

MERCATUS WORKING PAPER



ASSESSING THE IMPACT OF WORKER RECLASSIFICATION

EMPLOYMENT OUTCOMES
POST-CALIFORNIA AB5

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SUGGESTED CITATION

Liya Palagashvili, Paola A. Suarez, Christopher M. Kaiser, and Vitor Melo, “Assessing the Impact of Worker Reclassification: Employment Outcomes Post–California AB5,” Mercatus Working Paper, Mercatus Center at George Mason University, Arlington, VA, January 2024.

ABSTRACT

Worker reclassification policy efforts have sprung up in recent years with the emergence of platform economy companies and concerns about misclassified gig workers. These efforts are aimed at helping more independent contractors become traditional employees, who are legally afforded various employment-based benefits and protections. Our paper provides a novel empirical assessment of reclassification policy in the United States by analyzing the effects of California Assembly Bill 5 (AB5), the country’s strictest law for classifying a worker as an independent contractor rather than an employee. We examine the labor market effects of AB5 on labor force participation, overall employment, traditional employment, and self-employment. We find that self-employment and overall employment significantly decreased post-AB5. Our estimates indicate that self-employment fell by 10.5 percent on average for nonexempt occupations, while overall employment fell by 4.4 percent on average for nonexempt occupations. Occupations with a greater prevalence of self-employed workers saw greater reductions in both self-employment and overall employment. We find no robust evidence that traditional employment increased post-AB5. These results suggest that AB5 did not simply alter the composition of the workforce as intended by lawmakers. Instead, our findings suggest that AB5 was associated with a significant decline in self-employment and overall employment for nonexempt occupations in California.

METADATA

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Keywords: worker reclassification, California Assembly Bill 5, independent contractors, self-employment

JEL codes: J08, J21

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Assessing the Impact of Worker Reclassification

Employment Outcomes Post–California AB5

1. INTRODUCTION

Freelancing and platform-mediated gig work are at an all-time high in the United States and the rest of the world. Over a third of America’s workforce performed some type of independent contracting work in 2023. As this type of work continues to play a larger and unprecedented role in the economy, efforts have sprung up in recent years to regulate independent contracting. These efforts primarily aim to move independent contractors to traditional employment so they can receive various employment benefits and protections.

California Assembly Bill 5 (AB5) is the country’s strictest law for classifying a worker as an independent contractor rather than an employee. This paper offers the first empirical assessment of the employment effects of AB5. Our findings suggest that AB5 did not simply alter the composition of the workforce as intended by lawmakers, with more workers becoming traditional employees and fewer workers being independent contractors. We find no significant evidence that AB5 increased traditional employment. Instead, we find that this regulation decreased self-employment and overall employment of affected occupations in California.

Independent contractors span many industries across the United States. There are freelance writers, musicians, and graphic designers; Uber and DoorDash rideshare and delivery drivers; Instagram influencers and online marketplace sellers; construction workers, electricians, and plumbers; and independent consultants in finance, law, and accounting. About 10 to 29 percent of American workers engage in independent contracting work as their primary source of income, and up to 39 percent use it as a supplementary source of income.¹

As the prevalence of independent contractors has grown, so has public concern over the fraction of workers who lack traditional employment benefits and fall outside the purview of most labor regulations. The extent of worker misclassification due to relatively flexible criteria for classifying workers as employees versus independent contractors is also a concern. As a result, state and federal policymakers are experimenting with more stringent legal criteria for classifying a worker as an independent contractor. The general aim is that such legal changes will result in the reclassification of some independent contractors as employees and thus expand the subset of workers who are subject to labor regulations.

In 2019, California passed landmark legislation, Assembly Bill 5, that enacted the country’s strictest legal criteria for classifying a worker as an independent contractor. AB5 requires that an ABC test be met to legally classify a worker as an independent contractor for all purposes under the Labor Code, Unemployment Insurance Code, and Industrial Welfare Commission (IWC)

¹ Monica Anderson et al., “The State of Gig Work in 2021” (Report, Pew Research Center, Washington, DC, December 8, 2021); Board of Governors of the Federal Reserve System, *Report on the Economic Well-Being of U.S. Households in 2018*, May 2019; “Contingent and Alternative Employment Arrangements—May 2017,” US Bureau of Labor Statistics, June 7, 2018, <https://www.bls.gov/news.release/pdf/conemp.pdf>; Gallup, *Gallup’s Perspective on the Gig Economy and Alternative Work Arrangements*, 2018; Katharine G. Abraham et al., “The Rise of the Gig Economy: Fact or Fiction?,” *AEA Papers and Proceedings* 109 (2019): 357–61. There are large differences (and debates) about the various ways to measure the independent contractor workforce. Some estimates narrow the category to independent contracting for labor services only and count it only if it is a main source of income; others broaden the category to include any income earned outside of traditional employment. These sources attempt to estimate the size of the workforce.

Wage Orders. The test outlines three legal criteria that must all be met for a worker to be legally classified as an independent contractor. Compared with California’s previous worker classification law, which allowed for more lenient classification of workers as independent contractors rather than employees, the ABC test makes it unambiguously more difficult for employers to hire workers as independent contractors. Additionally, it creates a presumption of employee status and places the responsibility on the employer to meet each of the three criteria for the worker to be legally classified as an independent contractor.

AB5 thus discourages the misclassification of workers as independent contractors and reduces the circumstances under which workers can be legally classified as independent contractors. In so doing, AB5 expands the scope of workers subject to various labor laws, which regulate, for instance, minimum wage, work hours, health insurance, unemployment insurance, state disability insurance, paid leave, sick leave, and worker compensation.

Various literature has examined the labor market impacts of each of these regulations individually. For example, although increasing the minimum wage can raise the wages of workers who remain employed, the preponderance of empirical evidence indicates that the minimum wage reduces employment, especially for teens, young adults, and individuals with less education.² Some health insurance mandates, which require employers to cover eligible workers and raise the cost of employing workers, can have a similar effect. Baicker and Chandra, for instance, find that a 10 percent increase in health insurance premiums reduces the aggregate probability of being employed by 1.2 percentage points, reduces hours worked by 2.4 percent, and increases the likelihood that a worker is employed only part-time by 1.9 percentage points.³ Other labor regulations may have little employment effects but have large wage effects. When studying mandatory workers’ compensation insurance, Gruber and Krueger find that between 56 to 86 percent of increased labor costs are shifted to workers in the form of a lower wage.⁴ Others find that the expansion of overtime regulations leads to a reduction of base salaries for covered workers.⁵

The results from some of the literature discussed above illustrate a general tradeoff: while these regulations provide important benefits to workers, they also increase the cost of labor, which may reduce employment, hours worked, or wages. There is widespread debate regarding AB5’s impact on employment. Anecdotal reports of independent contractors losing their jobs because of AB5 have appeared in media outlets. The *New York Times*, for instance, reported that Vox Media cut 200 part-time freelancer jobs, citing AB5 as the cause. The *Los Angeles Times* reported job

² David Neumark and Peter Shirley, “Myth or Measurement: What Does the New Minimum Wage Research Say about Minimum Wages and Job Loss in the United States?,” *Industrial Relations: A Journal of Economy and Society* 61, no. 4 (2022): 384–417.

³ Katherine Baicker and Amitabh Chandra, “The Labor Market Effects of Rising Health Insurance Premiums,” *Journal of Labor Economics* 24, no. 3 (July 2006): 609–34.

⁴ Gruber, Jonathan, and Alan B. Krueger, “The Incidence of Mandated Employer-Provided Insurance: Lessons from Workers’ Compensation Insurance,” *Tax Policy and the Economy* 5 (1991): 111–43.

⁵ Stephen J. Trejo, “The Effects of Overtime Pay Regulation on Worker Compensation,” *American Economic Review* 81, no. 4 (September 1991): 719–40; Stephen J. Trejo, “Does the Statutory Overtime Premium Discourage Long Workweeks?,” *Industrial and Labor Relations Review* 56, no. 3 (April 2003): 530; Anthony Barkume, “The Structure of Labor Costs with Overtime Work in US Jobs,” *Industrial and Labor Relations Review* 64, no. 1 (October 2010): 128–42; David N. F. Bell and Robert A. Hart, “Wages, Hours, and Overtime Premia: Evidence from the British Labor Market,” *Industrial and Labor Relations Review* 56, no. 3 (April 2003): 470.

losses among independent contractors in the creative industry (including, for instance, fine artists, musicians, and singers).⁶

Proponents of AB5 argue that it induced some employers to reclassify independent contractors as employees to comply with the law and, thus, increased the share of workers who received employment benefits and protections.⁷ Others argue that although some independent contractors may have been reclassified as employees, many more likely lost their jobs because employers could not reclassify all or most independent contractors as employees.⁸ To comply with the law, employers who could not afford to hire independent contractors as employees may have reduced their demand for hiring contracting labor, thus reducing employment or labor force participation. Independent contractors who did not want to work as employees, or were unable to, may have also contributed to a reduction in employment or labor force participation. Workers with a strong preference for flexible hours or for working with multiple clients, for instance, may not have wanted to work as traditional employees with one company.

