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Noncompete agreements

Ubiquitous, harmful to wages and to competition, and part of a growing trend of employers requiring workers to sign away their rights

Report • By Alexander J.S. Colvin and Heidi Shierholz • December 10, 2019

Executive summary

In recent decades, the U.S. labor market has been marked by rising inequality and largely stagnant wages among all but the highest-paid workers. At the same time, job mobility and other measures of labor market fluidity have declined substantially. There are many factors underlying these trends, but growing empirical evidence suggests that one among the vast set of factors is the rise of the use of noncompete agreements.

Noncompete agreements are employment provisions that ban workers at one company from going to work for, or starting, a competing business within a certain period of time after leaving a job. It is not difficult to see that noncompetes may be contributing to weak wage growth, given that changing jobs is how workers often get a raise. And given that noncompetes limit the ability of individuals to start businesses or take other jobs, it also is not difficult to see that noncompetes may be contributing to the declines in dynamism in the U.S. labor market. But how common are they? This report uses data from a national survey of private-sector American business establishments to investigate the extent of noncompete usage. We find:

- Roughly half, 49.4%, of responding establishments indicated that at least some employees in their establishment were required to enter into a noncompete agreement. Nearly a third, 31.8%, of responding establishments indicated that *all* employees in their establishment were required to enter into a noncompete agreement, regardless of pay or job duties.

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- The survey data do not allow us to determine the precise share of workers nationwide that are subject to noncompete agreements. However, we can calculate a range, and we find that somewhere between 27.8% and 46.5% of private-sector workers are subject to noncompetes. Applying this share to today's private-sector workforce of 129.3 million means that somewhere between 36 million and 60 million private-sector workers are subject to noncompete agreements.
- The extent of noncompete use identified in this survey is substantially greater than what a high-quality 2014 survey found: 18.1% of workers covered by noncompete agreements. The difference likely is attributable to the fact that the surveys were three years apart, suggesting that the use of noncompetes is growing. It also likely is attributable to the fact that ours was a survey of business establishments, while the earlier instrument was a survey of workers in the private sector or in a public health care system. While businesses know whether their workers are subject to noncompete agreements, workers may not know or remember they are covered by a noncompete, and thus may underreport being subject to them.
- While establishments with high pay or high levels of education are generally more likely to use noncompete agreements, noncompetes also are common in workplaces with low pay and where workers have low education credentials.
- Noncompete agreements are common across the country, including in California, despite noncompetes being unenforceable under California law. Even though these agreements would not stand up if challenged in California courts, businesses still can use them to pressure employees into not going to work for competitors.
- The use of noncompetes is part of a broader trend of employers requiring their workers to sign a variety of restrictive contracts as a condition of employment. In addition to noncompetes, another common restrictive contract is mandatory arbitration, in which businesses require employees to agree to arbitrate any legal disputes with the business. We find that employers who use mandatory arbitration also are significantly more likely to use noncompetes.

Given the ubiquity of noncompetes, the real harm they inflict on workers and competition, and the fact that they are part of a growing trend of employers requiring their workers to sign away their rights as a condition of employment, noncompetes can and should be prohibited either through legislation or through regulation.

Introduction

In recent decades, the U.S. labor market has been marked by rising inequality and largely stagnant wages among all but the highest-paid workers. At the same time, job mobility and other measures of labor market fluidity have declined substantially.[1] There are many things underlying these trends, but growing empirical evidence suggests that one among the vast set of factors is the rise of the use of noncompete agreements.

Noncompete agreements are employment provisions that ban workers at one company from going to work for, or starting, a competing business within a certain period of time

after leaving a job. It is not difficult to see that noncompetes may be contributing to weak wage growth, given that changing jobs is how workers often get a raise. One study, for example, finds that workers in states that enforce noncompetes earn less than similar workers in states that do not enforce noncompetes.[2] And given that noncompetes limit the ability of individuals to start businesses or take other jobs, it also is not difficult to see that noncompetes may be contributing to the declines in dynamism in the U.S. labor market. One study found that being bound by a noncompete is associated with an 11% increase in the length of time in a job,[3] and another found that greater enforceability of noncompetes reduces the formation of new firms by 12%.[4]

But how common are noncompete agreements?

