org/articles?id=10.1257/aer.20190790>

⁹⁷ Kroft, Kory, Yao Luo, Magne Mogstad, and Bradley Setzler. 2021. “Imperfect Competition and Rents in Labor and Product Markets: The Case of the Construction Industry.” Working Paper.

<https://www.bradleysetzler.com/files/Kroft-Luo-Mogstad-Setzler.pdf>.

⁹⁸ Rinz, Kevin. 2018. “Labor Market Concentration, Earnings Inequality, and Earnings Mobility.” *Center for Administrative Records Research and Applications, U.S. Census Bureau Working Paper* 2018-10.

⁹⁹ The HHI is defined as the *sum of squared-market shares*, for some defined market. Higher values of HHI indicate greater market concentration.

markets. Using job postings from a private jobs website, Azar, Marinescu and Steinbaum (2020) calculate an average HHI of 3,157.¹⁰⁰ Many other studies come to similar results, generally finding that wages are negatively correlated with concentration.¹⁰¹

With market power, firms hire fewer workers than they would in a competitive environment. This reduction in employment is more than a curiosity: it informs how we should measure the existence and extent of monopsony power. In particular, it means that the exercise of market power *decreases* market concentration relative to a competitive environment, if larger firms tend to have greater market power. This should give some pause to using labor market concentration as a direct measure of market power. Theoretically, the markdown measures market power most accurately, a point we return to in the empirical section. Unfortunately, markdowns are difficult to measure.

On a related topic, this observation forms the theoretical foundation of how minimum wages can increase aggregate employment.¹⁰² Under monopsony's lower wages, the economy sees fewer jobs than in competitive equilibrium since lower wages mean fewer workers willing to accept jobs. Insofar as a minimum wage does not exceed the competitive wage, it increases employment: more workers will accept employment at the increased wage, while firms still find it profitable to employ all the willing workers.

Decreasing concentration does not necessarily mean increasing labor market competition: the relationship between concentration and labor market power is theoretically *ambiguous*.¹⁰³ Indeed, many recent papers on the subject take pains to point this out, including Yeh, Macaluso, and Hershbein (2022); Berger, Herkenhoff, and Mongey (2021); and Bassier, Dube, and Naidu (2021). For example, Berger, Herkenhoff, and Mongey (2021) estimate that labor market power has decreased over that time frame, thereby increasing labor's share of income by 4 percentage points from 1977 to 2013. On the other hand, Yeh, Macaluso, and Hershbein (2022) argue that labor market power decreased from 1977 to 2002, then quickly rose over the ensuing decade. *Figure 2* illustrates this secular trend.

¹⁰⁰ Azar, José, Ioana Marinescu, and Marshall Steinbaum. 2020. "Labor Market Concentration." *Journal of Human Resources* (May): 1218–9914R1.

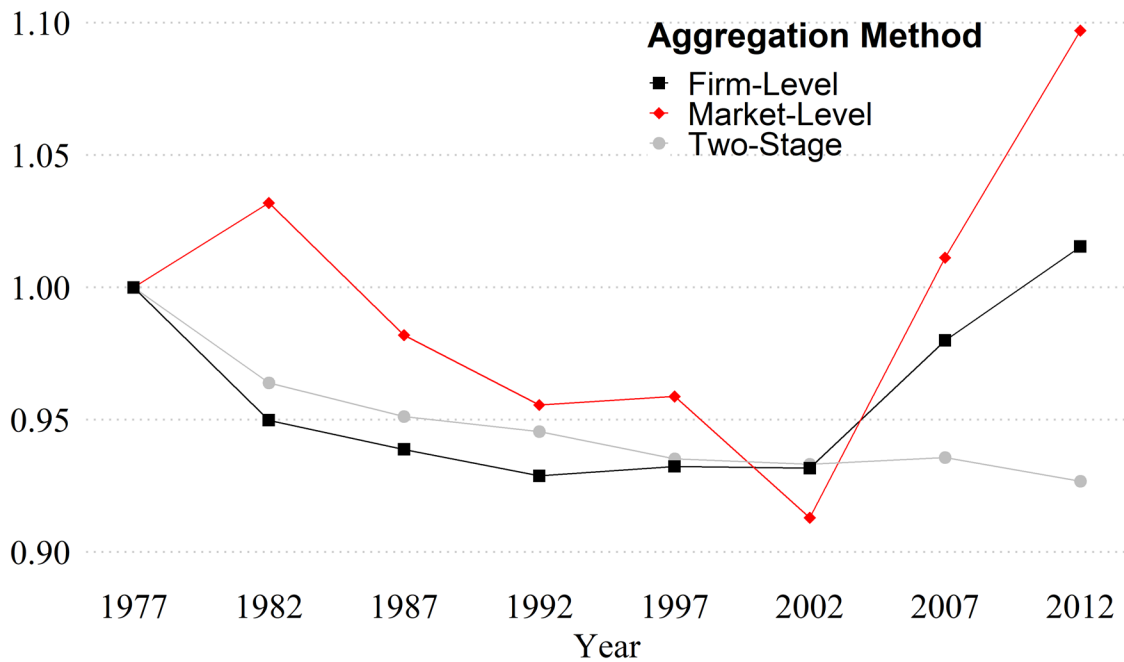
¹⁰¹ See, e.g., Benmelech, Efraim, Nittai K. Bergman, and Hyunseob Kim. 2020. "Strong employers and weak employees: How does employer concentration affect wages?" *Journal of Human Resources* (December): 0119–10007R1.

¹⁰² While this white paper does not explicitly address the economics of minimum wages, questions of labor market power are important subtext in the discussion of minimum wages and its potential dis-employment effects.

¹⁰³ For an overview of the theory, see Syverson, Chad. 2019. "Macroeconomics and Market Power: Context, Implications, and Open Questions." *Journal of Economic Perspectives* 33 (3): 23–43.

Labor Market Power in U.S. Manufacturing

Markdown Indices, Relative to 1977



Source: Yeh, Macaluso, and Hershbein (2021)

Figure 2 - Labor Market Power in Manufacturing, Measured by Wage Markdowns (Yeh, Macaluso, and Hershbein (2022))

Also illustrated by Figure 2 is the importance of index choice and aggregation method.¹⁰⁴ When we discuss average labor market power at a national level, we are ultimately summing up the positions of many firms and establishments into a single statistic. From the firm’s perspective, the plot illustrates that manufacturing labor market power fell from 1977 to 2002, then increased back to roughly 1970s levels over the subsequent decade. The same was not true from the manufacturing workers’ perspective, reflected by market-level aggregation (we typically assume that the worker searches within a market, though that is not *strictly* true). From that perspective, markdowns also fell through 2002, but then grew quickly over the past decade, well beyond the levels of the late 1970s.

Note, importantly, that this estimated increase in market power over the last decade was not associated with an increase in concentration. In contrast to the market-level measure of markdown, local concentration in manufacturing labor markets declined since 1977 and remained below the 1977 level all the way through 2012. This observation, combined with observations in the other papers highlighted in this section, suggest that labor market concentration is a flawed proxy for labor market power.

¹⁰⁴ Some notes on interpreting Figure 2: each of the three series are indexed to 1 in 1977, meaning that all points are relative to that year. For example, the red “Market-Level” series for markdowns is roughly 1.1 in 2012, which can be interpreted as markdowns that are 10 percent greater than they were in 1977. Only changes can be inferred from the figure itself; the figure says nothing about the level of markdowns at any point.

Alternative Perspectives on Market Concentration and Labor Market Power

The previous section featured papers arguing that labor market concentration and labor market power are not necessarily correlated. However, a handful of recent studies have focused on concentration as not only an indicator of market power, but also a cause of it. In a classical monopsony or oligopsony model, some degree of concentration is a prerequisite for market power.¹⁰⁵ For example, Azar, Marinescu, and Steinbaum (2020) measure concentration in local labor markets using data from postings on CareerBuilder.com, estimating that moving from the twenty-fifth to the seventy-fifth percentile of concentration within U.S. local labor markets results in a 5–17 percent decrease in posted wages. Acknowledging that a correlation between concentration and posted wages could be a confounded by productivity differences, the paper uses an “instrument” for market concentration (a common econometric strategy to address these kinds of concerns) of the inverse number of employers that make job postings in the same occupation and quarter, but in different geographic markets. The crucial assumptions are (a) occupation-level concentration in *other* geographic areas is correlated with local concentration, but (b) *not* associated with local occupational wage postings in any other way. If workers commonly look outside their own geographic area for a job, for example, then the second assumption would be violated.

Focusing on the manufacturing sector, Benmelech, Bergman, and Kim (2020) find that increasing local labor market concentration from one standard deviation below the national mean to one standard deviation above the national mean decreases wages between 9.1 percent and 14.4 percent. Notably, they also find that unionization, which provides workers with countervailing market power, decrease how responsive wages are to local labor market concentration by between 29 percent and 45 percent.

This white paper has argued that frictions are a more important source of labor market power than concentration. However, it is important to stress that the two sources are not mutually exclusive. Evidence for one mechanism is not necessarily evidence against the other.

Restrictive Employment Agreements

Both the exposure to and the effect of non-compete agreements and other types of post-employment agreements differ by state, occupation, and workplace status (e.g., entry-level vs executive).

Twenty-one percent of workers in the top income quintile are covered by a non-compete agreement compared to eight percent of workers in the bottom quintile of hourly wages.¹⁰⁶ However, this still leaves millions of workers with minimal employer-specific training subject to non-compete agreements (Starr, Prescott, and Bishara 2021). Top executives may be even more responsive to non-compete agreements. Garmaise (2011) finds that top executives were 47 percent less likely to change jobs within industries as non-competes became more strictly enforced and their tenure also increased by about 16

¹⁰⁵ In general, it is not true that concentration implies market power. Concentration is consistent with a competitive market featuring differences in productivity. In that context, the most productive firms are the largest employers, and this allocation is efficient—any reallocation of workers would *reduce* wages.

¹⁰⁶ Boesch, Tyler, Katherine Lim, and Ryan Nunn. 2021. “Non-compete contracts sideline low-wage workers.” *Federal Reserve Bank of Minneapolis*, October 15, 2021. <https://www.minneapolisfed.org/article/2021/non-compete-contracts-sideline-low-wage-workers>.

percent.¹⁰⁷ Additionally, Kini, Williams, and Yin (2021) show that initial CEO compensation is higher when enforceability of non-competes is higher, suggesting CEOs demand a compensating differential in exchange for signing non-compete agreements.¹⁰⁸ The greater responsiveness of compensation to non-compete agreements of top executives compared to lower-wage workers could be due to a number of factors, including that top executives may be more likely to face increased coverage by a non-compete agreement, a bigger relative loss in wages when switching jobs, and higher odds of enforcement of a non-compete agreement.¹⁰⁹

Unlike higher income workers, lower wage workers likely lack sufficient bargaining power to refuse a non-compete agreement. As a result, whereas non-compete agreements may increase top-earner wages at the expense of mobility, non-compete agreements appear to reduce both wages and mobility for lower-income earners. For example, Lipsitz and Starr (2021) find that the ban on non-compete agreements for hourly workers (who tend to be lower income) in Oregon increased overall hourly wages by 2–3 percent, with a stronger effect for female workers.¹¹⁰ Johnson, Lavetti, and Lipsitz (2021) likewise find stronger effects from enforcement of non-compete agreements on income of women and people of color.¹¹¹ Young (2021) finds that a ban on non-compete clauses for low-to-medium income workers in Austria modestly increased worker’s annual job-to-job mobility rate (a 0.27 percentage point increase against a base rate of 16 percent).¹¹²

Non-compete agreements exist across occupations broadly, though their prevalence varies. For example, non-compete agreements are relatively rare in agricultural occupations compared with sales and management related occupations (Boesch, Lim, and Nunn 2021, fn. 1). Furthermore, employers with multiple locations are more likely to have non-compete agreements (id.).

Balasubramanian, Starr, and Yamaguchi (2021b) show that employers often bundle post-employment restrictive covenants, which in addition to non-compete agreement include non-disclosure agreements, non-solicitation agreements, and non-recruitment agreements.¹¹³ Consistent with previous studies, they find that below-median income workers are more likely to be covered by none of these agreements compared to higher-income workers. However, they also find should there be any post-employment restriction covenants low-income are about equally likely as high-income workers to face the full bundle of restrictions. They suggest their estimates are consistent with pure value capture (related to the “lock-in” effect mentioned above) being the dominant reason for bundling agreements for average workers,

¹⁰⁷ Garmaise, Mark J. 2011. "Ties that truly bind: Noncompetition agreements, executive compensation, and firm investment." *The Journal of Law, Economics, and Organization* 27 (2): 376–425.

¹⁰⁸ Kini, Omesh, Ryan Williams, and Sirui Yin. 2021. "CEO noncompete agreements, job risk, and compensation." *The Review of Financial Studies* 34 (10): 4701–4744.

¹⁰⁹ Id.

¹¹⁰ Lipsitz, Michael, and Evan Starr. 2021. "Low-Wage Workers and the Enforceability of Noncompete Agreements." *Management Science* 68 (1): 143–170. <https://doi.org/10.1287/mnsc.2020.3918>.

¹¹¹ Johnson, Matthew, Kurt Lavetti, and Michael Lipsitz. 2020. "The Labor Market Effects of Legal Restrictions on Worker Mobility." *SSRN*, June 6, 2020. <https://ssrn.com/abstract=3455381>.

¹¹² Young, Samuel G. 2021. "Noncompete Clauses, Job Mobility, and Job Quality: Evidence from a Low-Earning Noncompete Ban in Austria." *SSRN*, July 5, 2021. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3811459.

¹¹³ Balasubramanian, Natarajan, Evan Starr, and Shotaro Yamaguchi. 2021b. "Bundling Postemployment Restrictive Covenants: When, Why, and How It Matters." *Economic Perspectives on Employment & Labor Law Journal* (March). Specifically, they look at non-disclosure, non-solicitation, non-recruitment, and non-compete agreements. Among these, they find the most common clause that people are aware of is the non-disclosure agreement.

whereas value creation (related to the “hold-up” effect mentioned above) is a primary reason for top executives, like CEOs.

One type of restrictive employment agreement, the non-disclosure agreement (NDA), has garnered attention recently. In the wake of the #MeToo movement, it was anecdotally argued that NDAs led to underreporting of unlawful conduct resulting from fears of retaliation and lawsuits over breaching these agreements.¹¹⁴ Sockin, Sojourner, and Starr (2021b) show that changes in laws in three states (California, Illinois, and New Jersey), which prohibited firms from using NDAs to restrict workers from sharing information about unlawful conduct, led to an increase in negative reviews (5 percentage points greater share) on Glassdoor, especially pertaining to workplace harassment (22 percent increase).¹¹⁵ The authors argue that “by preventing outsiders from learning about undesirable firm employment practices, over-broad NDAs impose potential negative externalities on job seekers and competitor firms.”

Starr, Prescott, and Bishara (2021) find that the huge number of low-skill workers subject to non-competes suggests that employers routinely apply them to workers who do not possess trade secrets or customer lists and are not given specialized training. They cite as an example a large sandwich chain, which subjected its workers to extremely broad non-competes. Though these non-competes are not likely enforceable under state law, they point out that they may have an in terrorem effect that deters employees from obtaining jobs at competing employers.

Trends in and Effects of Occupational Licensing

The incidence of occupational licensing has grown dramatically since the 1950s, from about 5 percent to around 20 percent of workers by the mid-2010s.¹¹⁶

In 2016, Treasury’s Office of Economic Policy, in collaboration with the Council of Economic Advisers (CEA) and DOL, released an extensive report documenting the effects of occupational licensing on labor markets (Department of Treasury, Council of Economic Advisers, and Department of Labor 2015). The report, hereafter referred to as UST (2016), examined dozens of studies on the effects of occupational licensing both broadly and within specific industries.

UST (2016) found little evidence that marginal changes in occupational licensing typically increase quality, safety, or health. Evidence since then tends to corroborate these findings. For example, Kleiner

¹¹⁴ Sockin, Jason, Aaron Sojourner, and Evan Starr. 2021a. “What happens when states limit nondisclosure agreements? Employees start to dish.” *Washington Post*, October 4, 2021.

<https://www.washingtonpost.com/outlook/2021/10/04/non-disclosure-employee-reviews-study/>.

¹¹⁵ Sockin, Jason, Aaron Sojourner, and Evan Starr. 2021b. “Externalities from Silence: Non-Disclosure Agreements Distort Firm Reputation.” *Institute of Labor Economics Working Paper*.

https://conference.iza.org/conference_files/LaborMarkets_2021/sockin_j28322.pdf.