We empirically examine the employment effects of AB5, focusing on overall employment, labor force participation, traditional employment, and self-employment. To our knowledge, there has been no empirical assessment of the impact of AB5 on employment.⁹ If AB5 induced some employers to reclassify independent contractors as employees, then we would expect overall employment and labor force participation to remain relatively stable and unchanged, traditional employment to significantly increase, and self-employment to significantly decrease. If employers were unable to reclassify many independent contractors as traditional employees, then we would expect self-employment to decrease more than traditional employment increases, and, thus, we would expect overall employment and labor force participation to also decrease.

We use data from the Current Population Survey (CPS) to measure the employment, labor force participation, traditional employment, and self-employment levels for each state, occupation, and month in our period. Our analysis compares the labor market outcomes in California to those in a subset of states with less stringent and unchanged legal environments. We employ a simple difference-in-difference strategy to compare labor market outcomes in occupations within California to those outside California before and after AB5 was enacted.

We find that AB5 is significantly associated with a decline in self-employment and overall employment. We do not find robust, statistically significant evidence that AB5 increased traditional employment. Our findings suggest that AB5 did not merely induce employers to hire former independent contractors as traditional employees and that the reduction in self-

⁶ Makeda Easter, “The AB5 Backlash: Singers, Actors, Dancers, Theaters Sound Off on Freelance Law,” *Los Angeles Times*, February 12, 2020.

⁷ Elizabeth Warren, “To Stop Shameful Exploitation of Gig Economy Workers, Let’s Start with This Bill,” *Sacramento Bee*, August 14, 2019; Lorena Gonzalez, “The Gig Economy Has Costs. We Can No Longer Ignore Them,” *Washington Post*, September 11, 2019.

⁸ “Staffing to Address New Independent Contractor Test,” California Legislative Analyst’s Office, February 11, 2020, <https://lao.ca.gov/Publications/Report/4151>; Alison Stein, “Analysis on Impacts of Driver Reclassification,” *Uber Under the Hood, Medium*, May 28, 2020.

⁹ Xunyi Wang et al., “When Gig Workers No Longer Gig: The Impact of California Assembly Bill 5 on the Online Labor Market,” *SSRN* (January 3, 2023). The researchers looked at earnings on Upwork after the implementation of AB5. The challenge with using data from Upwork for this purpose is that the geographic location of hiring parties does not correspond to the geographic location of the worker. It is thus unclear if the workers on the platform were subject to AB5 after it was enacted. Furthermore, AB5 was not designed or expected to impact peer-to-peer hiring, since it was intended to address businesses’ hiring practices of independent contractors. Using a peer-to-peer platform such as Upwork to examine the impact of AB5 on independent contractor earnings is therefore unlikely to identify the impact of AB5.

employment was not accompanied by an equal increase in traditional employment. Thus, AB5 may have reduced overall employment and labor force participation.

There are several mechanisms by which AB5 could have led to this decrease in overall employment. First, employers may have hired some, but not most, independent contractors as employees, while other employers may have stopped working with their contractors based in California altogether. Alternatively, some employers may have extended employment opportunities to independent contractors who then declined such offers. Lastly, some small-business owners may have been forced to shut down if they relied heavily on independent contractors and could not afford to hire them as employees. This was highlighted by interviews of small-business owners indicating they would likely have to shut down as a result of AB5.¹⁰

Although our paper cannot identify the relative importance of these mechanisms, our findings suggest that AB5 may have reduced employment in California. Other similar policies or regulatory changes may face similar unintended consequences.

2. WORKER RECLASSIFICATION POLICIES AND EMPLOYMENT EFFECTS

2.1 Background

The growth of freelancing and platform-mediated gig work has led to growing public scrutiny about the proper classification of workers as independent contractors. In California, such scrutiny ultimately resulted in the legislature enacting AB5 in September 2019. AB5 codified into law the 2018 California Supreme Court decision in *Dynamex Operations West, Inc. v. Superior Court and Charles Lee, Real Party in Interest*, which requires that an ABC test be met to legally classify a worker as an independent contractor. The test outlines three legal criteria that must all be met for a worker to be legally classified as an independent contractor. The *Dynamex* decision established the ABC test for certain areas of labor law and for certain occupations and industries. AB5 expanded the application of the ABC test to all purposes under the Labor Code, Unemployment Insurance Code, and IWC Wage Orders, and to nearly all occupations and industries.

AB5 exempted 57 industries and occupations from the new law, such as architects, doctors, and lawyers. As AB5 was enacted, several other industries and occupations sought legal exemption from the new law on the basis of its potentially harmful effects. As a result, the California legislature enacted AB2257 in September 2020, which exempted an additional 52 occupations from the new law, such as musicians, writers, editors, and translators. In November 2020, California voters passed Proposition 22—a ballot measure that exempted platform-based transportation and delivery workers from AB5. Table 1 presents a timeline of these legal changes related to AB5. Table A1, in the appendix, lists all occupations that were exempted from AB5.

¹⁰ Easter, “The AB5 Backlash.”

TABLE 1. Timeline of AB5 Legal Changes

Date	Legal Change	Description
April 2018	California Supreme Court decides on the <i>Dynamex</i> case	The <i>Dynamex</i> case decision imposes an ABC test and replaces the Borello test, which is a multifactor test used since 1989 to determine a worker’s classification.
September 2019	California legislature passes AB5	AB5 codifies the ABC test from the <i>Dynamex</i> decision and adds a list of 57 occupational exemptions that would continue to be governed under the previous Borello test.
September 2020	California legislature passes AB2257	AB2257 provides additional occupations exempted from AB5, bringing the total number of exempt occupations to 109.
November 2020	California voters enact Proposition 22	California voters pass ballot measure Proposition 22, which exempts app transportation and delivery companies from AB5 and creates a new legal framework for these workers.

In 1989, the California Supreme Court decided on *Borello & Sons, Inc. v. Department of Industrial Relations*. This decision gave rise to the Borello test for legally classifying a worker as an independent contractor. The Borello test establishes 14 factors to legally classify a worker as an independent contractor, and it has been used in California since its adoption in 1989. In April 2018, the California Supreme Court decided on *Dynamex*. This decision replaced the Borello test with an ABC test for most occupations with some exemptions, such as construction workers, for instance, who would still be governed by the Borello test. However, it was AB5 that expanded the application of the *Dynamex*’s ABC test to all purposes under the Labor Code, Unemployment Insurance Code, and IWC Wage Orders and to nearly all occupations and industries. This also made the application of the ABC test in California broader than in any other state and provided uniformity across California’s Labor Code.¹¹

AB5 became the country’s strictest legal criteria for classifying a worker as an independent contractor. The ABC test establishes three conditions that must all be met to legally classify a worker as an independent contractor:¹²

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

Generally, condition B is deemed to be the most stringent and the part of the test that would find more workers to be legally classified as employees rather than as contractors. For example, a freelance writer who contracts with a magazine would fail to meet condition B because both the hiring entity (the magazine) and the worker (the writer) are in the same field. This is true for

¹¹ Samantha J. Prince, “The AB5 Experiment—Should States Adopt California’s Worker Classification Law?” *American University Business Law Review* 11, no. 1 (January 26, 2022): 43–96; Anna Deknatel and Lauren Hoff-Downing, “ABC on the Books and in the Courts: An Analysis of Recent Independent Contractor and Misclassification Statutes,” *University of Pennsylvania Journal of Law and Social Change* 18, no. 1 (2015): 79–81.

¹² California Legislative Information, Bill Text, “Assembly Bill No. 5,” (approved by the governor September 18, 2019).

music venues contracting with musicians, delivery companies contracting with drivers, and an advertising company contracting with a marketing consultant.

Table A2, in the appendix, indicates each state's worker classification test. Currently, 27 states use a variation of the ABC test to determine whether a worker has been legally classified as an independent contractor. Eight states use portions of the ABC test that involve a few of the conditions (either A and B, or A and C) but not all three. Fifteen states and the District of Columbia use a multifactor test known as the common-law test (or right-to-control test).