Existing research on the extent of noncompete agreements in use

A high-quality study on the extent of noncompete agreements nationally involving a survey of 11,500 workers in 2014 found that 18.1% of workers in the private sector or in a public health care system said they were subject to a noncompete agreement.[5] A key methodological aspect of this survey is that workers themselves were asked whether they were subject to a noncompete agreement. One potential downside to this approach is that it could lead to an underestimate of the share of workers who are subject to noncompetes if workers do not know or remember that they are subject to them. The survey's findings suggest that signing a noncompete may not always be a memorable occasion—for example, it found that when asked to sign a noncompete, 88% of workers simply sign it rather than negotiate over the terms. It also found that more than 30% of workers who are asked to sign noncompetes are asked *after* they already have accepted the job, often on the first day of work, which is a time when new employees often are signing many forms and may not pay a great deal of attention to each form.[6] Noncompetes also can be tucked inside a larger employee handbook, the provisions of which employees are required to unconditionally agree to as a condition of employment.[7] In light of these factors, there appears to be meaningful potential for underestimation when asking workers whether they are subject to noncompete agreements.

One way around this problem is an establishment survey—namely, a survey in which business establishments are asked whether their workers are subject to noncompete agreements, rather than asking workers themselves. The establishment surveys that have been conducted to date on this topic, however, have been done on narrow sectors of the labor market and/or have asked firms whether they use noncompetes, but not what share of workers within the firms are subject to them. As a result, these surveys cannot provide additional information on the total share of workers economywide who are subject to noncompete agreements.[8]

Findings of this study

To help shed further light on the extent of noncompete agreements, we used data from a national survey of private-sector American business establishments with 50 or more employees. The survey used a random sample and was conducted from March 2017 to July 2017. It had a sample size of 634, yielding a 95% confidence interval for top-line estimates of plus or minus 3.9 percentage points. The individual respondents were the establishment's human resources manager or whichever individual was responsible for hiring and onboarding employees. The reason for use of this individual as the person to respond to the survey is that noncompete agreements often are signed as part of the onboarding paperwork when a new employee is hired. As a result, the manager responsible for this process is the individual most likely to be knowledgeable about the documents the new employee is signing.

This survey allows us to estimate the share of businesses in which all employees are subject to noncompete agreements, and the share of businesses in which at least some employees are subject to noncompetes. In what follows, we report these estimates for the private sector as a whole and by establishment size, state, industry, average wage level, and typical education level. We then calculate a range for the number of *workers* subject to noncompete agreements.

Roughly half of businesses use noncompete agreements

Roughly half, 49.4%, of responding establishments indicated that at least some employees in their establishments were required to enter into a noncompete agreement. Employers who reported using noncompetes for some but not all employees did not provide information on the proportion of employees who are subject to noncompetes. Some employers in this group did, however, report which employees were subject to noncompetes, with many reporting it was either managers or sales workers. Some employers in this group mentioned other specific occupations—for example, doctors being subject to noncompetes in the case of a medical employer, and on-air talent being subject to noncompetes in the case of a media company. Nearly a third, 31.8%, of responding establishments indicated that *all* employees in their establishment were required to enter into a noncompete agreement, regardless of pay or job duties.

Noncompete agreements by size of employer

Table 1 shows, by the size of the employer, the share of employers that use noncompete agreements (i.e., the share of workplaces where **any** employees are subject to noncompetes) and the share that impose them on all employees. As the third column in the table shows, smaller establishments—those with 50–100 employees—are less likely than larger establishments to use noncompete agreements. Larger organizations with more sophisticated human resources policies and legal counsel may be more likely to

Table 1

Noncompete agreements in U.S. workplaces, by size of employer

Employer workforce size	Sample size	Share of workplaces where all employees are subject to noncompete agreements	Share of workplaces where any employees are subject to noncompete agreements
50–99 employees	254	30.3%	43.7%**
100–499 employees	203	36.4%*	54.2%*
500–999 employees	29	31.0%	48.3%
1,000–4,999 employees	54	22.2%	51.8%
5,000 or more employees	94	30.8%	53.2%

Notes: Percentages indicate the share of workplaces in each row category where either all employees are subject to noncompete agreements or at least some employees are subject to noncompete agreements. The symbols *, **, and *** indicate that the use of noncompete agreements is significantly different from the other categories in the table combined at the 0.10 level, 0.05 level, and 0.01 level, respectively.