¹¹⁶ 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 (S1): S173–S202; and Kleiner, Morris M., and Evgeny S.

Vorotnikov. 2018. “At What Cost? State and National Estimates of the Economics Costs of Occupational Licensing.” *Institute for Justice*. https://ij.org/wp-content/uploads/2018/11/Licensure_Report_WEB.pdf.

et al. (2016) find that “when nurse practitioners have more independence in their scope of practice, their wages are higher but physicians’ wages are lower, which suggests some substitution between the occupations. Our analysis of insurance claims data shows that more rigid regulations increase the price of a well-child visit by 3–16 percent. However, we find no evidence that the changes in regulatory policy are reflected in outcomes that might be connected to the quality and safety of health services.”¹¹⁷ Bowlblis and Smith (2021) study a federal staffing provision that requires skilled nursing facilities of a certain size to employ licensed social workers and find no evidence that the increase in licensure improves patient care quality, patient quality of life, or quality of social services provided.¹¹⁸ Meehan and Stephenson (2020) find that changes in the number of hours of education required to become a certified public accountant (CPA) from 150 hours to 120 hours did little to change pass rates or scores on the CPA exam, suggesting the extra hours required had little impact on quality. However, the marginal changes do not necessarily correlate to the overall effect of licensing—some degree of licensing may be welfare enhancing even if a study finds that marginal changes to occupational licensing requirements reduces welfare.¹¹⁹

Even if licensing does not objectively increase quality, the perception that it increases quality may nonetheless impact market outcomes (e.g., price). However, it is unclear whether consumers notice or place much value on licensure, especially when other methods for determining quality are available. For example, Farronato et al. (2020) study a large online platform for residential home services and find that consumers are unresponsive to platform-verified licensing status relative to review ratings and price. This suggests that consumers consider reviews from other customers a better signal of quality than licensing (or at least verification of licensing).¹²⁰

Occupational licensing appears to restrict labor supply in some licensed professions (UST 2016). In some contexts, licensing can disproportionately limit the labor supply for subsets of socioeconomically disadvantaged workers. For example, Federman, Harrington, and Krynski (2006) find that state licensing requirements that require proficiency in the English language tend to reduce the number of Vietnamese-American manicurists.¹²¹ Cathles, Harrington, and Krynski (2010) find that licensing laws requiring funeral directors to also be embalmers tended to reduce the share of female funeral

¹¹⁷ Kleiner, Morris M., Allison Marier, Kyoung Won Park, and Coady Wing. 2016. “Relaxing Occupational Licensing Requirements: Analyzing Wages and Prices for a Medical Service.” *The Journal of Law and Economics* 59 (2): 261–291.

¹¹⁸ Bowlblis, John R., and Austin C. Smith. 2021. “Occupational Licensing of Social services and Nursing Home Quality: A Regression Discontinuity Approach.” *ILR Review* 74 (1): 199–223.

¹¹⁹ For example, Meehan and Stephenson (2020) only identify the effects of a change in intensity (from 150 hours to 120 hours). Meehan, Brian, and E. Frank Stephenson. 2020. “Reducing a Barrier to Entry: The 120/150 CPA Licensing Rule.” *Journal of Labor Research* 41 (December): 382–402. These studies cannot speak to the overall effects of occupational licensing because requiring CPAs to be licensed may increase overall quality of CPAs, even if a reduction in the hours required to obtain a CPA does not reduce quality. For example, this could be the case if 60 hours was sufficient to screen out unqualified candidates.

¹²⁰ Farronato, Chiara, Andrey Fradkin, Bradley Larsen, and Erik Brynjolfsson. 2020. “Consumer Protection in an Online World: An Analysis of Occupational Licensing.” *National Bureau of Economic Research Working Paper* 26601.

¹²¹ Federman, Maya N., David E. Harrington, and Kathy J. Krynski. 2006. “The Impact of State Licensing Regulations on Low-Skilled Immigrants: The Case of Vietnamese Manicurists.” *American Economic Review* 96 (2): 237–241.

directors.¹²² These disproportionate impacts on labor supply highlight how the manner of licensing requirements (i.e., inclusion of English language requirements), not just the intensity of licensing (e.g., required number of hours), can affect equity considerations. That said, evidence from Blair and Chung (2018) suggests that occupational licensing may reduce prospective employers' reliance on race and gender during the hiring process, suggesting licensing can reduce racial and gender inequities in certain contexts.¹²³

Determining the impact of occupational licensing on wages is difficult. Though a restricted supply of labor can increase wages for those who become licensed, if the most skilled workers are more likely to become licensed, they may have earned more than their unlicensed counterparts even without becoming licensed. UST (2016) found the size of the wage gap attributable to occupational licensing is sensitive to modeling choices. Studies that do not control for underlying differences (e.g., in educational attainment) between licensed and unlicensed workers tend to find a large wage gap—on the order of 10–25 percent. However, studies that control for underlying differences typically find more modest effects of licensing on wages.

Variations in licensing requirements across states may discourage mobility and suppress the wages of licensed workers. However, UST (2016) analysis using 2011 Survey of Income and Program Participation (SIPP) data found weak evidence that licensed workers are less likely than unlicensed workers to move between states. Johnson and Kleiner (2020) find stronger evidence of occupational licensing as a barrier to interstate migration.¹²⁴ They find that the interstate migration rate for occupations with state-specific licensing exams are about a third lower than other occupations. Importantly, they do not find similar results for occupations with national exams, highlighting how synchronizing requirements and examinations can reduce mobility barriers created by licensing.¹²⁵ That said, Johnson and Kleiner (2020) find that increases in occupational licensing only account for a very small share (about 2.5 percent) of the decline in interstate migration since 1980.

The impact of licensing on the prices of goods and services is clearer. In nine of the eleven studies UST (2016) examined, more restrictive occupational licensing increased prices.¹²⁶ This effect increases earnings for licensed workers at the expense of shutting some workers out of an occupation altogether. But the exact impact of licensing on prices varies by occupation or even within individual studies of the same occupation. For example, Kleiner et al. (2016)'s results imply that restricting nurse practitioners

¹²² Cathles, Alison, David E. Harrington, and Kathy Krynski. 2010. "The Gender Gap in Funeral Directors: Burying Women with Ready-to-Embalm Laws?" *British Journal of Industrial Relations* 48 (4): 688–705.

¹²³ Blair, Peter Q., and Bobby W. Chung. 2018. "Job Market Signaling through Occupational Licensing." *National Bureau of Economic Research Working Paper* 24791. Specifically, they argue one of the main channels for this effect is that occupational licensing sends a signal to employers of a worker's non-felon status in occupations where only non-felons may become licensed.

¹²⁴ Johnson, Janna E., and Morris M. Kleiner. 2020. "Is occupational licensing a barrier to interstate migration?" *American Economic Journal: Economic Policy* 12 (3): 347–73.

¹²⁵ Synchronizing licensing requirements and exams may be more difficult in some occupations than others, depending on the portability of skills. For example, the knowledge and skillsets of lawyers are likely more state-specific than the knowledge and skillsets of bus drivers.

¹²⁶ However, many of the studies they examined were conducted at least three decades ago and by the same authors. Accordingly, results may be highly correlated with each other.

from conducting tasks without the supervision of a physician tends to increase the cost of well-child exams by 3–16 percent (Kleiner et al. 2016).

Variation in Licensing

Occupational licensing is substantially more common in some occupations than others. Kleiner and Krueger (2013), along with subsequent research, show that occupational licensing is very common in healthcare, legal occupations, education, and protective services and less common in computer and mathematical, office and administrative support, and art and entertainment occupations.

Percent of Workers Licensed Within Occupations



Source: Kleiner and Krueger (2013), Westat data; UST and CEA calculations. Accessed via Department of Treasury, Council of Economic Advisers, and Department of Labor (2015).

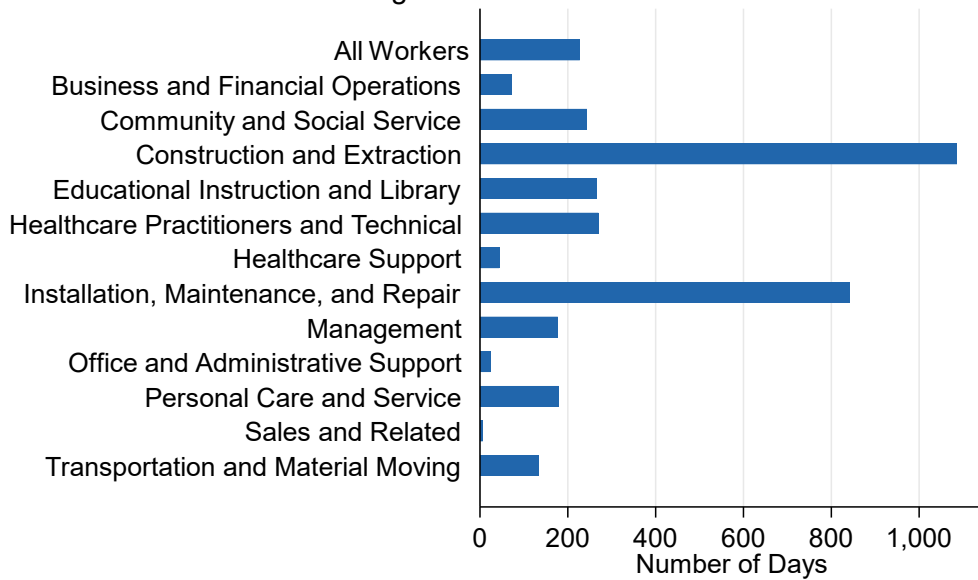
Occupational licensing is primarily determined at the state-level and varies considerably between states. For example, Kleiner and Vortnikov (2018) show that workers are substantially more likely to be licensed in some states than others. For example, they find that Nevada (26.6 percent), Iowa (24.3 percent), and Maine (24.2 percent) have the highest share of workers that are licensed, while Georgia (14.4 percent), Delaware (15.2 percent), and Kansas (16.0 percent) have the lowest share of workers that are licensed (Kleiner and Vortnikov 2018). While much of the difference between states can be explained by state policies, at least some is explained by underlying differences in the types of occupations within each state (e.g., greater presence of the gambling industry in Nevada than other states).

Differences between states result from differences in both the extensive margin of licensing (who needs to be licensed) and intensive margin of licensing (intensity of requirements to become licensed). For example, to obtain a job as an “electrician,” 31 states (including the District of Columbia) require licensing, while 20 states do not. Alaska and Hawaii both require licensing to become an electrician. However, Alaska requires 1,000 hours of training (assuming no previous experience), while Hawaii only requires 240 hours (assuming no previous experience).¹²⁷ While all states require licensing to become a “Nursing Home Administrator,” the cost of initial licensure is only \$100 in Indiana compared to over \$3,500 in Oklahoma.¹²⁸ As the figure below shows, while the mean time to obtain a license is about 220 days, there is enormous variation between occupations.

¹²⁷ Herman, Zach. 2020. “The National Occupational Licensing Database.” National Conference of State Legislatures, March 24, 2020. <https://www.ncsl.org/research/labor-and-employment/occupational-licensing-statute-database.aspx#Database>.

¹²⁸ Id.

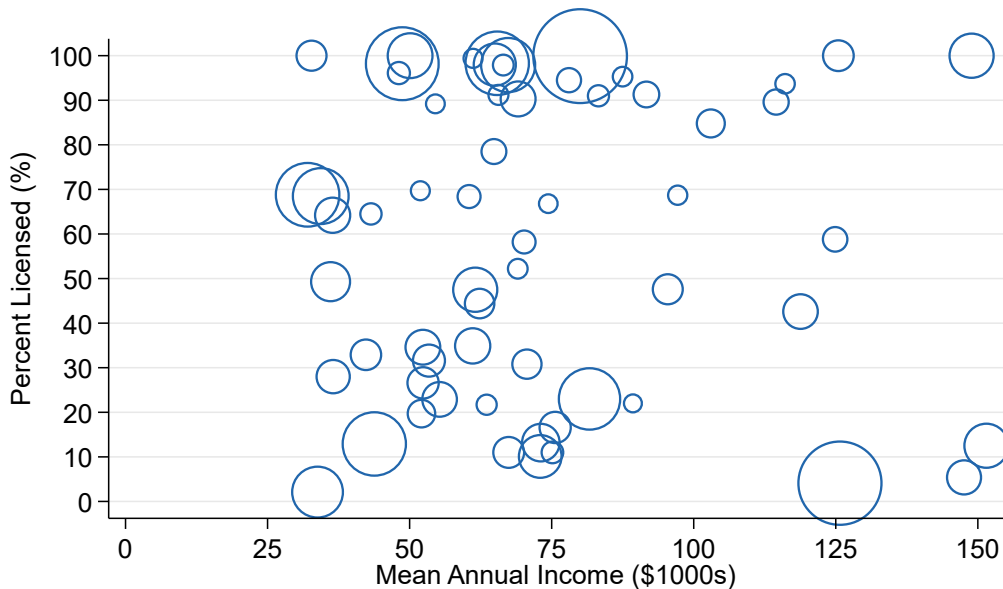
Mean Number of Days to Become Licensed Among Licensed Workers



Source: BLS Occupational Requirement Survey, 2020 release. Categories represent major occupation groups.

Occupational licensing is not limited only to workers in high-income occupations. As the figure below shows, there is little obvious correlation between the prevalence of occupational licensure and average income by occupation.

Occupational Licensing vs Annual Income



Source: BLS (OES&ORS), authors calculations. Each circle represents an occupation. Circle sizes are proportional to the number of employed persons within an occupation. The plotted occupations are restricted to include those measured by OES and ORS and employ at least 100,000 persons.

Wage Transparency

As discussed in the theory section, workers' lack of information on potential outside offers creates an important search friction. Using data they obtained from Denmark, Caldwell and Harmon (2019) find that changes in workers' information about opportunities outside of their current firm spur mobility and wage growth.¹²⁹ When workers lack information and are unable to easily find such information, they may stay in jobs they would otherwise leave or fail to ask for a raise when they would otherwise have asked for one (see, e.g., Caldwell and Harmon 2019).

Employers know how much all their employees are compensated, but the converse is often not true. While social taboos around discussing compensation with coworkers plays a role, employer policies and practices play an important role as well. A 2017–2018 survey by the Institute for Women's Policy Research found that workers reported employer policies that either discouraged (35.4 percent) or purported to prohibit (12.8 percent) discussing pay with coworkers. Only about a quarter of workers reported their pay being publicly available, with shares being much higher for public-sector and union workers in their sample.¹³⁰ These high rates of pay secrecy policies persist despite legal protections in

¹²⁹ Caldwell, Sydnee, and Nikolaj Harmon. 2019. "Outside Options, Bargaining, and Wages: Evidence from Coworker Networks." Working Paper. https://sydneec.github.io/Website/Caldwell_Harmon.pdf.

¹³⁰ Sun, Shengwei, Jake Rosenfeld, and Patrick Denice. 2021. "On the Books, Off the Record: Examining the Effectiveness of Pay Secrecy Laws in the U.S." *Institute for Women's Policy Research Policy Brief C494*. <https://iwpr.org/wp-content/uploads/2021/01/Pay-Secrecy-Policy-Brief-v4.pdf>. Note: sample sizes for government and union workers are much smaller than the overall sample, so interpret point estimates cautiously.

many jurisdictions for workers who discuss their pay, including anti-retaliation protections, such as the National Labor Relations Act, Executive Order 13665, and 19 state anti-pay secrecy laws. Moreover, while such laws provide important protections, they place the onus on individual workers or jobseekers to seek information via employees or social and professional networks and to invoke legal protections if they face retaliation. This may disadvantage individuals who may not have access to formal and informal professional networks (e.g., those who grew up in low-income households).

Employers likewise often have more information regarding workers' outside options than the workers. Many employers have access to non-public compensation surveys, giving them a better understanding of the wage distribution for a given occupation and geography. Even when information is publicly available, HR departments of firms are in a better position use the data than the typical worker—HR departments have institutional knowledge and a stronger incentive to know where vacancies are posted than a time-constrained worker. Firms can also benefit from asking about applicants' employment and compensation history (where permitted). In contrast, workers very often do not even know what their peers at the same establishment make. For example, Biasi and Sarsons (2021) show that many teachers in Wisconsin did not know how much their colleagues were paid.¹³¹ In their survey, they also found that compared with men, women were 11 percentage points less likely to know how much their colleagues earned (30 percent for women vs 41 percent for men). This highlights how informational asymmetries can have disproportionate impacts on women (Biasi and Sarsons 2021).