Generally, the common-law test is a less strict test for determining whether a worker is an independent contractor.¹³ Furthermore, an ABC test is a presumption-of-employee law that assumes a worker must be legally classified as an employee *unless* the hiring party can demonstrate that all three conditions of the test are met. The stricter nature of the ABC test was designed to help eliminate or reduce the misclassification of workers as independent contractors when they ought to be legally classified as employees. In practical terms, this means that for any given worker, a common-law test is more likely to find that a worker is legally an independent contractor, whereas the ABC test would likely find that the worker is an employee.¹⁴

Finally, although other states have an ABC test for worker classification, California's ABC test through AB5 is the most stringent worker classification determination in the country. There are three reasons why this is the case. First, California is the only state to codify the ABC test into law and apply it broadly to nearly all industries and occupations.¹⁵ Second, AB5 in California was strictly enforced by the California Labor Commissioner's Office. Third, the costs of being an employee in California are generally higher compared with most other states because of the required benefits and regulations that California employers must meet to have an employee based in California. Therefore, although an ABC test in other states may have minimal implications for employment, California's AB5 policy is expected to have a more significant impact on employment.

2.2 Employment Effects of Worker Reclassification Law

As discussed in the introduction, there is widespread debate about the employment effects of worker reclassification laws, particularly AB5. If AB5 works as intended by legislators and its proponents, it would result in more workers being hired as employees and fewer workers either being independent contractors or having no jobs. This may be driven in part by AB5's requirement that the hiring party demonstrate that all three stringent criteria of the ABC test be met to hire a worker as an independent contractor, thereby raising the cost of misclassifying workers who should have been traditional employees all along.

AB5 could also result in some workers being hired as traditional employees instead of as independent contractors because the three conditions of the ABC test are more stringent than those in the previous Borello test. So even if a worker was previously legally classified as an independent contractor, the worker may now fail to meet the legal criteria for that classification and would therefore need to be hired as a traditional employee instead. Thus, if AB5 works as intended by legislators, we would expect overall employment and labor force participation to remain unchanged, since the law is merely reclassifying workers and therefore changing the

¹³ The common-law test is similar to the Borello test and establishes less stringent criteria for legally classifying a worker as an independent contractor.

¹⁴ Prince, "The AB5 Experiment"; Deknatel and Hoff-Downing, "ABC on the Books and in the Courts."

¹⁵ Massachusetts's ABC test is most similar to California's but has not been codified into law.

composition of employment and labor force participation, not its overall magnitude. We would also expect traditional employment to increase and self-employment to decrease, as workers get hired as traditional employees instead of as independent contractors. Ideally for legislators and proponents of AB5, the increase in traditional employment would be greater than the decrease in self-employment.

Two implicit assumptions underlie these predictions. First, the cost of hiring a traditional employee is the same as that of hiring an independent contractor. Second, at least some independent contractors would prefer to be hired as traditional employees. If both assumptions were met in the labor market, it is unclear why there would be any worker misclassification, and a more stringent law to prevent it would be unnecessary. Indeed, in a labor market where the cost of hiring a traditional employee is the same as that of hiring an independent contractor, all workers who wish to be hired as traditional employees would be hired as such.

The issue of worker misclassification arises precisely because the cost of hiring a traditional employee is typically higher than that of hiring an independent contractor. Hiring a traditional employee requires the employer to comply with various labor laws, such as those that regulate minimum wage, work hours, health insurance, unemployment insurance, state disability insurance, paid leave, sick leave, and worker compensation. Hiring an independent contractor typically does not require the employer to comply with most such laws. In this environment, AB5 may induce some employers to hire former independent contractors as traditional employees, but it is unlikely that all employers could hire most former independent contractors as traditional employees given the additional costs. Therefore, to comply with the law, at least some employers may be induced to reduce their demand for independent contractors altogether without an accompanying equal increase in their demand for traditional employees.

If this is the case, then AB5 may decrease self-employment by more than it increases traditional employment, causing overall employment to decrease and potentially labor force participation to decrease if some discouraged workers exit the labor force. To the extent that some independent contractors do not want to work as traditional employees, this factor may also contribute to a reduction in overall employment and labor force participation.

A similar difference exists between the cost of hiring a full-time versus part-time traditional employee. Hiring a part-time traditional employee typically requires the employer to comply with fewer or less stringent labor regulations. One potential impact of AB5 might be that to comply with the law, some employers may hire former independent contractors as part-time rather than full-time employees to reduce the additional cost. In this case, AB5 may decrease self-employment and increase traditional employment primarily through part-time rather than full-time employment.

Alternatively, employers may reduce employment of part-time workers to help alleviate the additional costs of hiring former independent contractors as full-time employees. In this case, AB5 may decrease self-employment and part-time traditional employment while increasing full-time traditional employment.

Lastly, the impact of California's worker reclassification will depend on the extent to which employers comply with the new regulation (which, in turn, depends on its enforcement) and on the prevalence of self-employed workers before the law is implemented. If AB5 is very leniently enforced, we would expect little to no impact on labor market outcomes. If there are very few self-employed workers, then there would also be little to no worker misclassification or independent contractors to be hired as traditional employees. In this case, too, AB5 would have

little to no impact on labor market outcomes. According to anecdotal evidence and news reports, however, AB5 was indeed enforced.¹⁶

3. DATA AND EMPIRICAL STRATEGY

3.1 Data

To examine the labor market effects of AB5, we use data from the Current Population Survey (CPS) from January 2011 to September 2023.¹⁷ We measure overall employment, labor force participation, self-employment, and traditional employment levels for each state, occupation, and month.¹⁸ CPS measures employment and self-employment as a primary source of income and thus does not capture workers who engage in gig work or independent contracting as secondary sources of income. Moreover, the CPS measure of self-employment includes both self-employed small businesses and independent contractors. This enables us to examine the broader impact of AB5 since news articles seemed to indicate that small businesses could not comply with the law shut down.

Our analysis compares California to states that use the common-law test and have not changed their worker classification laws during the period. These states are Alabama, Arizona, Florida, Iowa, Kentucky, Michigan, Minnesota, Mississippi, Missouri, New York, North Carolina, North Dakota, South Carolina, South Dakota, and Texas as well as the District of Columbia. This analysis enables us to compare the approximate labor market outcomes in an environment with the most stringent ABC test (California) to outcomes in an environment with less stringent tests (states with unchanged common-law tests).¹⁹

We match the occupation-level legal exemptions to AB5 and AB2257 to the occupations in CPS and exclude the legally exempt occupations from our data. Doing so permits our analysis to compare only occupations that were always treated under California's AB5 and AB2257 and to exclude variation due to unobservable characteristics that might cause a given occupation to be exempt from the law (such as nature of work or lobbying power). In particular, if government regulators expected particularly poor outcomes of worker reclassification in certain vulnerable occupations, and these expectations led them to exclude such occupations from the law, then including them in our data would bias the coefficient estimate downward.

To match the exempted occupations, we review the occupation name and any description provided in AB5. Using a large language model and a process of iterative feedback, we then identify the occupation title and description in CPS that most closely aligns with each exempted occupation. Table A1, in the appendix, lists all occupations that were exempt from AB5 and their

¹⁶ Kate Conger, "California Sues Uber and Lyft, Claiming Workers Are Misclassified," *New York Times*, May 5, 2020 (example news report); Easter, "The AB5 Backlash" (interview suggesting that organizations responded out of fear of act enforcement); Carolyn Said, "California's New Labor Commissioner Discusses AB5 Gig-Work Law, Worker Protections," *San Francisco Chronicle*, February 22, 2020 (interview with California Labor Commissioner discussing strict enforcement of AB5).

¹⁷ Starting our data in January 2011 does not qualitatively change the results discussed below.

¹⁸ Using rates instead of levels in our analysis does not qualitatively change the results discussed below.

¹⁹ Including all states in our analysis does not qualitatively change the results discussed below.

matched CPS occupation title and description.²⁰ Table 2 presents summary statistics for our resulting dataset.

TABLE 2. Summary Statistics

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
Employment	520,242	17,823	38,500.5	0	853,908.4
Labor force participation	520,242	18,963	40,638.2	0	868,016.3
Traditional employment	520,242	16,237	34,512.2	0	690,505.3
Self-employment	520,242	1,573	7,302.9	0	248,037.5

3.2 Empirical Strategy

To examine the impact of California’s AB5 and AB2257, we employ a difference-in-difference strategy comparing treated occupations within California to those outside California before and after the law was implemented. This enables us to estimate the marginal effect of the transition from a common-law test to an ABC test by comparing California—the treated state that implemented the strictest version of the ABC test—to a control group composed of untreated, common-law states that have not altered their worker classification statutes during the period of observation. We use September 2019, which is when the law was enacted, as the date of treatment in our analysis.²¹

We empirically examine the impact of AB5 on employment outcomes using the specification below.

$$LaborMarketOutcome_{som} = \beta_1 Treated_{som} + StateFixedEffects + MonthFixedEffects + \varepsilon_{som}$$

LaborMarketOutcome is measured for each occupation by state and month as the natural log of employment, labor force participation, traditional employment, and self-employment. *Treated* is an indicator variable equal to 1 for occupations in California once the worker reclassification law is passed in September 2019 and thereafter.

