Effects of Occupational Licensing on DACA Recipients: A Synthetic Control Approach

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Since 2014, 17 states have allowed DACA recipients to acquire occupational or professional licenses. This policy change benefits DACA recipients, eases the labor shortage, and boosts the economy. This paper evaluates the impacts of this policy change on labor market outcomes of DACA recipients, using the generalized synthetic control method to create counterfactuals for treated units using control group information. Our results suggested that granting licensing increases the wages of DACA recipients. Moreover, granting licensing seems to raise education attainment, such as more DACA recipients finishing associate degrees. However, these positive effects are only shown in the short term (the first two to three years after the policy change). Then, gradually, we find no differences in the labor market outcomes of DACA recipients in the treated group relative to its control. In conclusion, even though access to licenses does improve labor market outcomes for DACA recipients, we are still questioning how effective this policy change is.

Keywords: occupational license, DACA recipients, labor outcome

INTRODUCTION

An estimated 1.1 million undocumented minors resided in the U.S. as of 2010, making up 16 percent of the undocumented population. These undocumented youths are largely raised in the U.S. and were brought in by their parents when they were young. They identify as Americans, only speak English, and have no connection to their home countries. They attend school, absorb the culture, live, and work like natives in the U.S. However, they are not eligible for Federal financial aid, public benefits, drivers' licenses, and social security because of their undocumented status. They face the fear of deportation, limited support or resources, and difficulties in pursuing opportunities in the U.S.

In 2007, The DREAM Act bill was first considered by Congress, which started the debate of legal rights for undocumented youth in the U.S. On June 15, 2012, President Barack Obama announced the Deferred Action for Childhood Arrivals (DACA) immigration policy. This policy granted eligible undocumented youths deferred action from deportation and legal work authorization (work permit) in the U.S. As of 2017, about 690,000 unauthorized immigrants were enrolled in DACA. Across the country, more than 1.5 million people live with a DACA recipient, including 300,000 U.S.-born children who have at least one parent who is a DACA recipient. Fifty-five percent of DACA recipients are employed, accounting for 0.25 percent of all U.S. workers. This immigration policy's impacts are not only about individuals who are DACA recipients but their families, communities, and the whole economy and society.

Under federal law, non-qualified immigrants, including undocumented immigrants, are not eligible for various federal and state public benefits, such as professional and commercial licenses. Even though DACA recipients have the legal rights to work in many occupations, they are still not eligible for licensing according to the law. This regulation prevents DACA recipients from applying for licenses, practicing in professions, and developing matched careers. Many DACA recipients will end up in low-skilled or unmatched jobs, which wastes their talents and limits the advantages of undocumented populations.

Occupational licensing has become increasingly popular among workers in the U.S. over the past several decades. There is extensive literature about the benefits and cost of licensing regulation. Licensed workers get at least 10 percent higher wages, work more hours, get better job offers including health insurance, and are easier to be employed than unlicensed workers (Kleiner, 2000) (Kleiner and Krueger, 2013) (Gittleman et al., 2018). However, compared with a nearly constant or rising demand for professional services, labor shortage in the occupational market may push up the price of these professional services (Blair and Chung, 2019). In addition, the requirements or regulations of licensing are dramatically different in states. These differences create barriers to transfer or renewing licenses, which limit labor mobility between states (Mulholland and Young, 2016).

Most studies focus on the impacts of DACA program on these undocumented youths' labor performance, social welfare, work, and lives in the U.S. Overall, through this program, DACA recipients achieve better labor market outcomes, such as higher income, more work opportunities, better employment options, and decreased likelihood of living in poverty (Pope, 2016) (Amuedo-Dorantes and Antman, 2016) (Gonzales et al., 2014) (Siemons et al., 2017). In addition, some other studies proved that DACA is a beneficial strategy to improve healthcare accessibility, reduce mental disorders, and address the mental health of these undocumented populations (Venkataramani et al., 2017) (Sudhinaraset et al., 2020) (Woofter and Sudhinaraset, 2022) (Bae, 2020). Lastly, through DACA program, the recipients may access to in-state tuition and other financial aids and help them to pursue higher education (Dennis, 2019). Even though there are still debates about DACA program, most studies suggest that eligible recipients enjoy better conditions, improved social status, and more opportunities through legal working rights, and this policy benefits undocumented immigrants.