There are many ways to mandate greater pay transparency. Some approaches might include: 1) requiring disclosure of *aggregated* income statistics to workers, applicants, or the public, which might be broken out by worker characteristics, like gender; 2) requiring *individual* income disclosure, often only for subsets of workers (e.g., high-paid government workers or managers); and 3) requiring employers to disclose prospective pay ranges in job postings.

Consistent with the logic that pay secrecy exacerbates gender pay gaps, empirical research suggests that pay transparency reduces wage gaps between women and men. For instance, using Canadian administrative data, Baker et al. (2019) finds that a public sector salary disclosure law, enabling the public to access salaries of individual faculty, reduced the gender pay gap between male and female full-time faculty at Canadian universities by about 20–40 percent.¹³² Bennedsen et al. (2019) examine a 2006 Danish law requiring private firms with more than 35 employees to provide salary statistics by gender to an employee representative.¹³³ Although they find the policy reduced the within-firm gender pay gap by about two percentage points (13 percent relative to the pre-legislation mean), it primarily did so by slowing wage growth for male employees. Using data from Glassdoor, Sockin and Sockin (2019) likewise find that changes in pay transparency laws in the United States reduce the gender pay gap by about 2 percentage points for base earnings, though they detect no change for variable pay (e.g., bonuses and

¹³¹ Biasi, Barbara, and Heather Sarsons. 2021. "Information, Confidence, and the Gender Gap in Bargaining." *American Economic Association Papers and Proceedings* 111 (May): 174–78.

¹³² Baker, Michael, Yosh Halberstam, Kory Kroft, Alexandre Mas, and Derek Messacar. 2019. "Pay Transparency and the Gender Gap." *National Bureau of Economic Research Working Paper* 25834.

¹³³ Bennedsen, Morten, Elena Simintzi, Margarita Tsoutsoura, and Daniel Wolfenzon. 2019. "Do Firms Respond to Gender Pay Gap Transparency?" *National Bureau of Economic Research Working Paper* 25435.

commissions).¹³⁴ There is also evidence that wage transparency can reduce the gender wage gap. Roussille (2022) show that when Hired.com started pre-filling job searchers' salary ask with the median offer tendered to applicants with similar qualifications, it resulted in an elimination of the wage ask gap with no impact on the number of offers women received or the likelihood that they receive an offer.¹³⁵

Wage transparency can increase job search and job-to-job transitions. Using a change in pay disclosure laws in California, Mas (2017) finds that a 2010 mandate requiring the online posting of salaries for top municipal managers led to a large (about 75 percent) increase in the quits as well as a 7 percent decline in average compensation for top managers.¹³⁶ Using a randomized treatment in access to individual peer-income information for employees at the University of California, Card et al. (2012) find that information about peer pay for workers in their pay unit (specific faculty and staff departments) and occupation increased job searching among workers earning below the median income for their occupation and pay unit (but not for those above the median for their occupation and pay unit).¹³⁷

Though wage transparency may increase job searching and transitions, it plausibly does so partly because it can decrease (current) job satisfaction and overall happiness, at least in the short run, for some workers (especially among relatively lower-paid workers). For example, Card et al. (2012) find that workers above the median income for their occupation and pay unit reported no change in job satisfaction, but workers below the median income for their occupation and pay unit reported lower job satisfaction. More broadly, Perez-Truglia (2020) present evidence that a 2001 law enacted in Norway making individuals' tax records publicly accessible online led to a deepening of the rich-poor (self-reported) happiness and life satisfaction gaps.¹³⁸ The author argues the widening of the gap was both a consequence of higher reported happiness and satisfaction among higher-income workers and lower reported happiness and satisfaction among lower-income workers, suggesting the results are driven by income-comparison effects. To be clear, decreased job and life satisfaction in the short run may well be more than offset in the longer run for workers who are induced to switch jobs to one that pays them better (or provides a more favorable bundle of non-wage amenities) or successfully press for better pay at their current job. Nonetheless, some workers, especially those who feel they cannot switch jobs or renegotiate their income, may be made worse off by wage transparency.¹³⁹

¹³⁴ Sockin, Jason, and Sockin, Michael. 2019. "A Pay Scale of Their Own: Gender Differences in Variable Pay." *SSRN*, December 16, 2019. <http://dx.doi.org/10.2139/ssrn.3512598>. Note: Sockin and Sockin (2019) lump together salary history bans and wage transparency laws into one indicator variable; therefore, their results do not distinguish between the effect of a salary history ban (discussed later) and a change in a wage transparency law.

¹³⁵ Roussille, Nina. 2022. "The Central Role of the Ask Gap in Gender Pay Inequality." Working Paper. https://ninaroussille.github.io/files/Roussille_askgap.pdf.

¹³⁶ Mas, Alexandre. 2017. "Does transparency lead to pay compression?" *Journal of Political Economy* 125 (5): 1683–1721. Note, top managers in a public-sector job are unlikely to be representative of rank-and-file workers both because wage determination in the public sector differs from the private sector and because top-paid managers are more likely to be near the top of the income distribution.

¹³⁷ Card, David, Alexandre Mas, Enrico Moretti, and Emmanuel Saez. 2012. "Inequality at Work: The Effect of Peer Salaries on Job Satisfaction." *American Economic Review* 102 (6): 2981–3003.

¹³⁸ Perez-Truglia, Ricardo. 2020. "The effects of income transparency on well-being: Evidence from a natural experiment." *American Economic Review* 110 (4): 1019–54.

¹³⁹ Both studies reported above involve individual-level income disclosures. It is possible that the (dis)satisfaction effects reported in these studies would be less severe under a policy of only releasing aggregate statistics instead

Prohibiting employers from asking applicants' compensation history (salary history bans) can also reduce the employer's information advantage and increase workers' bargaining power.¹⁴⁰ In a survey of new hires, Hall and Krueger (2012) find that "about half of all workers reported that their employers had learned their pay in their earlier jobs before making the offer that led to the current job."¹⁴¹ Employers may use such pay history to refine their wage offer. If employers do so by offering whatever the employee made in their previous job plus a moderate raise, reliance on pay history can perpetuate existing income inequalities among workers who have historically been paid less (e.g., women and people of color). Barach and Horton (2021) present some empirical evidence that suggests banning the collection of pay history could lead to employers to "take a chance" on lower-waged and less-experienced workers. Using field evidence from an online labor market, they find that employers tended to hire workers with about 13 percent lower past average wages than the control group that had access to compensation history.¹⁴²

Decline in Department of Labor's Labor Market Enforcement Actions

All else equal, a reduction in the probability of being inspected reduces a firm's incentives to comply with the workplace regulations and standards. Likewise, it affects employee bargaining power because the threat of reporting bad behavior is less credible if the enforcement agency lacks the ability to respond quickly and effectively with inspections and sanctions. Conversely, when workers know their employer's bad behavior is likely to be punished, they gain bargaining power against their employer to improve working conditions.

Labor market enforcement action by government agencies can reduce actions of bad actors directly and indirectly. The direct approach is through actual enforcement actions (inspections, penalties, etc.). However, it is far beyond the ability of any agency to fully monitor all covered workplaces within its purview at any given time. Therefore, the Occupational Safety and Health Administration (OSHA) and similar agencies rely primarily on deterrence actions to enforce workplace standards and regulations.

From an employer's perspective, the cost of being caught failing to comply is weighed against the benefits of not complying. Non-compliance risks fines, penalties, and reputational damage. Firms make this tradeoff by evaluating the likelihood and potential costs of being caught against the potential

of individualized income disclosures. This could be the case, for example, if decreased job satisfaction and happiness comes not only from knowledge that a worker earns less than their peers, but knowledge that their peers now know they make more than that worker.

¹⁴⁰ Several states and localities have enacted laws that require employers to post salary range information for applicants. Some of these localities include Colorado, Connecticut, Nevada, New York City, Rhode Island, and Washington. Exact details on each of these laws vary—some, such as Rhode Island's law, have been passed but not yet gone into effect.

¹⁴¹ Hall, Robert E., and Alan B. Krueger. 2012. "Evidence on the incidence of wage posting, wage bargaining, and on-the-job search." *American Economic Journal: Macroeconomics* 4 (4): 56–67.

¹⁴² Barach, Moshe A., and John J. Horton. 2021. "How do employers use compensation history? Evidence from a field experiment." *Journal of Labor Economics* 39 (1): 193–218. Note, Barach and Horton (2021)'s estimates are based on a "partial equilibrium" approach, i.e., their estimates would likely change if all employers were subject to the types of bans the treated group was subjected to in the experiment.

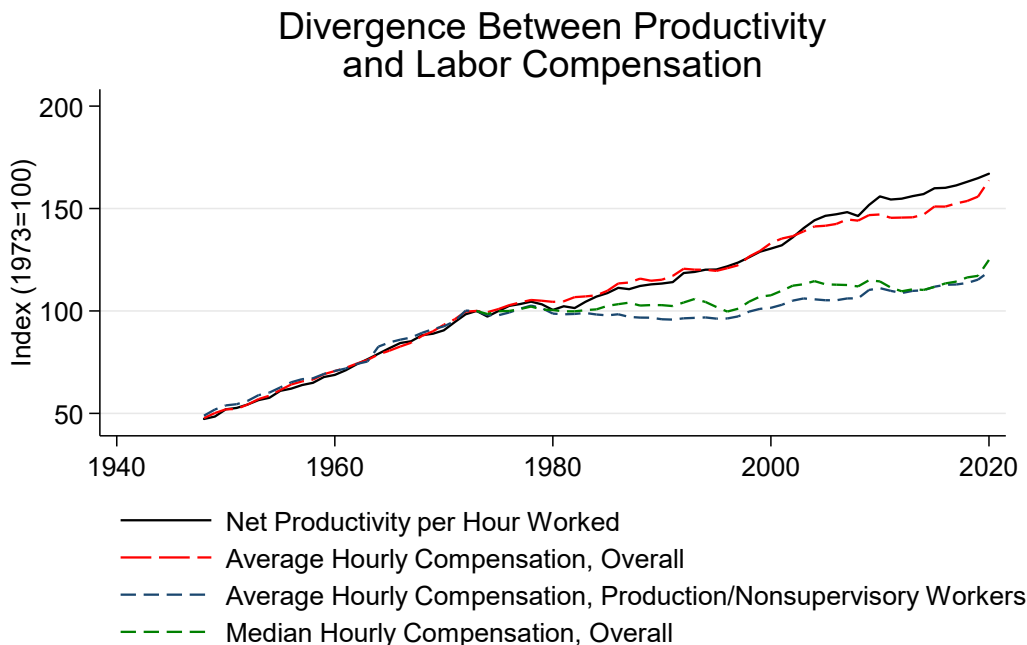
savings associated with non-compliance. If firms think the cost or likelihood of being caught in non-compliance is high relative to the benefits, they may comply even absent actual inspections or oversight.

In recent years, the probability of a firm being inspected has decreased sharply. Numerous agencies are responsible for inspections and enforcement actions. However, as an example of how enforcement and inspections have declined, OSHA commenced the largest number of workplace inspections in 1984, at 140,000 inspections. The COVID-19 pandemic sharply reduced the number of inspections conducted in 2020. Even before the pandemic, the number of inspections was much lower than in the 1980s. In 2019, OSHA inspected about 81,000 workplaces, or 40 percent less than it conducted in 1984. From 2013 to 2021, OSHA experienced a 13 percent reduction in Federal enforcement personnel due to reduced budget availability. The workforce is now larger than it was in the mid-1980s, and the nature of workplaces has changed during this time period. With fewer enforcement personnel and a larger workforce, it is increasingly difficult for enforcement actions to reach the same portion of workplaces.

Divergence Between Labor Compensation and Productivity

This section and the next highlights important aggregate trends in wages and labor income. The precise contribution of firm labor market power to these trends remains an open question, but we highlight some of the links established in the literature.

During the first part of the post-World War II period, productivity and average compensation largely moved in tandem. That is, when workers were more productive for each hour they worked, their pay proportionately increased, on average. During this period, gains in productivity appeared to be proportionately dispersed among the compensation distribution.



Source: Economic Policy Institute, BEA, BLS, author's calculations. Productivity is output per hour worked. Net productivity adjusts for depreciation.

However, as the figure above shows, starting around 1980, a divergence in productivity and wages started to emerge, particularly for the lower end of the compensation distribution.¹⁴³ This divergence between productivity and compensation, particularly among lower-income and non-management workers, has been the subject of considerable debate.¹⁴⁴ Some have noted that part of the divergence may be attributable to differences in how productivity and compensation are adjusted for inflation, possibly due to differences in how the different series account for changes in technological products.¹⁴⁵ However, Stansbury and Summers (2018) argue that some deviation has occurred even after accounting for such measurement issues.¹⁴⁶

Bivens and Shierholz (2018) argue the difference between typical (median) worker compensation and productivity can be decomposed into two components—declining labor share and income inequality.¹⁴⁷ Using a back-of-the-envelope calculation, they estimate approximately five-sixths of the decline is attributable to rising income inequality and only a sixth attributable to declining overall labor share. The fall in the share of labor, discussed in greater detail in the next section, is partly captured in the above figure as the divergence between average compensation and productivity, especially since 2001. Rising income inequality is reflected in the above figure as the split between mean and median compensation. This divergence suggests that higher-income and supervisory workers have captured a greater share of income over time. A similar schism between compensation of nonsupervisory workers and overall compensation has occurred, likely for similar reasons.

The increase in the share of productivity gains captured by higher-income workers is hotly debated and touches upon the larger debate regarding the causes for the rise in income inequality since the 1980s. In principle, the disparity could be the result of significant increases in productivity among management and stagnation in productivity among lower-income workers. For example, changes in technology could

¹⁴³ Note, the figure reports net-productivity rather than gross productivity. Not accounting for accelerated depreciation in recent decades tends to overstate the divergence between output per hour worked and compensation. For a critical review, see Lawrence, Robert Z. 2016. “Does Productivity Still Determine Worker Compensation? Domestic and International Evidence.” In *The US Labor Market: Questions and Challenges for Public Policy*, edited by Michael R. Strain, 42–62. Washington: American Enterprise Institute.” Even here, Lawrence finds declines in labor share post 2000.

¹⁴⁴ This debate includes the proper way to account for prices. For details, see discussion in Mishel, Lawrence. 2021. “Growing Inequalities, Reflecting Growing Employer Power, Have Generated a Productivity–Pay Gap Since 1979.” *Economic Policy Institute*, September 2, 2021. <https://www.epi.org/blog/growing-inequalities-reflecting-growing-employer-power-have-generated-a-productivity-pay-gap-since-1979-productivity-has-grown-3-5-times-as-much-as-pay-for-the-typical-worker/>.

¹⁴⁵ See Fleck, Susan, John Glaser, and Shawn Sprague. 2011. “The compensation-productivity gap: a visual essay.” *U.S. Bureau of Labor Statistics Monthly Labor Review* (January): 57–69. <https://www.bls.gov/opub/mlr/2011/01/art3full.pdf>. See also, Brill, Michael, Corey Holman, Chris Morris, Ronjoy Raichoudhary, and Noah Yosif. 2017. “Understanding the labor productivity and compensation gap.” *U.S. Bureau of Labor Statistics Beyond the Numbers: Productivity* 6 (6): 1–14. <https://www.bls.gov/opub/btn/volume-6/pdf/understanding-the-labor-productivity-and-compensation-gap.pdf>.

¹⁴⁶ Stansbury, Anna, and Lawrence H. Summers. June 2018. “Productivity and Pay: Is the Link Broken?” *Peterson Institute for International Economics Working Paper* 18-5. <https://www.piie.com/system/files/documents/wp18-5.pdf>.

¹⁴⁷ Bivens, Josh, and Heidi Shierholz. 2018. “What labor market changes have generated inequality and wage suppression?” *Economic Policy Institute*, December 12, 2018. <https://www.epi.org/publication/what-labor-market-changes-have-generated-inequality-and-wage-suppression-employer-power-is-significant-but-largely-constant-whereas-workers-power-has-been-eroded-by-policy-actions/>.

make management substantially more efficient. However, this does not appear to be supported in the literature. Stansbury and Lawrence (2018) argue that a technological change-driven explanation would imply greater divergence during periods of higher productivity gains, however it does not find empirical evidence supporting that implication.