In examining the potential employment effects of AB5 as discussed in section 2, we note limitations in our empirical approach. Basic monthly CPS data are not designed for state occupation-level aggregation, and the observed inconsistencies in pretreatment parallel trends across different specifications limit our ability to draw causal inferences from the associations we identify.²² While the results presented should be approached with caution, we do our best to establish a robust correlation for the potential employment effects of AB5. Future research with

²⁰ Seven out of 109 legal exemptions from AB5 and AB2257 do not neatly map onto a CPS occupation. Including legally exempt occupations in our analysis does not qualitatively change the results discussed below. Table A1, in the appendix, lists all exempted occupations.

²¹ Assuming the effective date of treatment is instead January 2020 (date of implementation) or September 2020 (date of revision through AB2257) would bias our analysis against finding a significant impact of the law if it did begin to have labor market effects through expectations between September 2019 when the law was enacted and January 2020 or September 2020. Assuming the date of treatment is January 2020 or September 2020 in our empirical analysis does not qualitatively change the results discussed below.

²² Appendix figures A1–A8 graph each of our dependent variables before and after AB5 was enacted for occupations within California and those outside of California.

more granular data on self-employment and independent contracting at the occupation by month level would be better positioned to ascertain causal relationships.

4. RESULTS AND ROBUSTNESS

4.1 Results

Table 3 presents our main findings on the impact of AB5 on labor market outcomes. Our estimate of the average treatment effect on the treated (ATET) outcome is reported in each cell. Standard errors are clustered at the state level and reported below each coefficient.²³ Overall, we find that worker reclassification reduced the level of overall employment by 4.4 percent and that this association is statistically significant. We find a statistically insignificant association between worker reclassification and labor force participation. We also find a statistically insignificant association between worker reclassification and the level of traditional employment. Among self-employed workers, however, we find that worker reclassification reduced the level of employment by 10 percent and that this effect is statistically significant.

TABLE 3. Main Difference-in-Difference Results

Log Labor Market Outcome	Overall	Traditional Work	Self-Employment
Employment	-0.044**	-0.017	-0.105***
	0.018	0.018	0.023
Labor force participation	-0.029		
	0.022		
State fixed effects	X	X	X
Month fixed effects	X	X	X
<i>N</i>	520,242	520,242	520,242

Note: ATET coefficients obtained from difference-in-difference regression are reported in each cell. Standard errors are clustered at the state level and reported below each coefficient.

* $p < 0.1$, ** $p < 0.05$, and *** $p < 0.01$.

As discussed in section 2, worker reclassification may differently affect full-time versus part-time employment if the cost of hiring a full-time employee is significantly greater than that of hiring a part-time employee. Table 4 presents our findings for the impact of California's worker reclassification according to full-time versus part-time employment. We find a statistically insignificant association between worker reclassification and the level of full-time, traditional employment. Among full-time self-employed workers, we find that worker reclassification reduced the level of employment by 8.1 percent and that this association is statistically significant. Among part-time traditional workers, we find that worker reclassification decreased the level of employment by 15.2 percent and that this association is statistically significant. We find that

²³ Including occupation fixed effects and/or clustering robust standard errors by state and month does not qualitatively change the results discussed below.

worker reclassification also decreased the level of part-time self-employment by 4.6 percent and that this association is statistically significant.

TABLE 4. Full-Time versus Part-Time Employment

Log Labor Market Outcome	Full-Time		Part-Time	
	Traditional	Self-Employed	Traditional	Self-Employed
Employment	0.026	-0.081***	-0.152***	-0.046***
	0.021	0.022	(0.029)	(0.015)
State fixed effects	X	X	X	X
Month fixed effects	X	X	X	X
Adjusted R^2	0.095	0.022	0.026	0.016
N	520,242	520,242	520,242	520,242

Note: ATET coefficients obtained from difference-in-difference regression are reported in each cell. Standard errors are clustered at the state level and reported below each coefficient.

* $p < 0.1$, ** $p < 0.05$, and *** $p < 0.01$.

Overall, we find no evidence that AB5 increased traditional employment (whether full-time or part-time) as intended. We find that AB5 may have reduced full-time and part-time self-employment, as well as overall employment. Our findings also suggest that AB5 may have reduced part-time traditional employment.²⁴

4.2 Robustness Checks

As discussed in section 2, the impact of California’s worker reclassification depends both on the extent to which employers comply with the new regulation and the prevalence of self-employed workers in each occupation before the law is implemented. Greater employer compliance and/or higher prevalence of self-employed workers would result in a larger impact of worker reclassification on labor market outcomes. We are not aware of any data that would enable us to measure the former, but we try to approximate the latter to perform robustness checks on the associations discussed in section 4.1.

We investigate whether California’s worker reclassification had a larger impact among occupations with a higher prevalence of self-employed workers using annual data from the Current Population Survey in 2018. This enables us to rank occupations according to the prevalence of self-employed workers before worker reclassification was passed by the California State Senate and divide occupations into subsamples of quartiles. We then reestimate our results across these four occupation subsamples using data on the percentage of employed workers who were self-employed by occupation in 2018:

- A. Occupations in the lowest quartile of prevalence of self-employment
- B. Occupations in the second quartile of prevalence of self-employment

²⁴ All results are robust to the omission of data from the initial year and initial two years of the COVID-19 pandemic period. See tables A3 and A4, in the appendix.

- C. Occupations in the third quartile of prevalence of self-employment
- D. Occupations in the highest quartile of prevalence of self-employment

There are many occupations where the prevalence of self-employed workers, measured by the percentage of all workers who report being self-employed, is zero. In 2018, for instance, the prevalence of self-employment was zero for almost 25 percent of all occupations. Thus, we would expect the impact of AB5 on employment outcomes to be stronger among occupations with a higher prevalence of self-employment.

Table 5 presents our main findings for the impact of California's AB5 and AB2257 on labor market outcomes for each of the three subsamples described above. Among occupations in the lowest quartile of prevalence of self-employment, we find a statistically insignificant association between worker reclassification and overall employment, labor force participation, traditional employment, and self-employment. Among occupations in the second quartile of prevalence of self-employment, we find that worker reclassification is associated with a statistically significant decrease in employment and labor force participation of 10.6 and 6.5 percent, respectively. We also find that worker reclassification reduced traditional employment and self-employment by 11.5 and 6.7 percent, respectively, and that these associations are statistically significant.

Among occupations in the third quartile of prevalence of self-employment, we find that worker reclassification reduced employment, labor force participation, traditional employment, and self-employment by 7.3, 7.6, 5.6, and 27.9 percent, respectively, and that these associations are statistically significant. Lastly, among occupations in the highest quartile of prevalence of self-employment, we find a statistically insignificant association between worker reclassification and overall employment and labor force participation. We find that worker reclassification increased traditional employment by 10.2 percent, while it decreased self-employment by 17.7 percent, and that these associations are statistically significant.

Overall, we fail to find consistent evidence that AB5 increased traditional employment. AB5 may have increased traditional employment only among occupations in the highest quartile of prevalence of self-employment while decreasing traditional employment in the remaining quartiles. We do find that AB5 consistently reduced self-employment and that this decrease was larger in occupations with a higher prevalence of self-employment before the implementation of the law.

5. CONCLUDING REMARKS

Worker reclassification policy efforts have sprung up in recent years with the emergence of platform economy companies and concerns over misclassified gig workers. These policy efforts are aimed at helping more independent contractors become traditional employees who can enjoy various employment benefits and protections.

Our paper provides the first empirical assessment of recent reclassification policy efforts in the United States by analyzing the effects of California Assembly Bill 5, the country's strictest criteria for legally classifying a worker as an independent contractor rather than as an employee. Our findings suggest that AB5 likely did not merely induce employers to reclassify some independent contractors as employees and that it resulted in a significant decline in self-employment and overall employment. We find no robust evidence that AB5 increased traditional employment as intended. Overall, our findings suggest that AB5 did not simply alter the composition of the workforce as intended, with more workers becoming employees and fewer workers as independent contractors.