Source: Original data from national survey of private-sector workplaces (see the methodological appendix).

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adopt policies that make workers less able to leave to take another job. However, it is worth noting that those findings are shifted when focusing on only those establishments where all workers are subject to noncompetes. Mid-sized establishments (100–499 employees) are more likely than larger and smaller establishments to have all employees signing noncompetes.

Noncompete agreements by state

The incidence of noncompete agreements varies across the country. **Table 2** shows the percentage of establishments that use noncompetes in each of the 12 largest states by population.[9] A striking result is that noncompetes are widely used nationwide, with more than 40% of establishments in each of the 12 largest states having at least some employees covered by noncompetes. This includes 45.1% of establishments in California, *despite noncompete agreements being unenforceable under California state law*.[10] Even though these agreements would not stand up if ever challenged in court in California, businesses still can use them to pressure employees into not going to work for competitors. Most noncompete agreements never make it to court: workers assume they are valid, or workers can't afford to take on the risk and expense of possible litigation. A typical employee who is reminded that they have signed a noncompete or receiving an intimidating letter from the employer's legal counsel simply may accept that working for a competitor is not an option rather than taking the risk of being sued. This results in a chilling effect, as workers stay in their jobs regardless of the actual enforceability of their

Table 2

Noncompete agreements in U.S. workplaces, by state

State (in order of population size)	Sample size	Share of workplaces where all employees are subject to noncompete agreements	Share of workplaces where any employees are subject to noncompete agreements
California	82	29.3%	45.1%
Texas	28	50.0%**	60.7%
Florida	28	39.3%	46.4%
New York	43	23.3%	44.2%
Illinois	28	14.3%**	50.0%
Pennsylvania	45	31.1%	42.2%
Ohio	27	44.3%	66.7%*
Georgia	35	34.3%	51.4%
North Carolina	31	29.0%	51.6%
Michigan	29	37.9%	55.2%
New Jersey	43	25.6%	48.8%
Virginia	28	46.4%*	64.3%

Notes: Percentages indicate the share of workplaces in each row category where either all employees are subject to noncompete agreements or at least some employees are subject to noncompete agreements. The symbols *, **, and *** indicate that the use of noncompete agreements is significantly different from the other categories in the table combined at the 0.10 level, 0.05 level, and 0.01 level, respectively.

Source: Original data from national survey of private-sector workplaces (see the methodological appendix).

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noncompete agreements.[11]

Noncompete agreements by industry

Rates of usage of noncompete agreements vary widely across industry. **Table 3** shows use of noncompetes within major industries (based on North American Industry Classification System (NAICS) codes). Noncompetes are used by approximately 70% of establishments in business services and in wholesale trade, but used much less in transportation, in education and health services, and in leisure and hospitality. However, it is striking that even within leisure and hospitality, a *quarter* of establishments use noncompetes, and one in seven responding establishments in leisure and hospitality use noncompetes for *all* their workers.