Evidence suggests that declining competition in the labor market coupled with loss of bargaining power among lower-wage workers contributes to income inequality. For example, Furman and Orszag (2018) argue that declining competition for labor has decoupled wage growth from productivity gains as workers face fewer choices and decreased mobility.¹⁴⁸ Consistent with this finding, Benmelech, Bergman, and Kim (2020) use manufacturing plant-level data from 1978 to 2016 to show that wages are noticeably lower in local labor markets that have higher employer concentration. Their results also show that this correlation is even more pronounced in areas with low levels of unionization. In a vein like Autor et al. (2020)'s concept of "superstar firms," a 2018 paper by the Organisation for Economic Co-operation and Development (OECD) also noted that the divergence of wages and productivity "at the technological frontier has been accompanied by increasing market shares of frontier firms."¹⁴⁹

Decline in Labor Share

Economists decompose an economy's aggregate income into that which is attributable to labor (wages and other compensation for work) and capital (i.e., interest, rent, and dividend payments). For decades, labor's share of income was estimated at slightly less than two-thirds.¹⁵⁰ However, starting around the 1980s, this share began to decline not only in the United States, but around the world.¹⁵¹

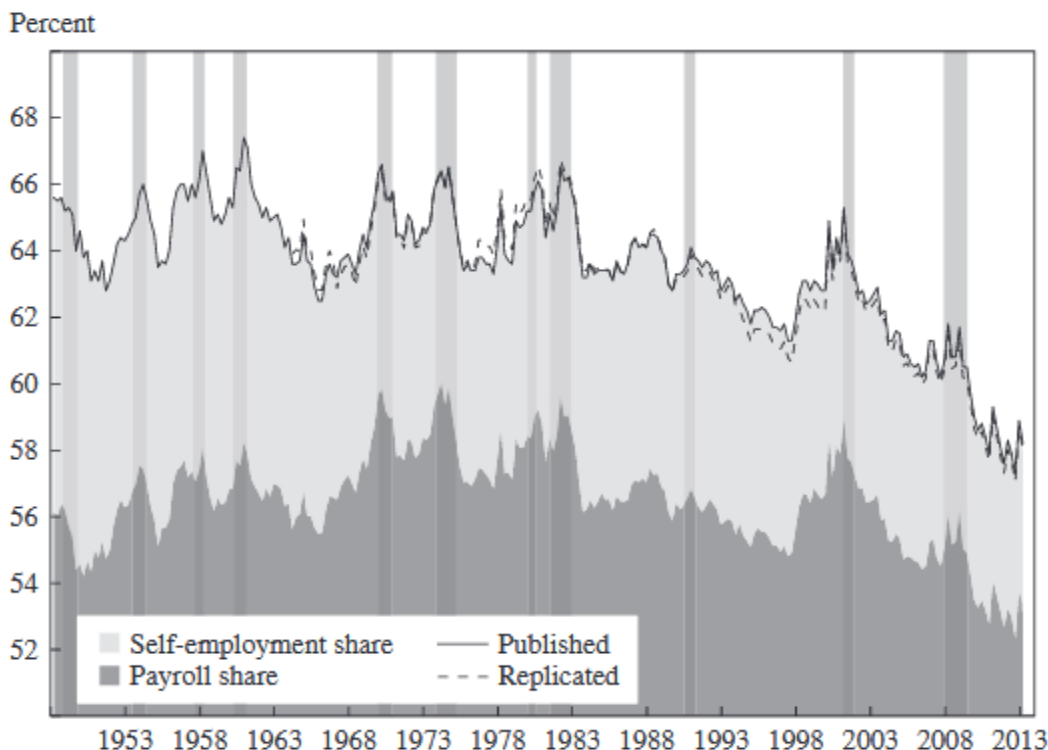
¹⁴⁸ Furman, Jason, and Peter Orszag. 2018. "Slower Productivity and Higher Inequality: Are They Related?" *Peterson Institute for International Economics Working Paper* 18-4.

¹⁴⁹ Organisation for Economic Co-operation and Development. 2018. "Decoupling of Wages from Productivity: What Implications for Public Policies?" *OECD Economic Outlook* 2018 (2): 51–65. <https://www.oecd.org/economy/decoupling-of-wages-from-productivity/>.

¹⁵⁰ Kaldor, Nicholas. 1961. "Capital Accumulation and Economic Growth." In *The Theory of Capital*, edited by D.C. Hague, 177–222. London: Palgrave Macmillan.

¹⁵¹ See Karabarbounis, Loukas, and Brent Neiman. 2014. "The global decline of the labor share." *The Quarterly Journal of Economics* 129 (1): 61–103. There is debate whether the share of labor has fallen or the observed changes are due to changes in measurement, such as an increase in self-employment, business owners taking capital instead of labor income, etc. See Autor (2020) for a skeptical overview.

Figure 1. Labor Share, Payroll Share, and Replicated Labor Share in U.S. Nonfarm Business Sector, 1948-2013



Source: Elsby (2016) using data from Bureau of Labor Statistics and Bureau of Economic Analysis.

Numerous theories have been offered for why labor's share of income has declined. Elsby, Hobijn, and Sahin (2016) suggest offshoring of the labor-intensive portion of the United States' supply chain is a leading potential cause, and note that measurement issues account for a quarter of the observed decline.¹⁵² Karabarbounis and Neiman (2014) suggest rapidly falling prices, especially of capital, may have played a part. Still others, like Weil (2014), suggest fissuring has played a role by decreasing the relative bargaining position of labor. The relative contributions of measurement, technology change, changes in industry composition, and firm wage setting power remain issues of study.

The declining share of labor might also be a result of increasing employer *product* market power. De Loecker, Eeckhout, and Unger (2020) document how markups in product markets have risen nearly three-fold since 1980.¹⁵³ They show that this increase primarily came from the very upper end of the markup distribution, i.e., large firms within industries increasing their size, margins, and profitability.

¹⁵² Elsby, Michael W.L., Bart Hobijn, and Ayşegül Şahin. 2013. "The Decline of the US Labor Share." *Brookings Papers on Economic Activity* (Fall): 1–63.

¹⁵³ De Loecker, Jan, Jan Eeckhout, and Gabriel Unger. 2020. "The Rise of Market Power and the Macroeconomic Implications." *The Quarterly Journal of Economics* 135 (2): 561–644.

Their modeling suggests labor share is inversely proportional to markups, so an increase in markups naturally leads to a decline in the share of labor.¹⁵⁴

As De Loecker, Eeckhout, and Unger (2020) explain, a natural consequence of increased market power and markups is a decrease in aggregate output.¹⁵⁵ This corresponds with decreases in labor demand, which places downward pressure on wages. The reduction in output also mechanically corresponds to an increase in output price, implying a decrease in real wages (since the same dollars of wages buy fewer goods).

In a related work, Autor et al. (2020) argue that the decline in labor share might be attributable to a rise of what they term “superstar firms” that dominate a particular market and have high markups and low labor share. Using microdata from the U.S. Census Bureau, they document that across many industries, sales are increasingly concentrated among a few firms and industries where this concentration rises most tend to see the largest declines in labor share. The rise of such superstar firms also drives the decline in labor’s share of income, even if it does not occur among most firms (which is consistent with the observation of De Loecker, Eeckhout, and Unger (2020) that median markups have not changed much even as the top of the mark-up distribution has increased dramatically).

Autor et al. (2020) argue that the rise of superstar firms could be driven by several factors. They note that the increase could be driven by persistent incumbent dominance. Persistent dominance could be explained by a variety of factors. For example, superstar firms tend to be more productive. To the extent that incumbent firms are more innovative, they could remain dominant because customers prefer their products. Alternatively, persistent dominance can be due to anticompetitive business practices. The authors acknowledge that arguments such as the weakening of antitrust enforcement advocated by Gutierrez and Philippon (2018) could plausibly explain some of their results.¹⁵⁶

While the increase in market concentration has occurred across numerous industries, the explanation for the rise of superstar firms in each industry need not be the same. The welfare implications of a rise of a superstar firm because of being more innovative compared to one that has engaged in regulatory capture or simply evaded anti-trust enforcement are quite different.

Industry Examples

The following subsections highlight the various ways in which developments in example labor markets have harmed workers in their respective occupations or industries. In the hospital and nursing subsection, we show consolidation in the product market (hospitals) can negatively impact workers (nurses). In the agricultural sector, both tacit and explicit collusion between employers has led to highly

¹⁵⁴ De Loecker, Eeckhout, and Unger (2020) model an economy with imperfect output markets, allowing for firms to extract economic profits. Accordingly, they find that not only does their model imply the share of labor decreases with increased markups, but so does the capital share since profits increase with increased markups.

¹⁵⁵ This is a natural consequence because firms can increase their markups/profit by restricting output so long as demand is not perfectly elastic. Intuitively, firms with market power are willing to lose some customers in exchange for charging more per item. Thus, a firm with market power would avoid decreasing output only if consumers did not respond to higher prices.

¹⁵⁶ Gutierrez, German, and Thomas Philippon. 2018. "How EU Markets Became More Competitive than US Markets: A Study of Institutional Drift." *SSRN CEPR Discussion Paper DP12983*, June 2018.

concentrated markets where workers have little to no bargaining power. In minor league baseball, lobbying efforts, coupled with Supreme Court precedent, have weakened worker pay protections, allowing the monopsonist to extract rents and exert extraordinary control over their worker's mobility.

Hospitals and Nurses

The hospital industry has consolidated in recent decades. Despite a growing population, the number of hospitals decreased from 7,156 hospitals in 1975 to only 6,093 hospitals in 2021.¹⁵⁷ Empirical evidence suggests these consolidations have increased the prices of hospital services with no evidence of quality improvement.¹⁵⁸ Consolidation also impacts the input market. As hospitals consolidate, they gain monopsony power. When the hospital industry consolidates by closing hospitals, it increases monopsony power mechanically by increasing the cost among nurses to finding work elsewhere (i.e., longer commutes). Even when consolidation does not reduce the number of hospitals (e.g., through a merger of hospital systems) it can increase monopsony power by reducing competition among the remaining firms. Krueger (2018) notes that consolidation also increases monopsony power even if hospitals do not have a literal monopoly because fewer players in a market increase the probability of collusion, tacit or otherwise.¹⁵⁹

Even before the recent wave of hospital consolidation, there was evidence that hospitals exerted considerable monopsony power over healthcare workers. Using changes in wages at Veterans Affairs hospitals, Staiger, Spetz, and Phibbs (2010) found that labor supply to individual hospitals is quite inelastic.¹⁶⁰ Their results imply that a 10 percent decline in the wages of nurses only decrease employment by about 1 percent in the short run, which is a much smaller change in employment than one would expect in a perfectly competitive market where hospitals had little market power. The recent wave of consolidation has likely only increased hospital monopsony power.

Prager and Schmitt (2021), *supra*, present evidence that certain types of hospital mergers causally decrease wages for certain healthcare workers. They find that mergers that cause the largest increases in hospital concentration (those in the top quartile of increases in the HHI) cause wage growth among skilled workers and nursing and pharmacy workers to slow, particularly among nurses and pharmacy workers. Importantly, they fail to find negative effects on wage growth from smaller mergers (i.e., those that do not increase market concentration much), which suggests the effects they find among larger

¹⁵⁷ National Center for Health Statistics, Centers for Disease Control and Prevention. 2017. "Hospitals, beds, and occupancy rates, by type of ownership and size of hospital: United States, selected years 1975–2015." Table 89. <https://www.cdc.gov/nchs/data/abus/2017/089.pdf>; American Hospital Association. 2022. "Fast Facts on U.S. Hospitals, 2022." Last modified January 2022. <https://www.aha.org/system/files/media/file/2022/01/fast-facts-on-US-hospitals-2022.pdf>. Note: The initial dates are from the Centers for Disease Control and Prevention, while the latest value is from the American Hospital Association. Estimates may not be directly comparable.

¹⁵⁸ Beaulieu, Nancy D., Leemore S. Dafny, Bruce E. Landon, and Jesse B. Dalton. 2020. "Changes in Quality of Care after Hospital Mergers and Acquisitions." *New England Journal of Medicine* 382 (January): 51-59. <https://www.nejm.org/doi/full/10.1056/NEJMsa1901383>.

¹⁵⁹ See references in, e.g., Krueger, Alan. 2018. "Reflections on Dwindling Worker Bargaining Power and Monetary Policy." Luncheon address to FRB Kansas City's Jackson Hole Symposium, August 24, 2018. https://www.kansascityfed.org/documents/6984/Lunch_JH2018.pdf.

¹⁶⁰ Staiger, Douglas O., Joanne Spetz, and Ciaran S. Phibbs. 2010. "Is there monopsony in the labor market? Evidence from a natural experiment." *Journal of Labor Economics* 28 (2): 211–236.

mergers are caused by the increase in hospital monopsony power post-merger rather than factors common to most mergers.¹⁶¹

Prager and Schmitt (2021) also fail to find that mergers decrease wage growth among hospital workers in jobs requiring little training—which is consistent with these workers having closer employment substitutes outside hospitals, thereby reducing the ability of hospitals to exert monopsonistic power over their wages.¹⁶² The paper does not examine the effects of mergers specifically increasing concentration in the relevant labor markets for these workers in jobs with little hospital-specific skill.

While the antitrust agencies have the authority to challenge hospital mergers,¹⁶³ such enforcement efforts are resource-intensive and not always successful.¹⁶⁴ In addition, states may grant Certificates of Public Advantage (COPA), which have the effect of immunizing certain hospital mergers from federal antitrust law.¹⁶⁵ These state COPA laws purport to supplant federal antitrust laws with a regulatory scheme that allows for hospital consolidation even in highly concentrated markets, thereby hindering the ability of the antitrust agencies to challenge anticompetitive mergers. This, in turn, may lead to consolidation among hospital employers that depresses wages and raise health care costs to the public.¹⁶⁶

For instance, while evaluating a proposed merger of two Texas hospitals that applied for a COPA, FTC staff conducted a labor market analysis and concluded that the merger would likely reduce hospital competition and depress wage growth for registered nurses.¹⁶⁷ The FTC is currently conducting a study

¹⁶¹ Prager and Schmitt (2021) also show that their results cannot be explained by pre-merger trends—such as poor local economic conditions, which may induce a merger to begin with—explaining why wages decline for nurses and pharmacy workers post-merger.

¹⁶² For example, janitorial staff at a hospital may be able to find comparable work outside of a hospital environment, while a nurse has fewer options outside of the hospital industry that would not entail a large pay cut.

¹⁶³ The federal antimerger law, the Clayton Act, applies to mergers involving non-profits, and the antitrust agencies have opposed several mergers involving non-profit hospitals. See, e.g., *Federal Trade Commission v. OSF Healthcare System*, 852 F. Supp. 2d 1069, 1081 (N.D. Ill. 2012); *United States v. Rockford Memorial Corp.*, 898 F.2d 1278, 1284-87 (7th Cir. 1990); and *Hospital Corp. of America v. Federal Trade Commission*, 807 F.2d 1381, 1390-91 (7th Cir. 1986).

¹⁶⁴ *Federal Trade Commission v. Thomas Jefferson University*, No. 20-1113 (E.D. Pa. 2020).

<https://www.ftc.gov/enforcement/cases-proceedings/181-0128/thomas-jefferson-university-matter>.

¹⁶⁵ See, e.g., Federal Trade Commission. 2016. “FTC Staff Provides Public Comment and Testimony in Tennessee Opposing Certificate of Public Advantage Application.” Press release, November 23, 2016.

<https://www.ftc.gov/news-events/press-releases/2016/11/ftc-staff-provides-public-comment-testimony-tennessee-opposing>.

¹⁶⁶ See, e.g., Gaynor, Martin, Kate Ho, and Robert J. Town. 2015. “The Industrial Organization of Health-Care Markets.” *Journal of Economic Literature* 53 (2): 236; Gaynor, Martin, and Robert J. Town. 2012. “The Impact of Hospital Consolidation – Update.” *Robert Wood Johnson Foundation and the Synthesis Project Policy Brief* 9; and Baicker, Katherine, and Amitabh Chandra. 2006. “The Labor Market Effects of Rising Health Insurance Premiums.” *Journal of Labor Economics* 24 (3): 609–634.