TABLE 5. Difference-in-Difference Results by Subsample

Log Labor Market Outcome	Overall	Traditional Work	Self-Employment
<i>Panel A. Occupations in the lowest quartile of prevalence of self-employment</i>			
Employment	-0.040	0.017	-0.021
	0.027	0.031	0.025
Labor force participation	-0.009		
	0.029		
<i>N</i> = 89,380			
<i>Panel B. Occupations in the second quartile of prevalence of self-employment</i>			
Employment	-0.106***	-0.115***	-0.067***
	0.015	0.018	0.019
Labor force participation	-0.065***		
	0.019		
<i>N</i> = 184,947			
<i>Panel C. Occupations in the third quartile of prevalence of self-employment</i>			
Employment	-0.073***	-0.056**	-0.279***
	0.021	0.021	0.037
Labor force participation	-0.076***		
	0.021		
<i>N</i> = 150,386			
<i>Panel D. Occupations in the highest quartile of prevalence of self-employment</i>			
Employment	0.019	0.102**	-0.177**
	0.023	0.037	0.062
Labor force participation	0.015		
	0.026		
<i>N</i> = 98,007			

Note: ATET coefficients obtained from difference-in-difference regression are reported in each cell. Standard errors are clustered at the state level and reported below each coefficient.

* $p < 0.1$, ** $p < 0.05$, and *** $p < 0.01$.

Our results shed light on other similar policy and regulatory changes that are being considered in states and at the federal level. For example, a January 2024 Department of Labor (DOL) rule created a stricter rule nationwide that would make it more difficult for workers to be legally classified as independent contractors. The justification and intention of the rule is to merely alter the composition of the workforce—more workers would become employees (with access to labor protections and benefits) and fewer workers would be independent contractors. Our analysis herein would suggest that the DOL may have challenges in meeting these intended results. Instead, we may expect the rule to be associated with a decrease in self-employment nationwide, and it is not clear whether it would definitively lead to an increase in traditional employment. Even if the DOL rule would lead to an increase in traditional employment, our results suggest that the increase in traditional employment will likely not be greater than the reduction in self-employment, thereby leading to a decrease in overall employment. Although the DOL rule is not as stringent as AB5, its rule cannot exempt any industries, occupations, or professions as AB5 did, and, therefore, the effect of the rule is expected to be more widespread.

Although our paper cannot identify the relative importance of the mechanisms by which AB5 may have reduced self-employment and overall employment, our findings highlight the potential unintended consequences that similar policy or regulatory changes may face.

APPENDIX

TABLE A1. Occupations Exempted from AB5

<i>N</i>	Occupational Exemption	Statute	CPS Occupation Code	CPS Occupation Title
1	Bona fide business-to-business contracting relationship	AB5	No match	
2	Relationship between a referral agency and a service provider	AB2257	No match	
3	Graphic design (for referrals)	AB5	2630	Designers
4	Web design	AB5	1000	Computer scientists and system analysts/network systems analysts/web developers
5	Photography	AB5	2910	Photographers
6	Tutoring	AB5	2340, 2540	Other teachers and instructors; teacher assistants
7	Consulting	AB2257	850	Personal financial advisers
8	Youth sports coaching	AB2257	2720	Athletes, coaches, umpires, and related workers
9	Caddying	AB2257	2720	Athletes, coaches, umpires, and related workers
10	Wedding planning	AB2257	720	Meeting and convention planners
11	Event planning	AB5	720	Meeting and convention planners
12	Services provided by wedding and event vendors	AB2257	No match	
13	Minor home repair	AB5	7320, 7340, 7630, 6420	Home appliance repairers; maintenance and repair workers, general; other installation, maintenance, and repair workers, including wind turbine service technicians, commercial divers, and signal and track switch repairers; painters, construction, and maintenance

<i>N</i>	Occupational Exemption	Statute	CPS Occupation Code	CPS Occupation Title
14	Moving	AB5	9620, 9750	Laborers and freight, stock, and material movers, hand; material moving workers, nec*
15	Errands	AB5	4650	Personal care and service workers, all other
16	Furniture assembly	AB5	7610	Helpers—installation, maintenance, and repair workers
17	Animal service	AB5	4340, 4350, 3250	Animal trainers; nonfarm animal caretakers; veterinarians
18	Dog walking	AB5	4350	Nonfarm animal caretakers, animal trainers
19	Dog grooming	AB5	4350	Nonfarm animal caretakers
20	Picture hanging	AB5	7610	Helpers—installation, maintenance, and repair workers
21	Pool cleaning	AB5	4250	Grounds maintenance workers
22	Yard cleanup	AB5	4250	Grounds maintenance workers
23	Interpreting services	AB2257	2860	Media and communication workers, nec*
24	Professional services	AB2257	No match	
25	Marketing	AB5	30	Managers in marketing, advertising, and public relations
26	Administrator of human resources	AB5	130, 5360, 620	Human resources managers; human resources assistants, except payroll and timekeeping; human resources, training, and labor relations specialists
27	Travel agent services	AB5	4830	Travel agents
28	Graphic design	AB5	2630	Designers
29	Grant writer	AB5	2840	Technical writers
30	Fine artist	AB5	2600	Artists and related workers

<i>N</i>	Occupational Exemption	Statute	CPS Occupation Code	CPS Occupation Title
31	Services provided by an enrolled agent	AB5	940	Tax preparers
32	Payment processing agent through an independent sales organization	AB5	5140	Payroll and timekeeping clerks
33	Still photographer	AB5	2910	Photographers
34	Photojournalist	AB5	2910	Photographers
35	Videographer	AB2257	2920	Television, video, and motion picture camera operators and editors
36	Photo editor who works under a written contract	AB2257	2920	Television, video, and motion picture camera operators and editors
37	Digital content aggregator	AB2257	2860	Media and communication workers, nec*
38	Freelance writer	AB5	2850	Writers and authors
39	Translator	AB2257	2860	Media and communication workers, nec*
40	Editor	AB5	2810	Editors, news analysts, reporters, and correspondents
41	Copy editor	AB2257	5910	Proofreaders and copy markers
42	Illustrator	AB2257	2600	Artists and related workers
43	Newspaper cartoonist	AB5	2600	Artists and related workers
44	Content contributor	AB2257	2850	Writers and authors
45	Adviser	AB2257	850	Personal financial adviser
46	Producer	AB2257	2700	Actors, producers, and directors
47	Narrator	AB2257	2800	Announcers
48	Cartographer	AB2257	1310	Surveyors, cartographers, and photogrammetrists
49	Licensed esthetician	AB5	4520	Personal appearance workers, nec*
50	Licensed electrologist	AB5	4520	Personal appearance workers, nec*
51	Licensed manicurist	AB5	4520	Personal appearance workers, nec*

<i>N</i>	Occupational Exemption	Statute	CPS Occupation Code	CPS Occupation Title
52	Licensed barber	AB5	4510	Hairdressers, hairstylists, and cosmetologists
53	Licensed cosmetologist	AB5	4510	Hairdressers, hairstylists, and cosmetologists
54	Specialized performer	AB2257	2760	Entertainers and performers, sports and related workers, all other
55	Services provided by an appraiser	AB2257	540	Claims adjusters, appraisers, examiners, and investigators
56	Registered professional forester	AB2257	1640	Conservation scientists and foresters
57	Real estate licensee	AB5	4920	Real estate brokers and sales agents
58	Home inspector	AB2257	6660	Construction and building inspectors
59	Repossession agency	AB5	5100	Bill and account collectors
60	Relationship between two individuals wherein each individual is acting as a sole proprietor or separate business entity	AB2257	No match	
61	Recording artist	AB2257	2750	Musicians, singers, and related workers
62	Songwriter	AB2257	2750	Musicians, singers, and related workers
63	Lyricist	AB2257	2750	Musicians, singers, and related workers
64	Composer	AB2257	2750	Musicians, singers, and related workers
65	Proofer	AB2257	5910	Proofreaders and copy markers
66	Manager of recording artists	AB2257	500	Agents and business managers of artists, performers, and athletes
67	Record producer	AB2257	2700	Actors, producers, and directors
68	Director	AB2257	2700	Actors, producers, and directors

<i>N</i>	Occupational Exemption	Statute	CPS Occupation Code	CPS Occupation Title
69	Musical engineer	AB2257	2900	Broadcast and sound engineering technicians and radio operators, and media and communication equipment workers, all other
70	Mixer engaged in the creation of sound recordings	AB2257	2900	Broadcast and sound engineering technicians and radio operators, and media and communication equipment workers, all other
71	Musician engaged in the creation of sound recordings	AB2257	2750	Musicians, singers, and related workers
72	Vocalist	AB2257	2750	Musicians, singers, and related workers
73	Photographer working on recording photo shoots, album covers, and other press and publicity purposes	AB2257	2910	Photographers
74	Independent radio promoter	AB2257	4900	Models, demonstrators, and product promoters
75	Any other individual engaged to render any creative, production, marketing	AB2257	2700	Actors, producers, and directors
76	Musician	AB2257	2750	Musicians, singers, and related workers
77	Musical group	AB2257	2750	Musicians, singers, and related workers
78	Individual performance artist performing material that is their original work and creative in character	AB2257	2760	Entertainers and performers, sports and related workers, all other
79	Relationship between a contractor and an individual performing work pursuant to a subcontract in the construction industry	AB5	6260, 6765	Construction laborers; construction workers, nec*
80	Relationship between a data aggregator and an individual providing feedback	AB2257	1800	Economists and market researchers