Noncompete agreements by pay level

To further investigate the interaction between workforce characteristics and the use of

Table 3

Noncompete agreements in U.S. workplaces, by industry

Industry	Sample size	Share of workplaces where all employees are subject to noncompete agreements	Share of workplaces where any employees are subject to noncompete agreements
Construction	65	30.7%	47.7%
Manufacturing	135	34.8%	54.1%
Wholesale trade	34	32.3%	67.6%**
Retail trade	55	25.4%	41.8%
Transportation	38	21.0%	36.8%*
Information	24	25.0%	54.2%
Finance, insurance, and real estate	31	35.5%	58.1%
Business services	75	52.0%***	70.7%***
Education and health	94	28.7%	39.4%**
Leisure and hospitality	28	14.3%**	25.0%***
Other Services	35	31.4%	42.9%

Notes: Percentages indicate the share of workplaces in each row category where either all employees are subject to noncompete agreements or at least some employees are subject to noncompete agreements. The symbols *, **, and *** indicate that the use of noncompete agreements is significantly different from the other categories in the table combined at the 0.10 level, 0.05 level, and 0.01 level, respectively.

Source: Original data from national survey of private-sector workplaces (see the methodological appendix).

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noncompete agreements, we can look at the relationship between noncompetes and pay levels. The survey included a question about the average pay level of workers in the establishment. **Table 4** reports the percentage of workplaces with noncompetes by the average pay level of workers. Average pay levels among the survey respondents are divided into quartiles and annual salaries are converted to equivalent hourly wages for ease of comparison. The use of noncompetes tends to be higher for higher-wage workplaces than lower-wage workplaces. However, it is striking that more than a quarter—29.0%—of responding establishments where the average wage is less than $13.00 use noncompetes for all their workers.

Noncompete agreements by employee education level

Another workforce characteristic the survey asked about is the education level of the workforce. In **Table 5,** we look at the use of noncompete agreements by the most

Table 4

Noncompete agreements in U.S. workplaces, by average employee pay level

Average hourly wage level	Sample size	Share of workplaces where all employees are subject to noncompete agreements	Share of workplaces where any employees are subject to noncompete agreements
Less than $13.00	124	29.0%	37.9%***
$13.00-$16.99	139	30.9%	56.8%**
$17.00-$22.49	131	32.8%	46.6%
$22.50 and greater	148	36.5%	55.4%*

Notes: Percentages indicate the share of workplaces in each row category where either all employees are subject to noncompete agreements or at least some employees are subject to noncompete agreements. The symbols *, **, and *** indicate that the use of noncompetes is significantly different from the other categories in the table combined at the 0.10 level, 0.05 level, and 0.01 level, respectively.

Source: Original data from national survey of private-sector workplaces (see the methodological appendix).

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common education level of employees in the establishment. The results show much higher use of noncompetes for employees with higher education levels, with significantly higher levels in establishments where workers typically have a four-year college degree or more education; about 45% of responding establishments where the typical education level is a college degree or higher used noncompetes for all their employees. The extent of the use of noncompetes in workplaces with workers that have lower education credentials is striking, however. For example, noncompetes are used for all workers in more than a quarter of workplaces where the typical worker has only a high school diploma.

Noncompete agreements and mandatory arbitration

The use of noncompete agreements is part of a broader trend of employers requiring their workers to sign a variety of restrictive contracts as a condition of employment. In addition to noncompetes, another common restrictive contract is mandatory arbitration, a controversial practice in which businesses require employees to agree to arbitrate any legal disputes with the business. Mandatory arbitration agreements effectively bar employees from going to court, instead forcing workers to resolve workplace disputes in an individual arbitration process that overwhelmingly favors the employer.[12] The survey data used in this study finds that more than half (53.9%) of responding establishments have mandatory arbitration procedures.[13]

In **Table 6,** we look at the use of noncompetes by whether mandatory arbitration is used in the establishment. These results indicate that employers who use mandatory arbitration also are significantly more likely to use noncompetes for some or all of their workers. This

Table 5

Noncompete agreements in U.S. workplaces, by employee education level

Typical employee education level	Sample size	Share of workplaces where all employees are subject to noncompete agreements	Share of workplaces where any employees are subject to noncompete agreements
Some high school	25	20.0%	32.0%*
High school diploma	262	27.1%**	43.9%**
Some college	170	27.6%	48.8%
College degree or more	175	44.8%***	61.6%***

Notes: Percentages indicate the share of workplaces in each row category where either all employees are subject to noncompete agreements or at least some employees are subject to noncompete agreements. The symbols *, **, and *** indicate that the use of noncompetes is significantly different from the other categories in the table combined at the 0.10 level, 0.05 level, and 0.01 level, respectively.