¹⁶⁷ See Conner, Ian, Andrew Sweeting, and Bilal Sayyed. 2020. “Federal Trade Commission Staff Submission to Texas Health and Human Services Commission Regarding the Certificate of Public Advantage Applications of Hendrick Health System and Shannon Health System.” *Federal Trade Commission*, September 11, 2020.

https://www.ftc.gov/system/files/documents/advocacy_documents/ftc-staff-comment-texas-health-human-services-commission-regarding-certificate-public-advantage/20100902010119texashhscopacomment.pdf.

of the impact of COPA on competition in healthcare markets, including possible labor monopsony effects.¹⁶⁸

Agriculture

Food processing is highly concentrated nationally, but its employment is also geographically concentrated. Food processing tends to occur away from urban centers and is more concentrated in low-density areas. For example, as of the first quarter of 2021, Alabama, Nebraska, Arkansas, and Iowa each employed more animal slaughtering and processing workers than the state of California even though California has approximately three times as many people as those four states combined.¹⁶⁹

In the agricultural input sector, the use of temporary agricultural workers through the H-2A visa program has received attention because of its increased use in recent years. From 2010 to 2021, the use of this program quadrupled—from about 79,000 jobs certified annually in 2010 to over 317,600 in 2021.¹⁷⁰

Governed by 8 U.S.C. § 1188 and 20 C.F.R. § 655, Subpart B, the H-2A program is an employer-sponsored temporary visa program that allows agricultural employers to employ nonimmigrant foreign workers to perform agricultural labor or services, as defined by Congress, on a temporary or seasonal basis, typically lasting 10 months or less. While the number of workers that can be admitted and issued an H-2A visa is not capped by Congress, the program does require an employer to offer and provide numerous employment guarantees and protections to H-2A workers and any U.S. workers performing the same work. For example, employers must show that hiring foreign workers will have no “adverse effect” on the wages and working conditions of U.S. workers similarly employed. Employers must provide workers with housing, meals or kitchen facilities for workers to prepare meals, and transportation, and must pay petition and certification fees.¹⁷¹

Both employers and workers rights advocates have criticized the H-2A program. Employers have argued the program is too bureaucratic, complex, and expensive. For example, they argue that the requirement that workers obtain visas to enter the United States, which was not a requirement under H-2A’s predecessor program, is expensive (about \$200 per application). They also often argue that they are required to guarantee a wage rate that is, in their view, artificially high.¹⁷²

¹⁶⁸ See Federal Trade Commission. 2019. “FTC to Study the Impact of COPAs.” Press release, October 21, 2019. <https://www.ftc.gov/news-events/press-releases/2019/10/ftc-study-impact-copas>.

¹⁶⁹ Based on Q1 2021 data comparing statewide average employment data for North American Industry Classification System (NAICS) code 3116 in the Quarterly Census of Employment and Wages to 2020 Census population estimates.

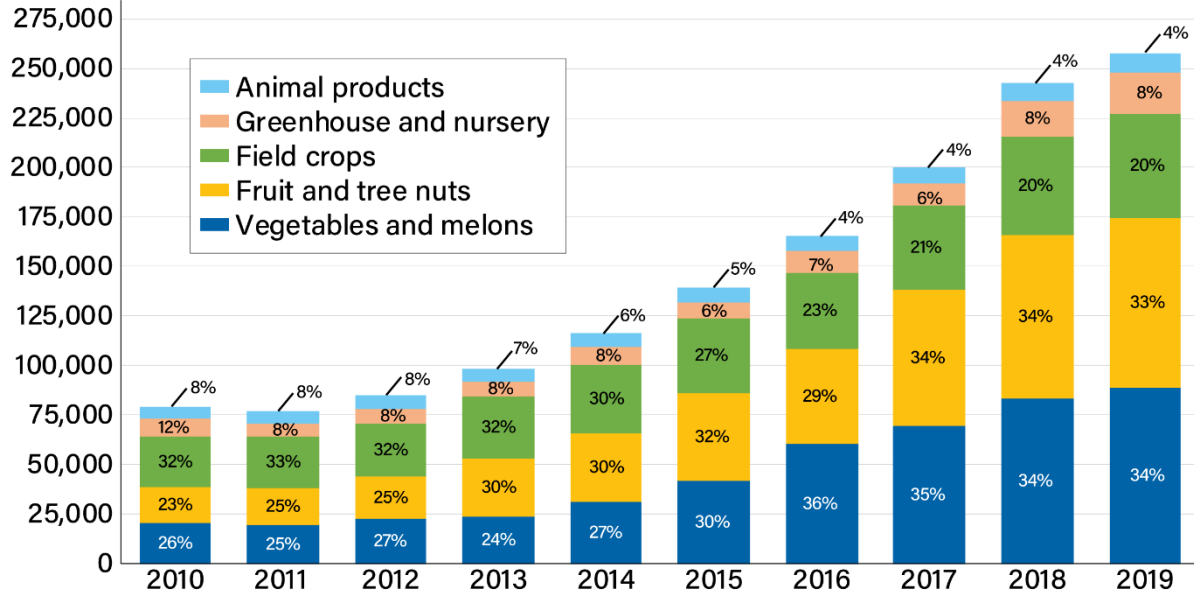
¹⁷⁰ 2010 and 2021 data are from Office of Foreign Labor Certification, U.S. Department of Labor. “Performance Data.” Historical Case Disclosure Data for the H-2A Program (file name for FY2021 data: H-2A_Disclosure_Data_FY2021.xlsx; file name for FY2010 data: H-2A_FY2010.xlsx). Last accessed March 4, 2022. <https://www.dol.gov/agencies/eta/foreign-labor/performance>.

¹⁷¹ Wage and Hour Division. 2010. “Fact Sheet #26: Section H-2A of the Immigration and Nationality Act (INA).” U.S. Department of Labor, February 2010. <https://www.dol.gov/agencies/whd/fact-sheets/26-H2A>.

¹⁷² Per 20 CFR § 655.120, employers must generally offer and pay a wage that is at least the highest of “the AEWR [(Adverse Effect Wage Rate)] the prevailing hourly wage or piece rate, the agreed-upon collective bargaining wage, or the Federal or State minimum wage.” The AEWR is set by DOL as a rate that ensures wages of similarly employed U.S. workers are not adversely affected. Typically, the AEWR is the wage that binds, if any.

H-2A certifications increased threefold between 2010 and 2019, growing across product categories

Number of H-2A certifications



Source: USDA, Economic Research Service using data from U.S. Department of Labor, Office of Foreign Labor Certification.

Workers' rights advocates argue H-2A restricts competition in unfair ways and is rife with employer abuse.¹⁷³ Importantly, one way the H-2A program plausibly restricts competition is by allowing employers to coordinate hiring efforts through professional associations, including wage decisions.¹⁷⁴ While such associations allow employers to take advantage of economies of scale in bringing over foreign workers, they also, almost by definition, concentrate labor demand. These associations can account for a large share of hiring by occupation. For example, a recent lawsuit, *Llucua v. Western Range Association*, alleges that two trade associations accounted for the hiring of approximately 91 percent of

¹⁷³ See, e.g., Farmworker Justice. n.d. "No Way to Treat a Guest: Why the H-2A Agricultural Visa Program Fails U.S. and Foreign Workers." Accessed March 3, 2022. <https://www.farmworkerjustice.org/resource/no-way-to-treat-a-guest-why-the-h-2a-agricultural-visa-program-fails-u-s-and-foreign-workers/>; National Farm Worker Ministry. n.d. "H-2A Guest Worker Program." Accessed March 3, 2022. <https://nfwm.org/farm-workers/farm-worker-issues/h-2a-guest-worker-program/>; Lahoud, Raymond G. 2021. "Human Trafficking Indictment Uncovers H-2A Abuses." *National Law Review* 11 (350); and Mississippi Center for Justice. 2021. "Black Farmworkers Sue Mississippi Farm for Racial Discrimination, Lost Wages, and Abuse of Immigration System to Deny U.S. Workers of Jobs." Press release, September 8, 2021. <https://mscenterforjustice.org/black-farmworkers-sue/>.

¹⁷⁴ See 8 U.S.C. § 1188(d); and Riviere, Candice Yandam. 2021. "The Legal Causes of Labor Market Power in the U.S. Agricultural Sector." *University of Chicago Law Review* 88 (6): 1555–1594. https://lawreview.uchicago.edu/sites/lawreview.uchicago.edu/files/Yandam_LaborMarketPower_88UCLR1555.pdf

all shepherds.¹⁷⁵ When in conflict, courts appear to favor the interpretation of immigration law (which is permissive of such monopsony power) over anti-trust law (which, at least in principle, is less permissive of monopsony power) (Riviere 2021, 1581).

Minor League Baseball

Although it directly impacts a relatively small share of the workforce, minor league baseball provides a useful case study of how a true monopsonist can restrict worker mobility, pay, and even successfully lobby for legislation that further solidifies their dominance over their employees.

In 2014, minor league baseball players brought a class-action lawsuit against Major League Baseball (MLB), the organizer of Minor League Baseball (MiLB), alleging that MiLB's wages and labor practices violate minimum wage laws and overtime rules set forth in the Fair Labor Standards Act of 1938.¹⁷⁶ The players alleged, among other things, that they routinely worked sixty or more hours in a week but were not paid overtime pay and did not receive pay for certain types of activities that the players considered work-related.

In an apparent attempt to preempt litigation, the MLB lobbied Congress in 2018 to include the Save America's Pastime Act (SAPA) as part of a \$1.3 trillion dollar spending package.¹⁷⁷ SAPA explicitly exempts workers in MiLB from minimum wage requirements under FLSA. Furthermore, SAPA purports to be retrospective, applying not only to future MiLB work, but all past work as well. This legislation adds an additional challenge that minor leaguers would have to overcome to prevail on federal employment-law claims.¹⁷⁸

As of February 2021, MiLB underwent a major reorganization in which 40 minor league teams were cut but wages were raised. Although the percentage raise was significant for many players, absolute salaries remain quite low – players in the highest category are expected to earn approximately \$14,700 a season.¹⁷⁹ Players in the lowest tier experienced the largest relative benefit from this restructuring, with

¹⁷⁵ *Llucua v. Western Range Association*, No. 17-1113, 930 F.3d 1161 (10th Cir. 2019). Note, this is an outlier example of concentration, even among H-2A jobs; furthermore, sheep and goat herders account for a small share (about 1 percent) of H-2A certified jobs.

¹⁷⁶ *Complaint, Senne et al. v. Office of the Commissioner of Baseball, et al.*, No. 3:14-cv-00608-JCS (N.D. Cal. Feb. 7, 2014), ECF No. 1.

¹⁷⁷ It is unclear how much Congressional support SAPA had, as the two-page bill was included on page 1,967 of the 2,323-page spending package.

¹⁷⁸ Pannullo, Robert. 2020. "The Struggle for Labor Equality in Minor League Baseball: Exploring Unionization." *American Bar Association Journal of Labor & Employment* 34 (3): 443–476.

¹⁷⁹ Blum, Ronald. 2021. "Minor Leagues Get a Reset with 120-Team Regional Alignment." *AP News*, February 12, 2021. <https://apnews.com/article/sports-mlb-baseball-rob-manfred-coronavirus-pandemic-f8a0f1c09161e83db87bca8e78219725>. A typical season lasts about five months.

their minimum salary increasing by over 70 percent relative to 2019, up to \$10,500.¹⁸⁰ MLB also restructured teams to be more geographic-centric, which will hopefully reduce travel burdens.¹⁸¹

The MLB still exerts tremendous monopsony power over minor league baseball players, due in part to an “aberrational,” judicially-created doctrine that the Supreme Court has called “something that looks a bit like an antitrust exemption for professional baseball,” which was first announced by the Supreme Court in 1922.¹⁸² While Congress passed legislation in 1998 to clarify that conduct related to major league baseball players is subject to antitrust laws, the legislation did not address minor leaguers’ employment.¹⁸³ There are pending lawsuits addressing whether the MLB so-called baseball exemption continues to apply to restraints on minor league players in light of subsequent developments undermining its foundations.

Minor league players are typically unable to receive unemployment insurance (UI) benefits during the off-season because they are classified as seasonal workers. The logic in denying seasonal workers UI benefits is that the end of their employment is predictable and therefore they could plan other job opportunities around the seasonality of their work. Still, some have argued this is unfair, especially since the start of the COVID-19 pandemic.¹⁸⁴

Ordinarily collective action through unionization can provide a counterbalance to employer power. While major league baseball players have been unionized for decades by the Major League Baseball Players Association, minor league players have no union. A primary reason for union hesitation among the players is a fear of retaliation by MLB (see Pannullo 2020). Additional factors include high turnover of MiLB players, geographic dispersion of MiLB players, and low salaries that discourage existing unions from expanding their membership to include MiLB players.¹⁸⁵

Implications Beyond the Labor Market

A decline in the competitiveness of labor markets lowers worker wages, may decouple wages from productivity, and likely diminishes the relative share of income that goes to workers. Moreover, actions

¹⁸⁰ These reflect minimum salaries. Actual compensation, including bonuses, may be significantly larger, especially for higher-tiered players. Furthermore, these values reflect first-time contracts—second contracts tend to be significantly larger. For more, see Fagan, Ryan. 2021. “Even after overdue salary bump, baseball’s minor leaguers still paid far below NBA, NHL counterparts.” *Sporting News*, February 12, 2021.

<https://www.sportingnews.com/us/mlb/news/even-after-overdue-salary-bump-baseballs-minor-leaguers-still-paid-far-below-nba-nhl-counterparts/1gpqI94asy7a10uo5nvc3yp4k>.

¹⁸¹ Janes, Chelsea. 2021. “MLB overhauled the minors this season. Some advocates say it hasn’t been enough.” *Washington Post*, July 16, 2021. <https://www.washingtonpost.com/sports/2021/07/16/minor-league-baseball-advocacy-mlb-overhaul/>.

¹⁸² *National Collegiate Athletic Association v. Alston*, 141 S. Ct. 2141, 2159 (2021).

¹⁸³ Curt Flood Act of 1998, Pub. L. No. 105-297. 15 U.S.C. Sec. 26b.

¹⁸⁴ Baccellieri, Emma. 2020. “Minor Leaguers and the Fight to Claim Unemployment.” *Sports Illustrated*, June 12, 2020. <https://www.si.com/mlb/2020/06/12/minor-league-baseball-players-unemployment>.

¹⁸⁵ Broshuis, Garrett R. 2013. “Touching Baseball’s Untouchables: The Effects of Collective Bargaining on Minor League Baseball Players.” *Harvard Journal of Sports & Entertainment* 4 (June): 51–103. <https://harvardjsel.com/wp-content/uploads/sites/9/2013/06/Broshius.pdf>.

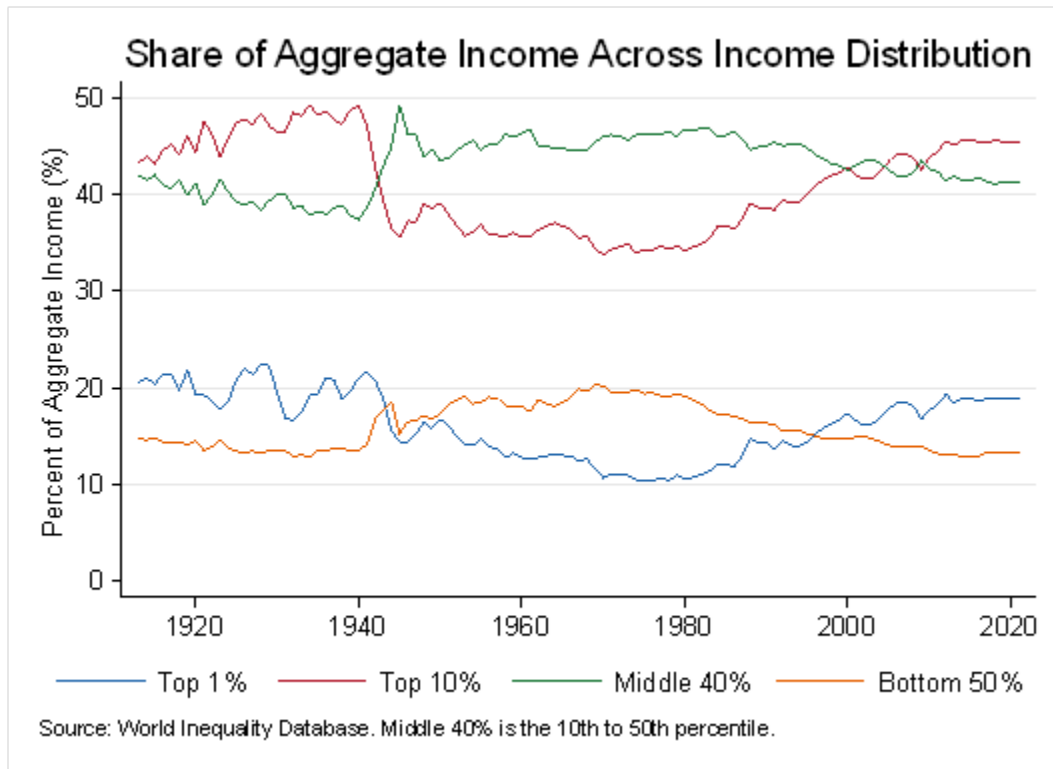
of the firm such as requiring workers to sign non-compete agreements and limiting workers' access to information diminishes worker mobility, implicitly reducing workers' bargaining power relative to employers.