<i>N</i>	Occupational Exemption	Statute	CPS Occupation Code	CPS Occupation Title
81	Person or organization who is licensed by the Department of Insurance pursuant to Chapter 5 (commencing with Section 1621)	AB5	5840, 4810, 860	Insurance claims and policy processing clerks; insurance sales agents; insurance underwriters
82	Person or organization who is licensed by the Department of Insurance pursuant to Chapter 6 (commencing with Section 1760)	AB5	5840, 4810, 860	Insurance claims and policy processing clerks; insurance sales agents; insurance underwriters
83	Person or organization who is licensed by the Department of Insurance pursuant to Chapter 8 (commencing with Section 1831) of Part 2 of Division 1 of the Insurance Code	AB5	5840, 4810, 860	Insurance claims and policy processing clerks; insurance sales agents; Insurance underwriters
84	Person who provides underwriting inspections	AB2257	860	Insurance underwriters
85	Person who provides premium audits	AB2257	800	Accountants and auditors
86	Person who provides risk management	AB2257	1200	Actuaries
87	Person who provides loss control work for the insurance and financial service industries	AB2257	1200	Actuaries
88	Physician and surgeon	AB5	3060	Physicians and surgeons
89	Dentist	AB5	3010	Dentists
90	Podiatrist	AB5	3120	Podiatrists
91	Psychologist	AB5	1820	Psychologists
92	Veterinarian	AB5	3250	Veterinarians
93	Lawyer	AB5	2100	Lawyers, and judges, magistrates, and other judicial workers
94	Architect	AB5	1300, 1400	Architects, except naval; marine engineers and naval architects
95	Landscape architect	AB2257	1300	Architects, except naval
96	Engineer	AB5	1530	Engineers, nec*
97	Private investigator	AB5	3910	Private detectives and investigators
98	Accountant	AB5	800	Accountants and auditors

<i>N</i>	Occupational Exemption	Statute	CPS Occupation Code	CPS Occupation Title
99	Securities broker-dealer	AB5	4820	Securities, commodities, and financial services sales agents
100	Investment adviser	AB5	850	Personal financial advisers
101	Agents and representatives of securities brokers and investment advisory	AB5	4820	Securities, commodities, and financial services sales agents
102	Direct salesperson	AB5	4950, 4965, 4840, 4850	Door-to-door sales workers, news and street vendors, and related workers; sales and related workers, all other; sales representatives, services, all other; sales representatives, wholesale and manufacturing
103	Manufactured housing salesperson	AB2257	4850	Sales representatives, wholesale and manufacturing
104	Commercial fisher working on an American vessel	AB5	6100	Fishing and hunting workers
105	Newspaper distributor	AB2257	9130	Driver/sales workers and truck drivers
106	Newspaper carrier	AB2257	9130	Driver/sales workers and truck drivers
107	Individual who is engaged by an international exchange visitor program	AB2257	No match	
108	Competition judge with a specialized skill set or expertise	AB2257	2760	Entertainers and performers, sports and related workers, all other
109	Relationship between a motor club holding a certificate of authority	AB5	No match	

Note: Exempted occupations are gathered from Samantha J. Prince, “The AB5 Experiment—Should States Adopt California’s Worker Classification Law?” *American University Business Law Review* 11, no. 1 (January 26, 2022): 43–96.

* nec = not elsewhere classified.

TABLE A2. Worker Classification Tests by State

State	Classification Test	State	Classification Test
Alabama	Common Law	Montana	A&C of ABC Test
Alaska	ABC Test	Nebraska	ABC Test
Arizona	Common Law	Nevada	ABC Test
Arkansas	ABC Test	New Hampshire	ABC Test
California	ABC Test	New Jersey	ABC Test
Colorado	A&C of ABC Test	New Mexico	ABC Test
Connecticut	ABC Test	New York	Common Law
Delaware	ABC Test	North Carolina	Common Law
District of Columbia	Common Law	North Dakota	Common Law
Florida	Common Law	Ohio	ABC Test
Georgia	ABC Test	Oklahoma	A&B or A&C of ABC Test
Hawaii	ABC Test	Oregon	ABC Test
Idaho	A&C of ABC Test	Pennsylvania	A&C of ABC Test
Illinois	ABC Test	Puerto Rico	ABC Test
Indiana	ABC Test	Rhode Island	ABC Test
Iowa	Common Law	South Carolina	Common Law
Kansas	ABC Test	South Dakota	Common Law
Kentucky	Common Law	Tennessee	ABC Test
Louisiana	ABC Test	Texas	Common Law
Maine	ABC Test	Utah	ABC Test
Maryland	ABC Test	Vermont	ABC Test
Massachusetts	ABC Test	Virginia	A&B or A&C of ABC Test
Michigan	Common Law	Washington	ABC Test
Minnesota	Common Law	West Virginia	ABC Test
Mississippi	Common Law	Wisconsin	A&C of ABC Test
Missouri	Common Law	Wyoming	A&C of ABC Test

Source: Wrapbook, “Employee or Contractor? The Complete List of Worker Classification Tests by State,” *Payroll 101* (blog), <https://www.wrapbook.com/blog/worker-classification-tests-by-state> (last updated December 20, 2023).

Note: We confirmed this list for each state and ensured no legislative changes occurred during our period of observation from January 2011 to September 2023.

TABLE A3. Main Difference-in-Difference Results—Dropped First Year of COVID-19

Log Labor Market Outcome	Overall	Traditional Work	Self-Employment
Employment	-0.038** 0.017	-0.011 0.016	-0.110*** 0.027
Labor force participation	-0.030 0.022		
State fixed effects	X	X	X
Month fixed effects	X	X	X
<i>N</i>	479,314	479,314	479,314

Note: Replicates regressions from table 3, dropping observations from March 2020 to March 2021. ATET coefficients obtained from difference-in-difference regression are reported in each cell. Standard errors are clustered at the state level and reported below each coefficient.

* $p < 0.1$, ** $p < 0.05$, and *** $p < 0.01$.

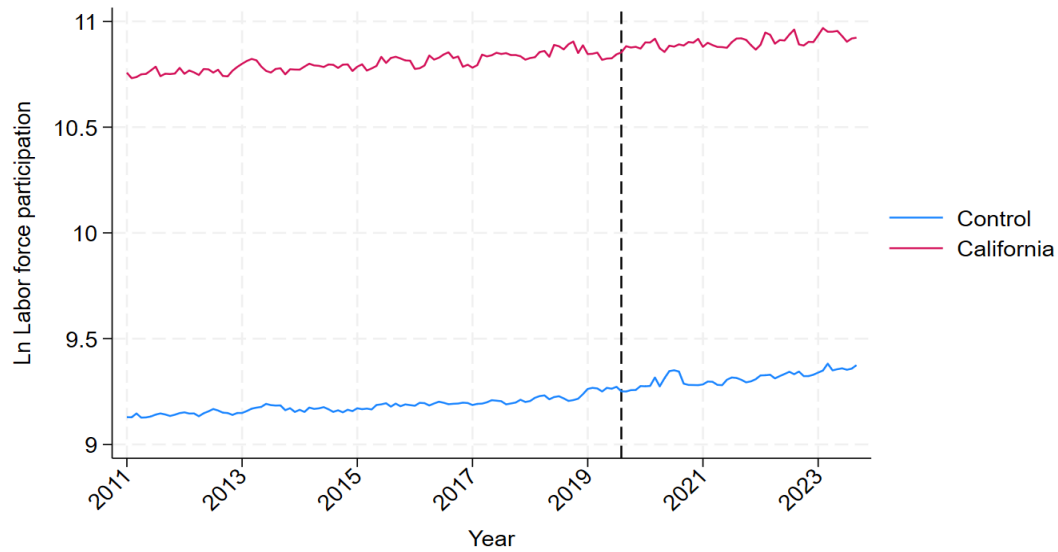
TABLE A4. Main Difference-in-Difference Results—Dropped First Two Years of COVID-19

Log Labor Market Outcome	Overall	Traditional Work	Self-Employment
Employment	-0.035** 0.015	-0.001 0.016	-0.145*** 0.032
Labor force participation	-0.032 0.021		
State fixed effects	X	X	X
Month fixed effects	X	X	X
<i>N</i>	441,551	441,551	441,551

Note: Replicates regressions from table 3, dropping observations from March 2020 to March 2022. ATET coefficients obtained from difference-in-difference regression are reported in each cell. Standard errors are clustered at the state level and reported below each coefficient.