Source: Original data from national survey of private-sector workplaces (see the methodological appendix).

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Table 6

Noncompete agreements and mandatory arbitration in U.S. workplaces

Mandatory arbitration	Sample size	Share of workplaces where all employees are subject to noncompete agreements	Share of workplaces where any employees are subject to noncompete agreements
Uses mandatory arbitration	284	42.6%***	53.7%**
Does not use mandatory arbitration	326	28.9%***	43.3%**

Notes: Percentages indicate the share of workplaces in each row category where either all employees are subject to noncompete agreements or at least some employees are subject to noncompete agreements. The symbols *, **, and *** indicate that the use of noncompetes is significantly different from the other categories in the table combined at the 0.10 level, 0.05 level, and 0.01 level, respectively.

Source: Original data from national survey of private-sector workplaces (see the methodological appendix).

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is perhaps not surprising, given that in practice, noncompete agreements bear a close resemblance to mandatory arbitration agreements in that they deprive workers of future rights contingent on certain events. These results suggest that employers who require their workers to enter into one type of restrictive contract are more likely to require their workers to sign additional restrictive contracts.

Table 7

Workplaces and workers in private sector subject to noncompete agreements

By share	
Workplaces where all employees are subject to noncompete agreements	31.8%
Workplaces where any employees are subject to noncompete agreements	49.4%
Private-sector workers covered by noncompete agreements	27.8%–46.5% (low- to high-end estimate)
By number	
Private-sector workers covered by noncompete agreements	36–60 million (low- to high-end estimate)

Source: Original data from national survey of private-sector workplaces (see report text on estimating lower- and upper-bound estimates and the report's methodological appendix).

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The share of workers subject to noncompete agreements

As mentioned earlier, 49.4% of responding establishments indicated that *at least* some employees in their establishment were required to enter into a noncompete agreement, and 31.8% of responding establishments indicated that *all* employees in their establishment were required to enter into a noncompete agreement. Unfortunately, the 17.6% of employers who reported using noncompetes for *only* some employees did not provide information on the proportion of employees subject to noncompetes. Because of this, we are unable to determine the precise share of workers nationwide that are subject to noncompetes. However, we can provide a range. In the next two sections, we show that somewhere between 27.8% and 46.5% of private-sector workers are subject to noncompetes. Applying these shares to today's private-sector workforce of 129.3 million means that somewhere between 36 million and 60 million private-sector workers are subject to noncompete agreements.[14] These shares and numbers are presented in summary **Table 7**.

The extent of noncompete use that we find in this survey is substantially above what a study of workers in 2014 found: 18.1% of workers. The difference is likely attributable to the fact that the surveys were three years apart, suggesting that the use of noncompetes is growing. It also is likely attributable to the fact our survey was a survey of business establishments, while the earlier survey was a survey of workers in the private sector or in a public health care system. While businesses know whether their workers are subject to noncompetes, workers may not know or remember they are covered by a noncompete, and thus may underreport being subject to them.

Estimating a lower bound on the number of workers subject to noncompete agreements

To calculate the lower bound takes three steps, but the basic idea is to simply ignore firms where not everyone signed a noncompete agreement. First, we include workers in businesses where all employees are subject to noncompetes. Adjusting for establishment size, the 31.7% of businesses where all employees in the establishment are subject to a noncompete agreement translates into 25.0% of the private-sector workforce (recall from Table 1 that establishments with all employees signing noncompetes are more likely to be relatively small). In addition to businesses where all employees have signed noncompetes, there is a second set of businesses where we know the share of workers with noncompetes. If an establishment is unionized, we know from the survey what share of workers is in the union and what share of workers is not in the union; there were some unionized businesses that reported that *all* of their nonunion workers signed noncompetes. Adding in these workers, we arrive at a lower bound of 30.0% of employees being covered by noncompetes.