These direct effects on workers' wages, employment, and mobility have important broader negative impacts on the economy. Higher inequality likely makes it more difficult to sustain sufficient aggregate demand. Lower wages disproportionately impact women and workers of color. A large pool of low-priced labor likely weakens firm incentives to invest and improve productivity, while lower mobility diminishes productivity growth by hindering the reallocation of labor to more productive firms and industries. Non-compete agreements may prevent workers from starting their own businesses and discourage innovation. In short, a growing body of evidence suggests that declining labor market competition may stymie the drivers of U.S. economic growth. To be clear, labor market competition is unlikely to be the only or even primary driver of broader macroeconomic trends, but, on the margin, likely contributes and exacerbates some drivers of slower economic growth.

Rising Inequality, Low Interest Rate, and Aggregate Demand

Over the last several decades, income inequality has risen sharply. As documented by Piketty and Saez (2003) and Saez and Zucman (2020), the share of income earned by the top 1 percent has risen since 1980 and now approaches levels last seen in the 1920s; the top 1 percent collects nearly one-fifth of national income.¹⁸⁶ Average income growth from 1980 of the top 1 percent has surged at rates well above 2 percent per year, while overall income growth averages just 1.4 percent over the same period and is lower for the bottom 85 percent of the U.S. income distribution.

¹⁸⁶ Piketty, Thomas, and Emmanuel Saez. 2003. "Income Inequality in the United States, 1913–1998." *The Quarterly Journal of Economics* 118 (1): 1–41; and Saez, Emmanuel, and Gabriel Zucman. 2020. "The Rise of Income and Wealth Inequality in America: Evidence from Distributional Macroeconomic Accounts." *Journal of Economic Perspectives* 34 (4): 3–26.



Income inequality has several causes; however, inequality in income from labor and slow growth in wages plays an important role in driving overall income inequality. To control for demographic changes that possibly increases in income volatility, Guvenen et al. (2021) measure inequality in male lifetime earnings using Social Security data.¹⁸⁷ They find that median lifetime earnings fell 10–19 percent for men entering the workforce in 1983 versus men entering the workforce in 1957. Put another way, the realized lifetime real income for the typical male worker in 1983 was substantially lower than their 1957 counterparts. For cohorts entering after 1983 (and still working), they find evidence of continued stagnation of income for the median worker and increasing inequality in lifetime earnings. Similar stagnation in lifetime earnings has also been observed for currently working cohorts (gains for female cohorts prior to 1983 came off a very low base).

A growing body of research suggests that rising income inequality carries important implications for the macroeconomy. The secular stagnation hypothesis posits that the natural rate of interest, the interest rate needed to achieve full employment, has been falling for several decades. Several distinct drivers of low interest rates have been suggested, including rising income inequality.¹⁸⁸ As the secular stagnation

¹⁸⁷ Guvenen, Fatih, Greg Kaplan, Jae Song, and Justin Weidner. 2021. "Lifetime Earnings in the United States over Six Decades." *Becker Friedman Institute Working Paper* 2021-60. <https://bfi.uchicago.edu/working-paper/2021-60/>.

¹⁸⁸ Eggertsson and Mehrotra (2014) show how low interest rates could contribute to low or negative natural rates of interest. Eggertsson, Gauti B., and Neil R. Mehrotra. 2014. "A Model of Secular Stagnation." *National Bureau of Economic Research Working Paper* 20574. Mian, Sufi, and Straub (2020) show how bequest motives may explain why wealthier households save a larger portion of their income; therefore, higher income inequality lowers the natural rate. Mian, Atif, Ludwig Straub, and Amir Sufi. 2021. "Indebted Demand." *The Quarterly Journal of Economics* 136 (4): 2243–2307.

literature emphasizes, an excessively low natural rate of interest complicates the conduct of monetary policy. In recessions, interest rates must fall to stimulate the investment and maintain aggregate demand. Central banks are generally unable to lower short-term interest rates below zero; when interest rates need to be kept low to sustain full employment, monetary policy can face an inability to lower interest rates sufficiently in recessions before hitting the zero-lower bound.

Since 2000, the zero lower bound has posed an increasing challenge for using monetary policy to boost demand. In the wake of the 2008 financial crisis, the Federal Reserve, European Central Bank, and other central banks had to keep interest rates close to zero for an unprecedented duration to sustain an economic recovery. Prior to the 2020 pandemic, U.S. short-term rates were just 2 percent and, absent an unprecedented increase in fiscal support, appeared insufficient to offset the pandemic's effect on aggregate demand.

While the precise contribution of lower labor market competition to income inequality is open to debate, the rise in inequality has been stark and pronounced. And the link to low interest rates has increasing support as a theoretical mechanism and in empirical evidence. To the extent that increases in labor market competition boost wages and labor share, this would likely imply raised demand and a higher natural rate of interest.

Impacts on Women and Workers of Color

Evidence suggests that the burden of lower worker power fall disproportionately on women and workers of color. Rosenfeld and Kleykamp (2012) estimate that declines in private-sector unionization have contributed to substantial racial wage gaps—up to 30 percent for Black women.¹⁸⁹ Lower rates of unionization may have also left women workers and workers of color more vulnerable to wage theft and other workplace violations (i.e., Bernhardt et al. 2009).¹⁹⁰ Continued labor market power can allow racial discrimination in hiring to persist; Quillian et al. (2017), for example, find no evidence of decreasing discrimination in hiring against Black workers.¹⁹¹

More generally, lower wage growth and a declining labor share have had a greater effect on lower- and middle-income workers than high wage workers and business owners. As a result, wage stagnation has a disproportionate impact on women and workers of color who, in any case, receive lower wages than men or white workers. Gould (2020, Table 3) shows that stagnation of wage growth among the lower 90 percent of earners was accompanied by increased within-group wage inequality—wages grew by less

¹⁸⁹ Rosenfeld, Jake, and Meredith Kleykamp. 2012. "Organized Labor and Racial Wage Inequality in the United States." *American Journal of Sociology* 117 (5): 1460–1502.

¹⁹⁰ Bernhardt, Annette, Ruth Milkman, Nik Theodore, Douglas Heckathorn, Mirabai Auer, James DeFilippis, Ana Luz González, et al. 2009. "Broken Laws, Unprotected Workers: Violations of Employment and Labor Laws in America's Cities." Center for Urban Economic Development, National Employment Law Project, and UCLA Institute for Research on Labor and Employment. <https://www.nelp.org/wp-content/uploads/2015/03/BrokenLawsReport2009.pdf>.

¹⁹¹ Quillian, Lincoln, Devah Pager, Ole Hexel, and Arnfinn H. Midtbøen. 2017. "Meta-analysis of field experiments shows no change in racial discrimination in hiring over time." *Proceedings of the National Academy of Sciences* 114 (41): 10870–10875.

within each decile for Black workers.¹⁹² Hispanic workers fared somewhat better, with their wages rising relative to white workers between 2000 and 2019 but earned generally 25 percent less than white workers at every decile.

While the gender wage gap continues to narrow, progress in closing the difference in men and women's earnings has slowed in the last two decades compared to the 1980s and 1990s when female educational attainment improved and wages in male dominated industries faced weaker labor demand. In 2020, the typical woman working full-time, year-round earned only 83 cents for every dollar earned by the typical man working full-time, year-round. And the wage gap is much wider for most women of color, contributing significantly to economic inequality.¹⁹³ For example, Hispanic women earned 57 cents and Black women earned 64 cents compared to every dollar earned by white, non-Hispanic men in 2020.¹⁹⁴ The persistent gender wage gap is also tied to increased wage dispersion as wage growth has slowed for all lower and middle wage workers, relative to top earners.

Wage stagnation also has a disproportionate negative impact for minorities because these households derive less income from other sources. Black and Hispanic workers have a much lower homeownership rate than whites—approximately 40 percent and 50 percent respectively compared to over 70 percent for whites. The dramatic wage stagnation after 2000 coincided with the 2008 housing bust that decimated the largest source of wealth for most Americans. The wave of foreclosures in the wake of the 2008 housing crisis dramatically lowered minority homeownership rates, meaning that these households are unlikely to have benefited from the recent increase in house prices. Reduced frequency of homeownership leads to less generational wealth, increasing the dependency of Black and Hispanic Americans on wage growth to build income and wealth.

Declining Business Investment and Productivity Growth

Lower employment is a consequence of decreased labor market competition, as discussed in the section on monopsonistic theory. So long as capital and labor are complementary, which they often are, lower employment also results in lower investment. Considered in a different way, the exercise of monopsony power behaves as if it were a tax on labor as an input. This 'tax' leads to lower production and deadweight loss, and therefore lower investment in capital.

More generally, business investment has been relatively weak in recent decades despite a rising profit share and repeated reductions in corporate taxation. Weak wage growth and a large pool of low-priced labor likely dampen business incentives to invest in tangible capital. In a tight labor market, firms would

¹⁹² Gould, Elise. 2020. "State of Working America Wages 2019." *Economic Policy Institute*, February 20, 2020. <https://www.epi.org/publication/swa-wages-2019/>.

¹⁹³ Bleiweis, Robin, Jocelyn Frye, and Rose Khattar. 2021. "Women of Color and the Wage Gap." *Center for American Progress*, November 17, 2021. <https://www.americanprogress.org/article/women-of-color-and-the-wage-gap/>.

¹⁹⁴ U.S. Bureau of Labor Statistics. 2021. "Highlights of Women's Earnings in 2020." *BLS Reports* Report 1094. <https://www.bls.gov/opub/reports/womens-earnings/2020/home.htm>. See also, Bleiweis, Frye, and Khattar (2021).

need to find ways to utilize scarce labor more productively and would likely boost investment to make workers more productive.

Monopsony power can also decrease aggregate productivity, provided that firm-level productivity and market power are correlated, as Mertens (2020) argues.¹⁹⁵ Given that correlation, higher-productivity firms reduce their output disproportionately, relative to lower-productivity firms. Naturally, this increases low-productivity firms' share of national production, resulting in decreased aggregate productivity. As Gutierrez and Philippon (2017, 2020) show, the largest firms, which hold an increasing share of employment and sales, have stagnant investment rates, and a decreasing relative contribution to aggregate productivity growth.¹⁹⁶ Thus, the largest firms are becoming more profitable while investing less and generating less productivity growth. To be clear, a causal link from lower labor market competition to decreases in investment and productivity growth has yet to be established. However, increased concentration does appear to be a driver of weak investment, low productivity growth, and high profits and likely contributes to lower labor market competition.

Firm Formation and Innovation

Business formation and exits have both declined since the early 1980s. As a share of the total number of firms, about 20 percent fewer firms were created in 2018, compared with 1982.¹⁹⁷ Over the same period, the share of payroll attributable to firms less than 5 years old with at least one employee on payroll declined by almost a quarter, from 38 percent in 1982 to about 29 percent in 2018 (Congressional Budget Office 2020). Accordingly, firms today are, on average, older than they were in the past.

The decline in business formation is likely driven by several factors. In their 2020 analysis, the Congressional Budget Office (CBO) pointed to the aging domestic workforce as a key factor, though they note immigration (especially high skilled immigration) has offset some of that decline. Cyclical factors (e.g., recessions) play a role as well. Moreover, the shift in economic activity to larger and older firms may not necessarily have a negative impact on welfare (Autor et al. 2020).

However, the decline in business formation is potentially troubling because it could suggest that dominant firms maintain their lead status by erecting barriers to entry rather than maintaining their dominance through innovation. Gutierrez and Philippon (2019) provide evidence to this effect, showing that firm entry has become less sensitive to market valuations over time (i.e., high profits do not lead to increasing firm entry). The authors provide evidence that large firms have been able to erect hurdles to the entry of new firms.¹⁹⁸

¹⁹⁵ Mertens, Matthias. 2020. "Labour Market Power and Between-Firm Wage (In)Equality." *Leibniz Institute for Economic Research Halle Discussion paper 13/2020*.

¹⁹⁶ Gutierrez, German, and Thomas Philippon. 2017. "Declining Competition and Investment in the U.S." *National Bureau of Economic Research Working Paper 23583*; and Gutierrez, German, and Thomas Philippon. 2020. "Some Facts about Dominant Firms." *National Bureau of Economic Research Working Paper 27985*.

¹⁹⁷ Congressional Budget Office. 2020. "Federal Policies in Response to Declining Entrepreneurship." December 2020. <https://www.cbo.gov/system/files/2020-12/56906-entrepreneurship.pdf>.

¹⁹⁸ Gutierrez, German, and Thomas Philippon. 2019. "The Failure of Free Entry." *National Bureau of Economic Research Working Paper 26001*.

As Aghion, Akcigit, and Howitt (2015) note, more intense competition tends to encourage innovation in “frontier” firms (firms that are in sectors at the cutting-edge of technology), whereas barriers to entry become increasingly detrimental to growth as a country approaches the technological frontier.¹⁹⁹ Using a structural model, Akcigit and Ates (2019) find that declines in firm entry and worker reallocation towards new firms reflects slower knowledge diffusion from frontier firms to new entrants,²⁰⁰ which could reflect impediments to worker mobility.

. The use of non-compete clauses, especially among internet-based commerce firms, could be discouraging firm entry (Congressional Budget Office 2020). For instance, Marx, Strumsky, and Fleming (2009) finds that an unintended change in Michigan law boosting the enforceability of non-compete agreements led to sharp declines in the mobility of patent holders.²⁰¹ Restricting the use of non-compete agreements and other restrictive employment agreements could allow for new firm creation, as workers at incumbent firms could leave the firm to pursue new ideas, thereby forcing incumbent firms to innovate to stay dominant.

Declining Worker Mobility and Productivity Growth via Reallocation

The reallocation of workers across firms is a key driver of firm-level and overall productivity growth. Workers quit their jobs and search for new jobs that better fit their skills, while firms are seeking the right mix of workers to improve their productivity. A large economic literature provides both theoretical and empirical evidence for linking the pace of reallocation to aggregate productivity growth.

Pre-pandemic, job reallocation (the creation and destruction of new jobs) and worker reallocation (workers quitting and finding new work) have been declining steadily over several decades.²⁰² Worker mobility across space has also declined over time.²⁰³ Like the literature on declining firm entry rates, demographic factors or the changing industrial composition of the economy may explain some of the decline in reallocation and spatial mobility. Akcigit and Ates (2019) link declining job and worker reallocation to slower diffusion of ideas from market leading firms to new entrants. Davis and Haltiwanger (2014) argue that factors inhibiting competition, including specifically occupational

¹⁹⁹ Aghion, Philippe, Ufuk Akcigit, and Peter Howitt. 2015. "Lessons from Schumpeterian Growth Theory." *American Economic Review* 105 (5): 94–99. Intuitively, the reason why barriers to entry discourage growth in a “Schumpeterian growth” model is because new firms innovate to gain market share, thus threatening incumbent firms and forcing them to innovate as well. With barriers to entry, incumbent firms face fewer incentives to innovate and, instead, extract monopoly rents from their dominant position.

²⁰⁰ Akcigit, Ufuk, and Sina T. Ates. 2019. “Ten Facts on Declining Business Dynamism and Lessons from Endogenous Growth Theory.” *National Bureau of Economic Research Working Paper* 25755.

²⁰¹ Marx, Matt, Deborah Strumsky, and Lee Fleming. 2009. “Mobility, Skills, and the Michigan Non-Compete Experiment.” *Management Science* 55 (6): 875–889.

²⁰² Decker, Haltiwanger, Jarmin and Miranda (2020) and Haltiwanger (2015) summarize the decline in job and worker reallocation since 1980 and its implications for aggregate productivity growth. Decker, Ryan A., John Haltiwanger, Ron S. Jarmin, and Javier Miranda. 2020. “Changing Business Dynamism and Productivity: Shocks versus Responsiveness.” *American Economic Review* 110 (12): 3952–3990; and Haltiwanger, John. 2015. “Job Creation, Job Destruction, and Productivity Growth: The Role of Young Businesses.” *Annual Review of Economics* 7 (August): 341–358.

²⁰³ Molloy, Raven, Christopher L. Smith, and Abigail K. Wozniak. 2014. “Declining Migration within the U.S.: The Role of the Labor Market.” *National Bureau of Economic Research Working Paper* 20065.

licensing, may account for declining labor market dynamism.²⁰⁴ They find a particularly large decrease in worker reallocation among younger workers and workers with lower educational attainment. Kleiner and Krueger (2013) also document increasing prevalence of occupational licensing that may inhibit worker switching across occupations and space. It is also likely that restrictive employment agreements are contributing to lower levels of worker mobility.