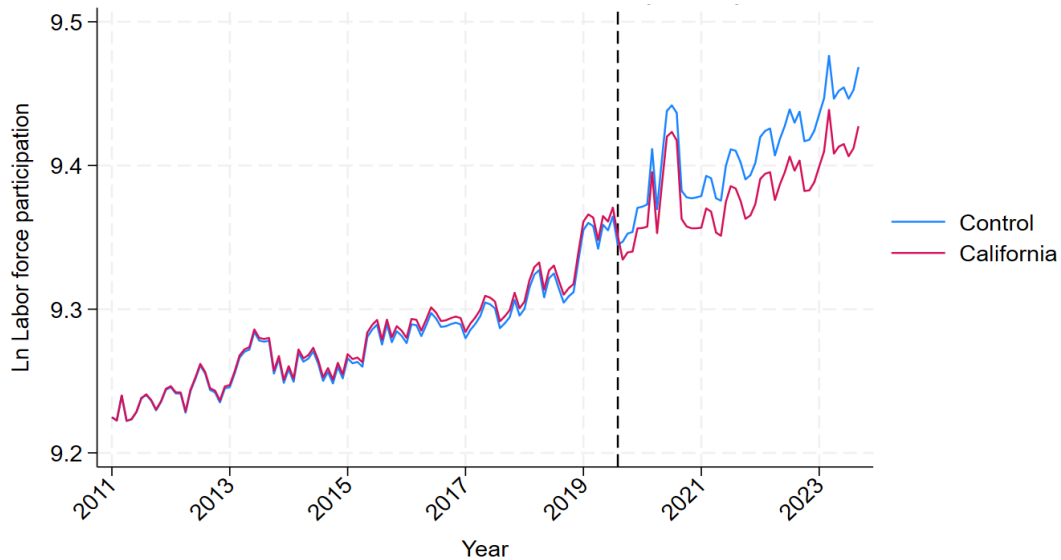
* $p < 0.1$, ** $p < 0.05$, and *** $p < 0.01$.

FIGURE A1. Observed Means—Labor Force



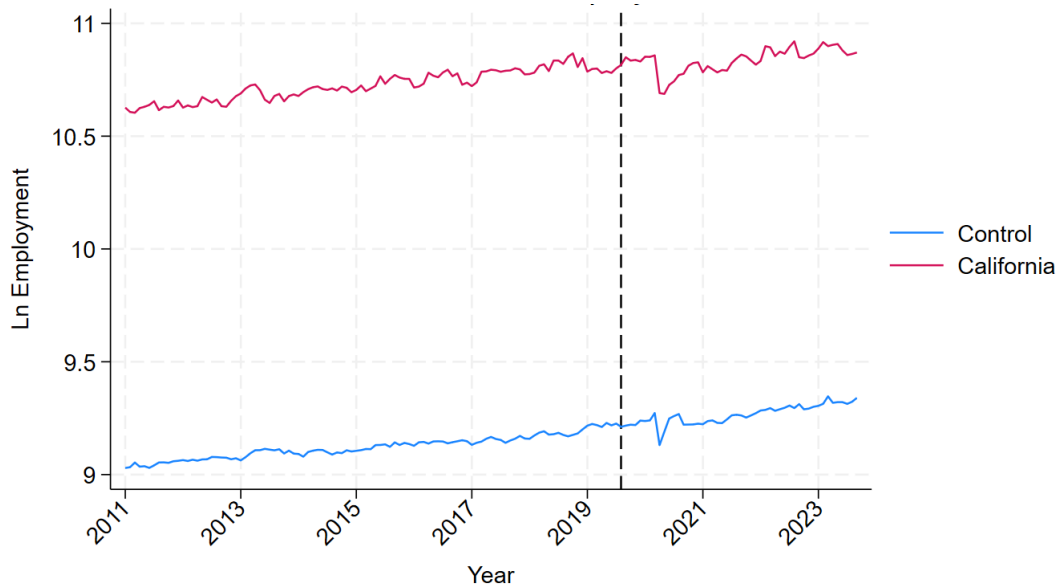
Note: This figure compares the observed mean for the logged level of labor force participation in California with an average of control states. The vertical dashed line indicates treatment timing of September 2019.

FIGURE A2. Linear-Trends Model—Labor Force Participation



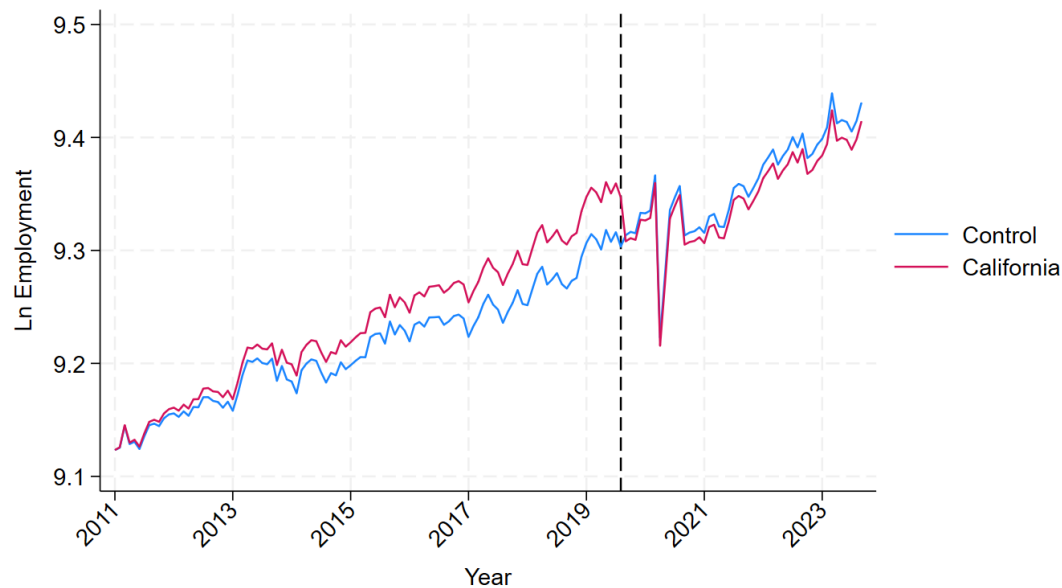
Note: This figure presents the linear trends model for the logged level of labor force participation for California and an average of the control states. The model estimates a coefficient for the differences in pretreatment linear trends between the two groups, assuming a constant rate of change over time. This complements our difference-in-difference model by including interactions of time with an indicator of treatment. The predicted values for California and the average of control states are plotted, with the vertical dashed line indicating the treatment timing in September 2019.

FIGURE A3. Observed Means—Employment



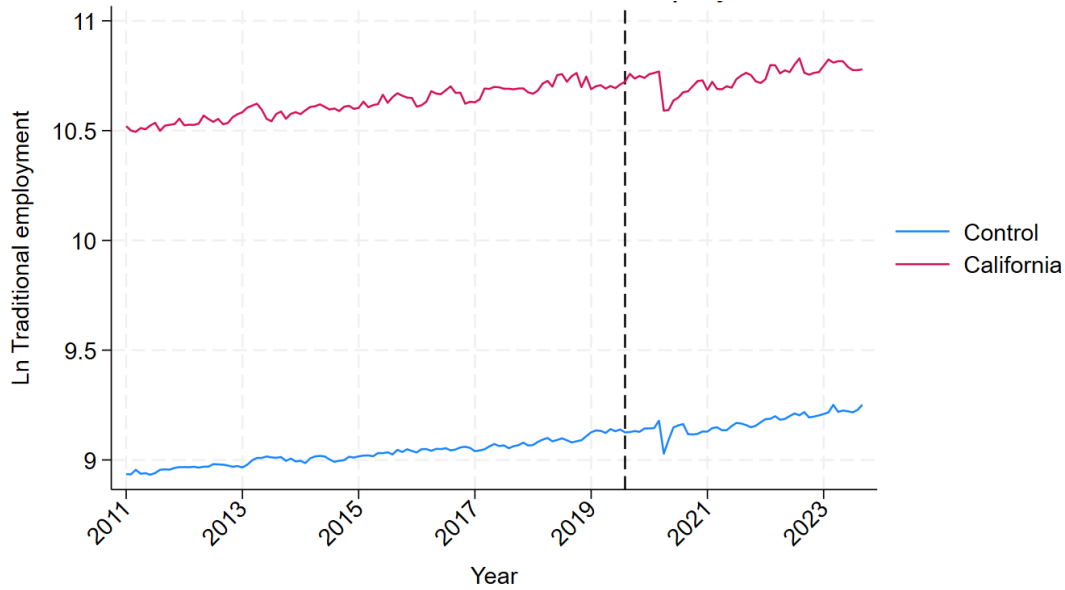
Note: This figure compares the observed mean for the logged level of employment in California with an average of control states. The vertical dashed line indicates treatment timing of September 2019.