To arrive at our final lower-bound estimate, we make one additional correction. As mentioned above, the survey was restricted to private-sector businesses of 50 or more employees. Data from the Bureau of Labor Statistics show that in 2017 (the year the survey was collected), 27.9% of private-sector employment was in firms with fewer than 50 employees.[15] In order to adjust our lower-bound estimate to account for firms with fewer than 50 employees, we need a lower bound on the share of workers in small firms who are subject to noncompetes. Recall that Table 1 shows that smaller firms tend to be *more* likely to have all their workers sign noncompetes than larger firms. This means that it is likely safe to assume that the share of firms with fewer than 50 workers that have all their workers sign noncompetes is not substantially smaller than it is for larger firms. However, because we are calculating a lower bound, we prefer to be very conservative. As such, we assign the smallest share of firms that have all their workers sign noncompetes from Table 1, 22.2%, to firms with fewer than 50 employees. Making an adjustment to account for small firms—namely, assuming a lower bound of 22.2% of employees being covered by noncompetes in the 27.9% of firms that have fewer than 50 employees and a lower bound of 30.0% of employees being covered by noncompetes in the remaining 72.1% of firms—yields an overall lower bound of 27.8% of private-sector employees being covered by noncompetes.[16]

Estimating an upper bound on the number of workers subject to noncompete agreements

To calculate the upper bound takes two steps. Adjusting for establishment size, the 49.4% of businesses where at least some employees in the establishment are subject to a noncompete agreement translates into 51.7% of the private-sector workforce. We know the actual noncompete share cannot be higher than this level. But to arrive at our final upper-bound estimate, we make an additional correction to account for firms with fewer than 50 employees. Recall that Table 1 shows that smaller firms tend to be less likely to use noncompetes than larger firms. There is a 10.5 percentage-point difference in the share of

firms that use noncompetes in the two lowest-size categories in Table 1. For simplicity, we simply apply that difference to the lowest category to get an estimate, 33.2%, of the share of firms that use noncompetes that have fewer than 50 employees. Making an adjustment to account for small firms—namely, assuming an upper bound of 33.2% of employees being covered by noncompetes in the 27.9% of firms that have fewer than 50 employees and an upper bound of 51.7% of employees being covered by noncompetes in the remaining 72.1% of firms—yields an overall upper bound of 46.5% of private-sector employees being covered by noncompetes.[17]

Policy solutions and conclusion

Sens. Todd Young (R-Ind.) and Chris Murphy (D-Conn.) have introduced the Workforce Mobility Act of 2019, which prohibits the use of noncompete agreements in almost all situations, with minimal, sensible exceptions—for example, for owners and senior executives in the sale of a business.[18] The bill explicitly permits employers to protect trade secrets by requiring workers to sign agreements not to disclose such secrets. The bill also provides for civil fines of $5,000 per week of violation and creates a private right of action with damages and attorneys' fees available for successful lawsuits. Further, the bill contains outreach and public education provisions, requiring employers to post a notice and requiring the secretary of labor to conduct outreach. If passed, this bipartisan bill effectively would stop the abuse of noncompete agreements nationwide.

However, given that this bill may be unlikely to pass at the federal level in a reasonable time frame, states can act to limit the abuses of noncompete agreements. In recent years, many states have passed laws limiting employers' ability to impose noncompete agreements on their employees.[19] Noncompetes also could be prohibited by regulation. The Federal Trade Commission is reviewing a petition seeking a rule prohibiting noncompete agreements as an unfair method of competition.[20] A group of senators also urged the FTC to conduct rulemaking to bring an end to the abusive use of noncompete clauses in employment contracts[21], as did 19 state attorneys general.[22]

Our survey results show that somewhere between 27.8% and 46.5% of the private-sector workforce—between 36 million and 60 million workers—are subject to noncompete agreements. Similar to surveys using household data,[23] our data show that while establishments with high pay or high levels of education are more likely to use noncompetes, noncompetes also are common in workplaces with low pay and where workers have low education credentials. Given the ubiquity of noncompetes, the real harm they inflict on workers and competition, and the fact they are part of a growing trend of employers requiring their workers to sign a variety of contracts that take away their rights, noncompetes can and should be prohibited.