Biden Administration Proposals to Promote Labor Market Competition

As this report makes clear, insufficient labor market competition has harmful effects on workers and the economy and worsens inequality. In response, President Biden issued an Executive Order on Promoting Competition in the American Economy, establishing a whole-of-government effort to reduce the trend of corporate consolidation and improve competition for American workers, consumers, and small businesses. Pursuant to this Order, federal agencies are acting to develop and implement several proposals to promote competition in labor markets. Robust labor market competition requires careful maintenance and is a critical component to promoting economic growth, spurring innovation, and addressing economic inequality. The following initiatives and policy proposals will bolster labor market competition and increase workers' bargaining power.

Proposed Legislation

The President is calling on Congress to pass proposed legislation that would promote increased competition in labor markets by improving workers' ability to negotiate fair wages and a larger share of income. The legislative proposals discussed below would greatly enhance the negotiating power of workers and mitigate the decline in wages that have contributed to a historic rise in income inequality. By restoring balance to the labor market, the proposed legislation would force employers to compete for workers on a level playing field and ensure that workers get their fair share of the value they create.

Increasing union representation can help increase workers bargaining power and raise wages. Recent survey data suggests that roughly half of nonunion workers would vote for a union if they had the opportunity and the percent of Americans who support labor unions stands at 68 percent, the highest since the early 2000s. Despite this support, private-sector unionization stood at just 6.1 percent in 2021.²⁰⁵ Current labor law is a major obstacle to unionization as workers face multiple hurdles and employers can intimidate and coerce workers, often incurring no penalties for retaliatory actions against workers or interfering with union election processes.

Protecting and Expanding Workers' Right to Organize: The President and Vice-President have called for Congress to pass the Richard L. Trumka Protecting the Right to Organize Act and the Public Service Freedom to Negotiate Act (PSFNA). These bills would ensure more private- and public-sector workers

²⁰⁴ Davis, Steven J., and John Haltiwanger. 2014. "Labor Market Fluidity and Economic Performance." *National Bureau of Economic Research Working Paper 20479*.

²⁰⁵ Bureau of Labor Statistics. 2022. "Union Members Summary." Last modified January 20, 2022. <https://www.bls.gov/news.release/union2.nr0.htm>.

nationwide have a genuine right to organize and bargain collectively. They would also promote racial income equality by shrinking the Black-white wage gap by boosting worker power. The PSFNA would establish minimum standards for collective bargaining by state and local public service workers; these workers lack formal bargaining in half of the states. President Biden and Vice-President Harris also have endorsed several proposals to expand labor rights to more workers (especially workers of color, women, and immigrants) and help counteract monopsony power in sectors not covered by current labor laws. These include guaranteeing labor rights to farmworkers and domestic workers—two segments of the labor force excluded from the protections of the National Labor Relations Act. For example, the National Domestic Workers’ Bill of Rights, which Vice President Harris championed in the Senate and the President has endorsed, would expand federal labor law to domestic workers and create a new wage and standards board for regulating working conditions in the sector.

Raising the Federal Minimum Wage: Raising the minimum wage is a straightforward approach to addressing lower wages under monopsony and can help increase employment. However, the federal minimum wage has remained unchanged since 2009,²⁰⁶ during which time inflation has eroded the purchasing power of the minimum wage. Workers in states that have not enacted meaningful increases to the state’s minimum wage have been left behind as a result of this decline in purchasing power. President Biden has endorsed raising the federal minimum wage to \$15 per hour, indexing future increases of the federal minimum wage, phasing out the tipped minimum wage, and eliminating the subminimum wage for teen workers and workers with disabilities.²⁰⁷ Raising the federal minimum wage would give nearly 32 million Americans a raise and would boost the purchasing power of low-income families allowing them the opportunity to more fully participate in the growing economy.²⁰⁸

Restricting the Use of Mandatory Arbitration and Class Action Waivers: Legislation restricting the use of mandatory arbitration and limits on class actions would prevent employers from forcing employees into forfeiting the opportunity to have their case heard by a judge and jury or their right to join together in a collective action to remedy collective harms. Congress has already taken a first step to limit the enforceability of mandatory arbitration and class waivers by enacting the Ending Forced Arbitration of Sexual Assault and Sexual Harassment Act of 2021, which makes mandatory arbitration and class waiver provisions invalid and unenforceable in court for claims involving sexual assault or harassment. President Biden signed the Ending Forced Arbitration of Sexual Assault and Sexual Harassment Act into law on March 3, 2022.

Mandatory arbitration agreements undercut labor market competition by effectively reducing wages paid to employees by arbitrarily imposing liability costs on employees. When workers are unable to negotiate for higher pay and are forced into arbitration, their real wage rate is too low, preventing the labor market from functioning efficiently. President Biden supports banning employers’ use of forced arbitration and class waivers to restore worker rights and impose accountability on employers. Mandatory arbitration and class action waivers can distort labor markets by insulating businesses from the full costs of doing business, primarily by limiting liability and public exposure. DOL is prioritizing

²⁰⁶ The Economic Policy Institute. 2022. “Minimum Wage Tracker.” Last modified January 1, 2022. <https://www.epi.org/minimum-wage-tracker/>.

²⁰⁷ House Committee on Education and Labor. n.d. “Raise the Wage Fact Sheet.” Accessed March 3, 2022. <https://edlabor.house.gov/download/hr-603-raise-the-wage-act-fact-sheet>

²⁰⁸ Ibid.

enforcement against employers that employ mandatory arbitration or class action waivers as a check against employers' abuse of their market power. Recently, a court held that DOL's ability to enforce laws through the courts was not limited by an arbitration agreement between an employee and their employer.²⁰⁹

Criminal Antitrust Anti-Retaliation Act of 2019: OSHA's Whistleblower Protection Program is implementing the Criminal Antitrust Anti-Retaliation Act of 2019 (CAARA). The law provides legal protections for employees who blow the whistle on criminal antitrust violations by prohibiting employers from taking punitive actions against whistleblowers for reporting these violations to their employer or assisting a federal government investigation into a criminal antitrust violation. In addition to OSHA's ongoing enforcement and outreach, OSHA plans to publish in May 2022 an Interim Final Rule promulgating procedures for the handling and investigation of CAARA claims.

Antitrust Enforcement

In recent years, the federal antitrust agencies—the Antitrust Division of DOJ (“DOJ” or “Antitrust Division”) and FTC—have prioritized competition enforcement and advocacy in labor markets by increasing their institutional capacity for labor market enforcement, bringing expertise in-house, and reviewing and, where appropriate, reforming enforcement practices agency-wide to respond to the challenges raised by the modern economy. By leveraging their civil, research, and rulemaking powers, the Antitrust Division and FTC have a significant role to play in improving competitive conditions in labor markets by, among other things, reducing concentration and disciplining the use and abuse of restrictive employment agreements, including non-compete agreements, forced arbitration clauses, non-solicitation clauses, and other covenants that exacerbate bargaining asymmetries between workers and employers. Both agencies can clarify public guidance to bolster labor market competition, and challenge civil action mergers and unilateral conduct that harm labor markets. The Antitrust Division has sole jurisdiction to criminally prosecute conspiracies and other collusive agreements among employers.

DOJ Criminal Enforcement in Labor Markets

The Antitrust Division has both civil and criminal enforcement authority. In particular, the Antitrust Division prosecutes criminal conspiracies among competitors, including price fixing, bid rigging, and market allocation. This includes agreements among employers to fix wages, which is price fixing in the labor market, and to allocate labor markets using no-poach agreements.²¹⁰ In recent years, the Antitrust Division's criminal program has become increasingly central to its efforts to prosecute and deter wage fixing and no-poach agreements, which steal from workers by depriving them of competitive wages, benefits, and other terms of employment.

²⁰⁹ Department of Labor. 2021. “Court Affirms US Department of Labor’s Independent Authority to Recover Unpaid Wages, Damages in Court for Employees Who Signed Private Arbitration Agreements.” News release, September 23, 2021. <https://www.dol.gov/newsroom/releases/sol/sol20210923>

²¹⁰ See *United States v. Knorr-Bremse AG, et al.*, 18-747 (D.D.C.) (April 4, 2018).

Beginning in October 2016, the Antitrust Division made a series of public statements indicating that it intended to criminally prosecute “naked” no-poach and wage-fixing conspiracies.²¹¹ That decision followed from longstanding caselaw establishing that these restraints are equivalent to agreements to fix product prices and allocate product markets—conduct that the Antitrust Division has prosecuted for over 100 years. Indeed, the Supreme Court held long ago that the Sherman Act applies equally to all industries and markets, including labor markets, and the conduct of employers is not entitled to special treatment under U.S. antitrust laws, except in the context of legitimate collective bargaining and other labor union activities.²¹² The Antitrust Division views rooting out criminal collusion in labor markets as part of its overall mission to deter, detect, and prosecute cartels.

Over the last several years, the Division has continued to invest substantial time and resources to ensure vigorous competition in labor markets. These efforts, which included substantial public engagement and awareness building, led to a notable increase in the number of citizens who reported alleged conspiracies to the Antitrust Division since October 2016. Over the same period, labor market investigations have comprised a growing portion of the Antitrust Division’s docket. Between December 2020 and December 2021, the Antitrust Division charged five criminal cases for alleged collusion in labor markets, including four companies and nine individuals.²¹³ In January 2022, the Antitrust Division filed a further indictment charging four managers of home health care agencies with participating in a conspiracy to suppress the wages and restrict the job mobility of essential workers during the COVID-19 pandemic.²¹⁴ The Antitrust Division’s criminal enforcement program has led to the prosecution of long-running employer conspiracies against workers in multiple critical markets, including physical therapy, dialysis nursing, home health care services, and aerospace, with more active labor market investigations currently underway.

Remedial measures are another important tool for the Antitrust Division in protecting competition for workers. In particular, the Division may require provisions regarding labor market competition in corporate criminal resolutions where the charged conduct restrained or impacted worker mobility.

At its core, the Antitrust Division is committed to prosecuting naked conspiracies in labor markets because they rob workers of competitive wages, benefits, and other terms of employment. They also deprive honest businesses of talented workers who contribute substantially to the products and services on which Americans rely. While this work is principally criminal enforcement, it also reflects a commitment to ensuring free market competition for workers’ labor.

²¹¹ Renata B. Hesse. “The Measure of Success: Criminal Antitrust Enforcement During the Obama Administration.” Remarks at the 26th Annual Golden State Antitrust, UCL and Privacy Law Institute, November 3, 2016. Department of Justice, <https://www.justice.gov/opa/speech/file/908301/download>.

²¹² See Final Judgement, *United Mine Workers of Am. v. Pennington*, 381 U.S. 676, 85 S. Ct. 1607, 14 L. Ed. 2d 626 (1965).

²¹³ Indictment, *United States v. Jindal*, No. 4:20-cr-00358 (E.D. Tex. Dec. 9, 2020); Indictment, *United States v. Surgical Care Affiliates, LLC*, No. 3-21-CR0011-L (N.D. Tex. Jan. 5, 2021); Indictment, *United States v. Hee et al.*, No. 2:21-cr-00098-RFB-BNW (D. Nev. Mar. 30, 2021); Indictment, *United States v. DaVita, Inc.*, No. 21-cr-00229-RBJ (D. Colo. July 14, 2021); and Indictment, *United States v. Patel et al.*, No. 3:21-cr-00220-VAB (D. CT. Dec. 15, 2021). See also *United States v. Jindal*, No. 4:20-cr-00358 (E.D. Tex. Nov. 29, 2021) (denying defendants’ motion to dismiss).

²¹⁴ Indictment, *United States v. Manahe et al.*, No. 22-cr-0013-JAW (D. Maine, January 27, 2022).

DOJ and FTC Civil Enforcement and Competition Advocacy

Civil enforcement represents an equally important, and in some respects even more expansive, toolset for enforcers to improve labor market competitiveness because it reaches a broader swath of competition concerns. The antitrust agencies are currently committed to using their civil authorities to detect, investigate, and challenge anticompetitive non-compete agreements, mergers that create or enhance monopsony power in labor markets, the anticompetitive exercise of monopsony power, and information sharing by employers. To aid these efforts, the Antitrust Division and the FTC have issued public guidance that reflects the importance the U.S. antitrust agencies place on protecting competition in labor markets and may update that guidance to reflect improved information about market dynamics and competition analysis.

As part of their respective competition advocacy programs, the Antitrust Division and FTC have recently filed statements of interest and amicus briefs in multiple significant labor market matters. In March 2021, the agencies filed an amicus brief in *NCAA v. Alston* on behalf of college athletes.²¹⁵ A unanimous Supreme Court decided in the athletes' favor that colleges could not agree to limit the education-related benefits offered to students, rejecting an argument that these limits preserved amateurism and widened consumer choice by providing a unique product—amateur college sports as distinct from professional sports.²¹⁶ Before *NCAA v. Alston*, the Antitrust Division filed a number of amicus briefs and statements of interest urging courts to uphold the per se rule for naked restraints in labor markets, including *In re Railway Employee No-Poach Antitrust Litigation*, *Seaman v. Duke University*, and *Aya v. AMN Healthcare*.²¹⁷ In April 2020, the agencies warned employers, staffing companies, and recruiters that despite the need for unprecedented cooperation among public and private organizations to respond to the spread of COVID-19, the agencies would be closely monitoring labor markets to challenge any anticompetitive conduct that harms workers.²¹⁸ In February 2022, the DOJ filed an amicus brief before the National Labor Relations Board (NLRB) highlighting the potential impacts of misclassification on labor market competition and supporting the NLRB in its efforts to create a “sound, up-to-date, consistent approach to worker classification that adequately protects workers’ rights to organize.” DOJ also filed a statement of interest in a private non-compete case in Nevada arguing that competition-suppressing agreements should be subject to strict antitrust scrutiny, especially where (as alleged in the pleadings) the effect of enforcement would be to prevent health care workers from earning a living or serving patients in their home metro area.²¹⁹

²¹⁵ Brief for the United States as Amicus Curiae Supporting Respondents, *NCAA v. Alston*, 141 S. Ct. 2141, 210 L. Ed. 2d 314 (2021).

²¹⁶ Final Judgement, *National Collegiate Athletic Association v. Alston*, 141 S. Ct. 2141, 210 L. Ed. 2d 314 (2021).

²¹⁷ Statement of Interest of the United States, *In Re: Railway Industry Employee No-Poach Antitrust Litigation*, 395 F. Supp. 3d 464 (W.D. Pa. 2019) (No. 2:18-mc-00798-JFC); Statement of Interest of the United States, *Seaman v. Duke Univ.*, No. 1:15-CV-462, 2019 WL 4674758 (M.D.N.C. 2019); and Brief of Amicus United States of America in Support of Neither Party, *Aya Healthcare Serv., Inc. v. AMN Healthcare, Inc. et al.*, 9 F.4th 1102 (9th Cir. 2021).

²¹⁸ Department of Justice and Federal Trade Commission. 2020. “Joint Antitrust Statement Regarding COVID-19 and Competition in Labor Markets.” Press release, April 2020.

²¹⁹ Brief of the United States Department of Justice as Amicus Curiae at 9, *The Atlanta Opera, Inc.*, 10-RC-276292 (NLRB February 10, 2022); and Statement of Interest of the United States, *Beck v. Pickert Medical Group, P.C.*, No. CV21-02092 (Nev. 2nd. Jud. Dist. Ct. February 28, 2022).

Consistent with the DOJ's recent filing before the NLRB, the agencies intend to continue to seek opportunities to provide guidance to courts in cases that implicate the proper scope of the antitrust exemptions that protect labor organizing. Although multiple federal statutes exempt labor organizing from the antitrust laws' purview, federal courts have held that these protections apply only to workers formally classified as employees.²²⁰ As a result, collective action and organizing by certain workers—including those who have the terms of their work dictated by a firm yet are classified as non-employees—may be susceptible to an antitrust lawsuit, including by private parties. When appropriate, the agencies may consider providing guidance on how they interpret the antitrust laws with respect to organizing activities that are exempt from antitrust prosecution.