FIGURE A4. Linear-Trends Model—Employment



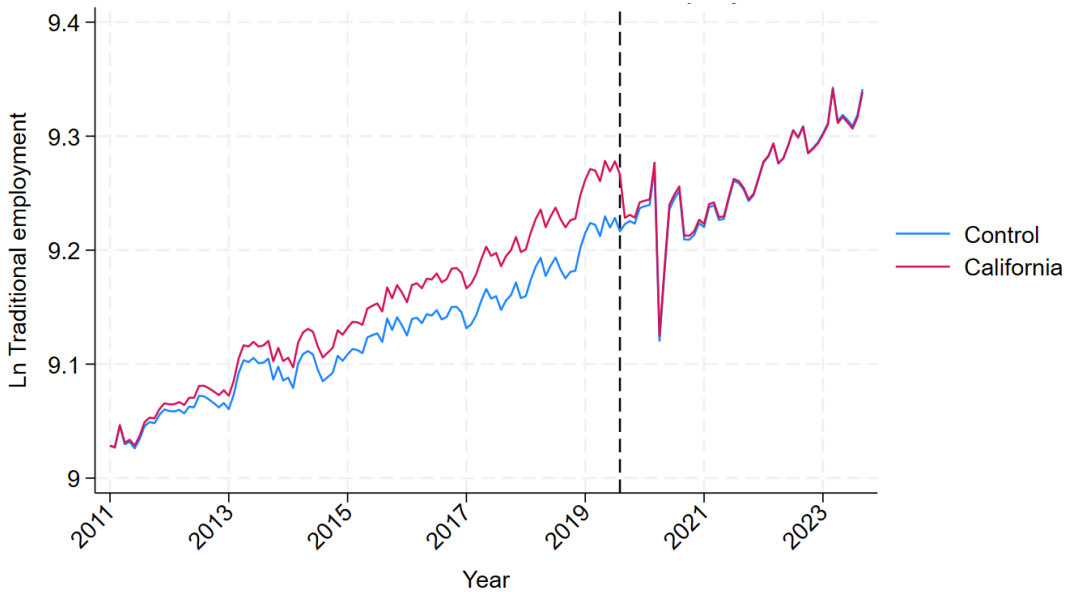
Note: This figure presents the linear trends model for the logged level of employment for California and an average of the control states. The model estimates a coefficient for the differences in pretreatment linear trends between the two groups, assuming a constant rate of change over time. This complements our difference-in-difference model by including interactions of time with an indicator of treatment. The predicted values for California and the average of control states are plotted, with the vertical dashed line indicating the treatment timing in September 2019.

FIGURE A5. Observed Means—Traditional Employment



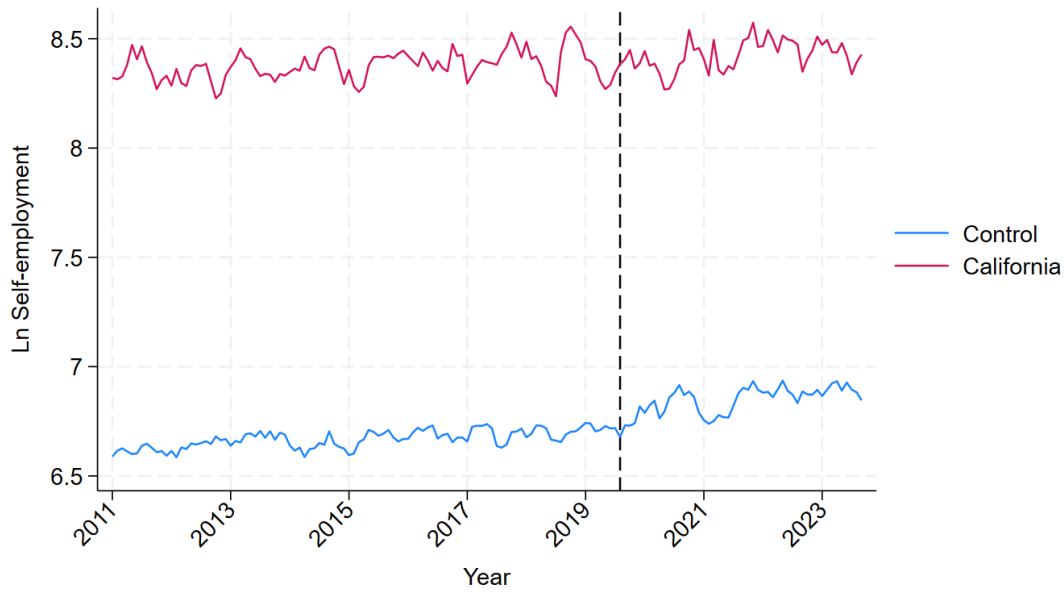
Note: This figure compares the observed mean for the logged level of traditional employment in California with an average of control states. The vertical dashed line indicates treatment timing of September 2019.

FIGURE A6. Linear Trends Model—Traditional Employment



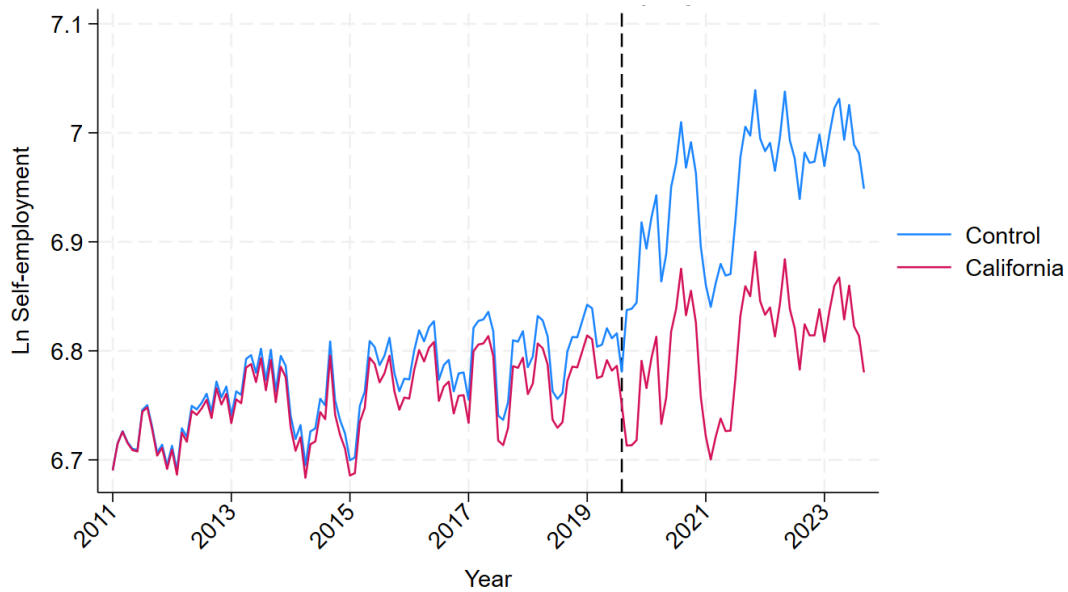
Note: This figure presents the linear trends model for the logged level of traditional employment for California and an average of the control states. The model estimates a coefficient for the differences in pretreatment linear trends between the two groups, assuming a constant rate of change over time. This complements our difference-in-difference model by including interactions of time with an indicator of treatment. The predicted values for California and the average of control states are plotted, with the vertical dashed line indicating the treatment timing in September 2019.

FIGURE A7. Observed Means—Self-Employment



Note: This figure compares the observed mean for the logged level of self-employment in California with an average of control states. The vertical dashed line indicates treatment timing of September 2019.

FIGURE A8. Linear-Trends Model—Self-Employment



Note: This figure presents the linear trends model for the logged level of self-employment for California and an average of the control states. The model estimates a coefficient for the differences in pretreatment linear trends between the two groups, assuming a constant rate of change over time. This complements our difference-in-difference model by including interactions of time with an indicator of treatment. The predicted values for California and the average of control states are plotted, with the vertical dashed line indicating the treatment timing in September 2019.