About the authors

Alexander J.S. Colvin is the Kenneth F. Kahn dean and the Martin F. Scheinman Professor of Conflict Resolution at the ILR School, Cornell University. His research and teaching focus on employment dispute resolution, with a particular emphasis on procedures in nonunion workplaces and the impact of the legal environment on organizations. **Heidi Shierholz** is a senior economist and the director of policy at EPI. She previously served as chief economist at the U.S. Department of Labor.

Methodological appendix

To measure the current extent of noncompete agreement usage we conducted a national-level survey of private-sector employers. The survey was funded by the Economic Policy Institute and administered through telephone- and web-based methods by the Survey Research Institute (SRI) at Cornell University.

The study measured the extent of noncompete usage by surveying employers rather than by surveying employees, to sidestep the possibility that some employees may be unaware or fail to recall that they have signed noncompete agreements and may not understand the content and meaning of these documents. The survey was limited to private-sector employers because public-sector employees typically have their employment regulated by specific public-sector employment laws, and employment practices differ substantially between private- and public-sector employers. The survey focused on nonunion employees. In particular, if workplaces had unionized employees, questions were asked only about nonunion employees. Thus, when tabulating the share of businesses where all employees sign noncompetes, we only counted firms with no union members who said all employees signed noncompetes, since we do not have information on whether the union members signed noncompetes, and anecdotal evidence indicates that it is very rare for unions to agree to include noncompete clauses in the collective bargaining agreements they negotiate.

The survey population was drawn from Dun & Bradstreet's national marketing database of business establishments. It was stratified by state population to be nationally representative. The survey population was restricted to private-sector business establishments of 50 or more employees. The individual respondents were the establishment's human resources manager or whichever individual was responsible for hiring and onboarding employees. The reason for use of this individual as the person to respond to the survey is that noncompete agreements often are signed as part of the onboarding paperwork when a new employee is hired. As a result, the manager responsible for this process is the individual most likely to be knowledgeable about the documents the new employee is signing. Typical job titles of individual respondents included human resource director, human resource manager, personnel director, and personnel manager.

Randomly selected participants were contacted initially by telephone and then given the option of completing phone or web versions of the survey. Follow-up calls were made to encourage participation. Where participants had provided email addresses, a series of emails also was sent to prompt completion of the survey. To encourage participation, respondents were offered the opportunity to win one of 10 $100 Amazon gift cards in a raffle drawing from among participants in the survey.

Data collection started in March 2017 and was completed in July 2017. A total of 1,530 establishments were surveyed, from which 728 responses were obtained, representing an overall response rate of 47.6%. Some survey responses had missing data on specific questions; however, 634 respondents provided complete data on the key variables of interest. The response rate and sample size are similar to those obtained in past establishment-level surveys of employment relations and human resource practices. The median establishment size in the sample is 90 employees, and the average size is 226 employees. Most establishments are single-site businesses, while 38.2% are part of larger organizations. These larger organizations have an average workforce size of 18,660 employees. Overall, 5.2% of establishments in the sample are foreign-owned.

Endnotes

1. For details on declining labor market fluidity, see Raven Molloy, Christopher L. Smith, Riccardo Trezzi, and Abigail Wozniak, "Understanding Declining Fluidity in the U.S. Labor Market," Brookings Papers on Economic Activity, Spring 2016.

2. See Evan Starr, "Consider This: Training, Wages and the Enforceability of Covenants Not to Compete," *ILR Review*, 72, no. 4 (August 2019): 783–817.

3. See Evan Starr, J.J. Prescott, and Norman D. Bishara, *Noncompetes in the U.S. Labor Force*, University of Michigan Law & Econ Research Paper no. 18–013, August 2019.

4. See Jessica Jeffers, *The Impact of Restricting Labor Mobility on Corporate Investment and Entrepreneurship*, Social Science Research Network (SSRN), July 5, 2019.