In addition to these case-specific interventions, the Antitrust Division and FTC are considering updates to their guidance, particularly in areas where changes in the economy may have led some people to incorrectly interpret the agencies' past guidance in ways that are insufficiently protective of workers' access to robust, competitive labor markets. Currently, the Antitrust Division and FTC are working to revise their joint Antitrust Guidance for Human Resource Professionals, which was published in 2016 to help human resources professionals "implement safeguards to prevent inappropriate discussions or agreements with other firms" (Department of Justice Antitrust Division and Federal Trade Commission 2016). This guidance was primarily intended to educate and inform business and human resource professionals about how the antitrust laws apply to hiring and compensation decisions. However, due to recent case experience and research that have shown that information-sharing, particularly in concentrated markets, may have potentially significant anticompetitive effects even when purportedly anonymized, the agencies are in the process of updating this guidance to reflect this new information.²²¹

Similarly, the agencies believe that the principles for addressing and preventing concentration embodied in the Horizontal Merger Guidelines apply just as much to labor markets as to any other market. In January 2022, the agencies announced a joint effort to solicit updated public input on the Horizontal Merger Guidelines in order to better detect and prevent illegal, anticompetitive deals in today's modern markets, including labor markets.²²² As part of this effort, some commentators have suggested that the applicability of antitrust principles to labor markets should be more explicitly articulated, and the Antitrust Division and FTC are considering this feedback as they review the Horizontal Merger Guidelines. The agencies are also considering commentators' contention that labor markets may become subject to market power at more moderate levels of employer concentration than product markets, due to the employee-side search frictions that characterize labor markets.

²²⁰ 15 U.S.C. § 17.; *L.A. Meat & Provision Drivers Union, Local 626 v. United States*, 371 U.S. 94 (1962); *United States v. Women's Sportswear Mfg. Ass'n*, 336 U.S. 460 (1949); and *Columbia River Packers Ass'n v. Hinton*, 315 U.S. 143 (1942).

²²¹ See Complaint, *Kraft Heinz Foods Co. v. Amick Farms et al.*, 20-cv-02278 (N.D. Ill. April 11, 2020) (alleging use of 3rd party agricultural information to "enabling Defendants to monitor what each producer was doing in furtherance of ... concerted action among the producers."); and Complaint, *U.S. v. Sinclair Broadcast Group, Inc.*, 18-cv-02609 (D.D.C. November 13, 2018) (alleging "information exchanges [that] distorted the normal price-setting mechanism in the spot advertising market and harmed the competitive process.").

²²² Federal Trade Commission. 2022. "Federal Trade Commission and Justice Department Seek to Strengthen Enforcement Against Illegal Mergers." Press release, January 18, 2022. <https://www.ftc.gov/news-events/press-releases/2022/01/ftc-and-justice-department-seek-to-strengthen-enforcement-against-illegal-mergers>.

The agencies' work on the Horizontal Merger Guidelines will reflect lessons learned from multiple recent merger cases brought by the agencies that implicated the rights of workers. In November 2021, the Antitrust Division filed to stop a proposed merger between Penguin Random House and Simon & Schuster, two large book publishers, primarily on the grounds that it would harm competition for author labor by giving Penguin Random House, currently the largest of the five remaining traditional publishers, outsized control over publication opportunities and lead to reduced pay for authors.²²³ In 2017, the D.C. Circuit affirmed the Division's successful challenge of Anthem's proposed acquisition of Cigna, a merger of two significant health insurers that would have reduced reimbursement rates for physicians in multiple markets.²²⁴ In that case, the labor harms were alleged alongside product-market harms, underscoring the notion that antitrust enforcement in labor markets can complement enforcement in product markets. Similarly, two private duty nursing providers called off their proposed merger after the FTC raised concerns about potential effects on competition for nursing services and for employing nurses in local markets across the country.²²⁵

The agencies also will be attentive to the over-broad use of non-compete clauses against employees in conjunction with mergers, as they can raise barriers to entry in markets where workers are a key input to effective competition. For instance, the FTC recently issued an order against a national chain of dialysis clinics to remedy concerns that its acquisition of additional clinics would reduce competition for outpatient dialysis services in Provo, Utah. In addition to requiring divestitures, the FTC's order prohibits the company from entering or enforcing any non-compete agreements with physicians that would restrict their ability to work for a competitor.²²⁶

Research and Rulemaking

To establish a foundation for future efforts to protect workers, in December 2021, the Antitrust Division and FTC concluded a two-day public workshop on the subject, entitled "Making Competition Work: Promoting Competition in Labor Markets." The workshop convened lawyers, economists, academics, policy experts, labor groups, and workers, and covered recent developments at the intersection of antitrust and labor, as well as implications for efforts to protect and empower workers through competition enforcement and rulemaking. Feedback and comments obtained from the workshop will be incorporated into the agencies' efforts going forward, including with respect to enforcement, guidelines, and rulemaking affecting labor market antitrust enforcement.

In addition to its authority to bring law suits to prohibit unfair methods of competition, the FTC Act gives the FTC authority to identify and prohibit unfair methods of competition through a rulemaking process that follows the Administrative Procedure Act.²²⁷ The FTC held a workshop in 2020 to discuss how it could use its rulemaking authority to address the overuse of non-compete clauses, and several organizations, including a group of 19 state attorneys general, have petitioned the agency to initiate a

²²³ Complaint, *United States v. Bertelsmann SE & Co. et al.*, 16-cv-02886 (D.D.C. November 21, 2021).

²²⁴ Complaint, *United States et al. v. Anthem Inc. et al.*, 16-cv-01493 (D.D.C. July 21, 2016).

²²⁵ Federal Trade Commission. 2022. "Statement of FTC Chairman Regarding Announcement that Aveanna Healthcare and Maxim Healthcare Services Terminated Their Acquisition Agreement." Press release, January 30, 2020. <https://www.ftc.gov/news-events/press-releases/2020/01/statement-ftc-chairman-regarding-announcement-aveanna-healthcare>.

²²⁶ *In re DaVita Inc.*, FTC File No. 21-10013 (October 25, 2021).

²²⁷ *National Petroleum Refiners Association v. FTC*, 482 F.2d 672 (D.C. Cir. 1973).

rulemaking to limit their use.²²⁸ As suggested in the President’s Executive Order on Competition, the Chair of the FTC is encouraged to work with the rest of the Commission to exercise the FTC’s statutory rulemaking authority to curtail the use of non-compete clauses and other clauses that may unfairly limit worker mobility.

Supporting Occupational Licensing Reform Efforts

To better understand and reduce the impacts of inefficient licensing requirements, the DOL has previously awarded several grants for states to review the licensing requirements for various occupations and reduce the barriers to entry into excessively consolidated occupations. These grants were also intended to improve labor mobility in licensed occupations with an emphasis on transitioning veterans to licensed civilian occupations and improving portability for military spouses. These investments yielded tangible results including a searchable database of licensing requirements for 48 occupations,²²⁹ and comprehensive reports on the barriers facing vulnerable communities, including veterans and military spouses, justice-involved individuals, and immigrants with work authorization. These grants laid a foundation from which to launch future reform efforts.

Several of these grants have since expired; two grants, one to the National Council of State Legislatures and one to the Council of State Governments are set to expire in 2022. These grants have helped reveal the substantial difficulties inherent to occupational licensing reform. Many states are reticent to attempt reforms and, even when reforms are considered, they are occupation specific and not as broad as might be ideal.²³⁰ The federal government, in support of this Executive Order, will do more to support state efforts at reforms, including elevating and disseminating best practices from current and past demonstration investments, directing support for workers pursuing occupational licensing, exploring funding and support that has been shown to be effective in the adoption of meaningful license reforms, and improving labor market competition by increasing worker mobility.

The Department of Defense also has a grant to the Council of State Governments to work with states to promote and expand participation in interstate licensing compacts, another major way to increase

²²⁸ Federal Trade Commission. 2020. “Workshop: Non-Competes in the Workplace: Examining Antitrust and Consumer Protection Issues” News release, January 9, 2020. <https://www.ftc.gov/news-events/events-calendar/non-competes-workplace-examining-antitrust-consumer-protection-issues>; See Petition for Rulemaking to Prohibit Worker Non-Compete Clauses by Open Markets Institute, et al., <https://static1.squarespace.com/static/5e449c8c3ef68d752f3e70dc/t/5eaa04862ff52116d1dd04c1/1588200595775/Petition-for-Rulemaking-to-Prohibit-Worker-Non-Compete-Clauses.pdf>; and Office of the Attorney General of the District of Columbia. 2020. “Public Comments of 19 State Attorneys General.” March 2020. <https://oag.dc.gov/sites/default/files/2020-03/FTC-Comment-Letter-Non-Compete-Clauses-Workplace.pdf>.

²²⁹ National Conference of State Legislatures. 2020. “The National Occupational Licensing Database.” Last modified March 24, 2020. <https://www.ncsl.org/research/labor-and-employment/occupational-licensing-statute-database.aspx>

²³⁰ Nunn, Ryan. 2019. “Eliminating the Anti-Competitive Effects of Occupational Licensing.” *Brookings*, January 17, 2019. <https://www.brookings.edu/opinions/eliminating-the-anti-competitive-effects-of-occupational-licensing/>; Avery, Beth, Maurice Emsellem, and Phil Hernandez. 2018. “Fair Change Licensing Reform Takes Hold in the States.” *National Employment Law Project*, May 15, 2018. <https://www.nelp.org/publication/fair-change-licensing-reform-takes-hold-states/>; Kleiner, Morris. 2015. “Reforming Occupational Licensing Policies.” *The Hamilton Project*, *Brookings Discussion Paper* 2015-01. https://www.brookings.edu/wp-content/uploads/2016/06/THP_KleinerDiscPaper_final.pdf; and The Captured Economy. n.d. “Occupational Licensing.” Last accessed March 3, 2022. <https://capturedeconomy.com/occupational-licensing/>.

license portability. The Licensure Portability Grant Program of the Office for the Advancement of Telehealth, Health Resources & Services Administration, has also supported the development of many interstate licensure portability compacts.²³¹ A silver lining of the COVID-19 pandemic is that the need to rapidly and safely deploy health care professionals to areas in need has greatly increased support for compacts and other portability initiatives. These initiatives can streamline the process of authorizing practitioners to work across state lines, potentially increasing the supply of practitioners in underserved areas and increasing competition. Accordingly, this is an opportune time for federal support of portability measures, especially in health care.

Administrative Actions to Bolster Worker Power

The Administration has taken steps to increase the level of competition in labor markets, raise the minimum wage for workers involved in federal contracting, protect workers' rights, and incentivize employers not to unlawfully shift costs onto workers and thereby gain unfair competitive benefits. Taken together, these changes will make labor markets more competitive, improve worker negotiating positions, protect workers' rights, and address discriminatory wages.

On April 27, 2021, President Biden issued an Executive Order setting the minimum wage at \$15 per hour by January 30, 2022, for workers participating on or in connection with federal contracts. This order also continues the practice of indexing the contractor minimum wage to inflation, phases out the tipped contractor minimum wage by 2024, ensures at least a \$15 minimum wage for federal contract workers with disabilities, and restores protections to guides operating on federal land.

On January 21, 2022, Secretary Walsh also announced the DOL's Good Jobs Initiative (GJI), which provides critical information to workers, employers, and government agencies as they work to improve job quality and create access to good jobs free from discrimination and harassment for all working people. The efforts undertaken through the GJI, together with the other actions advancing the recommendations of the White House Task Force on Worker Organizing and Empowerment, will help strengthen workers' bargaining power and help mitigate employer power in labor markets. The GJI focuses on empowering working people by:

- 1) Providing easily accessible information to workers about their rights including the right to bargain collectively and form a union;
- 2) Engaging employer stakeholders as partners in improving job quality and workforce pathways to good jobs; and
- 3) Supporting partnerships across federal agencies and providing technical assistance on grants, contracts, and other investments designed to improve job quality.

The GJI coordinates work done since the beginning of this administration (and often for decades before) under one umbrella to promote good jobs and, consistent with applicable legal authority, ensure that

²³¹ Health Resources and Services Administration. 2021. "Office for the Advancement of Telehealth." Last modified December 2021. <https://www.hrsa.gov/rural-health/telehealth>; and Goldman, Karen A.. 2018. "Policy Perspectives: Options to Enhance Occupational License Portability." Federal Trade Commission, September 2018. https://www.ftc.gov/system/files/documents/reports/options-enhance-occupational-license-portability/license_portability_policy_paper_0.pdf.

other agencies continue to have access to these resources in building job quality standards and equitable pathways to those jobs.

The DOL also announced a final rule, which came into effect on December 28, 2021, placing reasonable limits on when an employer can take credit against its minimum wage obligations, such as when a tipped employee performs non-tipped work. This rule enhances the DOL Wage and Hour Division's capacity to protect the rights afforded to these essential workers, more than half of whom are women, people of color, and immigrants.

With regard to independent contractors, the DOL has withdrawn the Trump Administration's "Independent Contractor Rule" that inappropriately narrowed the interpretation of the Fair Labor Standards Act's coverage and thereby risked excluding workers from minimum wage and overtime protections.²³² As discussed in detail above, misclassification of employees as independent contractors often leaves employees without the benefits and labor protections they are afforded by labor, employment, and tax laws. The National Economic Council has created an interagency policy committee to address worker misclassification (including through legislative solutions) as endorsed in the President's FY 2022 budget proposal. The Wage and Hour Division also has conducted agency-wide training to support efforts to combat misclassification and is partnering with local, state, and federal agencies to identify and address misclassification. Additionally, DOL will conduct research into the impacts related to re-classification on workers, an important step in understanding how misclassification affects the competitiveness of the labor market.

Worker Organizing and Empowerment Task Force

Empowering workers to advocate for better wages and working conditions, as well as enabling them to collectively bargain without fear of reprisal, is a worker-first approach to promoting labor market competition.

Recognizing this, President Biden issued an Executive Order creating the Task Force on Worker Organizing and Empowerment. This Executive Order established the first-ever all-of-government approach to finding ways that executive branch agencies can use their existing authority to facilitate worker organizing and collective bargaining.²³³ The Task Force report to the President was published February 7, 2022, and set forth nearly 70 recommended actions for agencies to take to reduce barriers and promote worker organizing among both private and public sector employees.²³⁴ The President approved the recommendations, and the report was released to the public in February 2022. When implemented, the Task Force recommendations should help increase worker organizing and collective bargaining, which will give workers more collective power vis-à-vis their employers.

²³² Wage and Hour Division. 2021. "Independent Contractor Status under the Fair Labor Standards Act: Withdrawal." Department of Labor, May 6, 2021. <https://www.regulations.gov/document/WHD-2020-0007-4330>.

²³³ The White House. 2021. "Fact Sheet: Executive Order Establishing the White House Task Force on Worker Organizing and Empowerment." News release, April 26, 2021. <https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/26/fact-sheet-executive-order-establishing-the-white-house-task-force-on-worker-organizing-and-empowerment/>.

²³⁴ The White House. 2022. "White House Task Force on Worker Organizing and Empowerment." Report to the President, February 7, 2022. <https://www.whitehouse.gov/briefing-room/statements-releases/2022/02/07/white-house-task-force-on-worker-organizing-and-empowerment-report/#:~:text=Today%2C%20the%20Task%20Force%20on,and%20collective%20bargaining%20for%20federal.>

Reducing Job Lock and Boosting Mobility

As already noted, factors that limit worker mobility diminish bargaining power and limit the effective degree of labor market competition. The ability of workers to quit their job for a better option, move to new locations, or start their own business can strengthen their bargaining power and support fair wages, while fears about inadequate access to childcare and housing can tie workers to locations, boosting the effective monopsony power of firms. Therefore, factors that help workers move freely can be an important component of raising labor market competition and boosting wages.

For many workers, health insurance is provided through their employer, playing an important role in any decision to switch employers or start a business. The passage of the Affordable Care Act in 2010 greatly strengthened the individual health insurance market, providing subsidies for households to purchase insurance and guarantee standards of coverage. By eliminating job lock associated with health insurance, the CBO projected at the time that some workers would start their own businesses or leave their jobs, leading to increased wages.

The American Rescue Plan provided larger tax credits for those purchasing coverage on health insurance exchanges. The Administration proposals—if adopted—would extend these credits to make coverage more affordable and accessible, thus further reducing job lock due to insurance coverage and strengthening worker mobility and bargaining power.

Worker mobility can also be enhanced by better access to childcare and lower housing costs. Though many non-economic factors impact households' decisions of where to live, these decisions are impacted by the general cost of housing and, for parents of young children, proximity to their parents or other caregivers. Investments in affordable housing, childcare support, and universal pre-kindergarten provision can mitigate job lock for housing cost or childcare reasons. These effects are likely to be modest and difficult to quantify, but, even on the margin, higher worker mobility improves bargaining power and raises wages.