5. See Evan Starr, J.J. Prescott, and Norman D. Bishara, *Noncompetes in the U.S. Labor Force*, University of Michigan Law & Econ Research Paper no. 18–013, August 2019. A similar share, 15.5%, was found in a smaller survey conducted in 2017; see Alan B. Krueger and Eric Posner, *A Proposal for Protecting Low-Income Workers from Monopsony and Collusion*, The Hamilton Project, February 2018.

6. See Evan Starr, J.J. Prescott, and Norman D. Bishara, *Noncompetes in the U.S. Labor Force*, University of Michigan Law & Econ Research Paper no. 18–013, August 2019.

7. See Kenneth G. Dau-Schmidt and Timothy A. Haley, "Governance of the Workplace: The Contemporary Regime of Individual Contract," *Articles by Maurer Faculty*, Paper 168 (2007).

8. For a discussion of surveys on noncompetes that use establishment data, see page 520 of Norman D. Bishara and Evan Starr, "The Incomplete Noncompete Picture," *Lewis & Clark Law Review,* Vol. 20, no. 2 (June 2016): 497–546.

9. We only report the noncompete rate for the 12 largest population states to ensure we have a

sufficient number of observations per state to provide reliable estimates: each of these states had at least 25 observations in the sample. Although the survey is national in coverage, smaller states had fewer observations per state.

10. California adopted its ban in 1872. See R.J. Gilson, "The Legal Infrastructure of High Technology Industrial Districts: Silicon Valley, Route 128, and Covenants Not to Compete," *New York University Law Review* Vol. 74, no. 3 (June 1999), 575.

11. See also Evan Starr, J.J. Prescott, and Norman D. Bishara, *The in Terrorem Effects of (Unenforceable) Contracts*, University of Michigan Law & Econ Research Paper no. 16–032, October 2016.

12. Katherine V.W. Stone and Alexander J.S. Colvin, *The Arbitration Epidemic*, Economic Policy Institute, December 2015.

13. Alexander J.S. Colvin, *The Growing Use of Mandatory Arbitration*, Economic Policy Institute, April 2018.

14. This estimate is based on the fact that Current Employment Statistics data from the U.S. Bureau of Labor Statistics show there were 129.3 million private-sector employees in the United States in October 2019. See Bureau of Labor Statistics, Current Employment Statistics (BLS-CES), "Table B-1. Employees on Nonfarm Payrolls by Industry Sector and Selected Industry Detail," accessed November 27, 2019.

15. Bureau of Labor Statistics, Business Employment Dynamics (BLS-BDM), "Table F. Distribution of Private Sector Employment by Firm Size Class: 1993/Q1 through 2019/Q1, Not Seasonally Adjusted," *Historical Series*, accessed Nov. 18, 2019.

16. Note that if we simply had assumed that *no* workers in establishments with fewer than 50 employees signed noncompetes, we would have found an overall lower bound of 21.6%.

17. Note that if we simply had assumed that *no* workers in establishments with fewer than 50 employees signed noncompetes, we would have found an overall upper bound of 37.3%.

18. Workforce Mobility Act of 2019, S.2614, 116th Cong. (2019).

19. For more on state action on noncompetes, see Jane Flanagan and Terri Gerstein, "Welcome Developments on Limiting Noncompete Agreements," *Working Economics* (Economic Policy Institute blog), Nov. 7, 2019.

20. Open Markets Institute, et al., "Petition for Rulemaking to Prohibit Worker Non-Compete Clauses." Federal Trade Commission, Washington, D.C., 2019.

21. Richard Blumenthal et al, Letter to Federal Trade Commission Chairman Joseph Simons, March 20, 2019.

22. Keith Ellison et al., Letter to Federal Trade Commission Chairman Joseph Simons, November 15, 2019.

23. Evan Starr, J.J. Prescott, and Norman D. Bishara, "Noncompetes in the U.S. Labor Force," University of Michigan Law & Econ Research Paper no. 18–013, August 2019.