The Synthetic Control Method (SCM), pioneered by Abadie and Gardeazabal (Abadie and Gardeazabal, 2003), is used to evaluate the treatment effect in comparative case studies. An SCM estimates the effect of a treatment by comparing the evolution of an outcome for a unit affected by the treatment to the evolution of the same outcome for a synthetic control group (Abadie, 2021). It has been widely applied in economics, social science, engineering, and other disciplines. Several papers use SCM to study the social impacts of immigration policies in host countries (Peri and Yasenov, 2019) (Zhang et al., 2016) (Bohn et al., 2014) (Nowrasteh et al., 2020) (Saunders et al., 2015). Other work applies SCM on environmental changes, education attainment, health, and crime interventions (Robbins et al., 2017) (Sills et al., 2015) (Cole et al., 2020) (Mao, 2018) (Bouttell et al., 2018) (Bo- nander et al., 2016). Nearly all studies using SCM define policies or some interventions of interest as the treatments to capture the changes in treated units compared with the counterfactuals, such as the California tobacco control program in 1988 (McClelland and Gault, 2017), the introduction of a visitor tax (Biagi et al., 2017), and "one-child" policy in China (Gietel-Basten et al., 2019). There have been recent proposals to use the extended modeling rather than SCM-style weighting in the single treated unit setting, such as generalized synthetic control method (Xu, 2017) and the matrix completion method (Athey et al., 2021) due to their ability to evaluate multiple treatments.

This paper evaluates the impacts of granting occupational licenses to DACA recipients on their labor market outcomes-likelihood of employment, log hourly wage and log weekly working hours- using the Generalized Synthetic Control Method (Xu, 2017). We find that granting licenses to DACA recipients significantly increases their wages. After considering personal, job, and observation characteristics, and controlling state and time fixed effects, these findings hold. However, this positive effect on wages disappears after two or three years of the policy change. In the long run, the impacts of access to licensing on DACA recipients are still questionable and undetermined. We also find the licensing policy change slightly reduces the working hours and the possibility to work in full-time jobs because more recipients

choose to receive higher education such as an associate degree. In conclusion, even though we find positive effects on labor market outcomes, these effects are minor and fade over time.

My paper has the following structure. Section II is the institutional background about DACA recipients and licensing regulations in the U.S. Section III describes the data used and basic models and methodologies in this paper. Section VI discusses the main results. Section V is the conclusion.

INSTITUTIONAL BACKGROUND

In 2007, the DREAM Act bill, which granted resident status to undocumented youth in the United States upon meeting specific qualifications, was first considered by Congress. This bill officially started the legal rights debates of undocumented youth in the U.S. Former President Barack Obama first announced Deferred Action for Childhood Arrivals (DACA) on June 15, 2012, which has provided temporary relief from deportation and work authorization to qualified undocumented youths in the U.S. In September 2017, former president Trump announced terminating the DACA program, stopping receiving new ap- plications and limiting renewal periods for existing recipients. In December 2020, the U.S. government reopened the DACA program, allowing new applications and returning the renewal period for DACA recipients to two years. In 2021, a federal judge ruled against the DACA program, which pushed Congress to establish a permanent solution for the pro- gram. Hundreds of thousands of DACA recipients and their families have faced uncertainty and struggles as the program has continually been challenged and questioned.

In 2021, there were 640,000 DACA recipients, and more than 1.3 million people lived with a DACA recipient. More than three-quarters of DACA recipients were employed in essential jobs, such as health care and education. According to 8 U.S. Code, chapter 14, RESTRICTING WELFARE AND PUBLIC BENEFITS FOR ALIENS, only "qualified aliens" can attempt to receive a Federal public benefit, including any grant, contract, loan, professional license, or commercial license provided by an agency of a State or local government (8 U.S. Code§1621). Any undocumented immigrants, including DACA recipients, are excluded from federal public benefits, specifically occupational or professional licensing. The law has closed the door for DACA recipients to access many professional occupations and limited their upward social mobility.

Occupational licenses-issued by federal, state, and local governments- are increasingly popular among workers, employers, and many occupations. At least one-quarter of workers claimed that licenses are required for their jobs, and 22.7 percent of workers hold an active license in 2020 (Kleiner and Krueger, 2013). Extensive research has proved there are many benefits from licensing, such as higher wages, increased likelihood of being employed, stable job conditions, longer job tenures, and better health insurance through job offers (Kleiner, 2000) (Gomez et al., 2015) (Gittleman et al., 2018) (Blair and Chung, 2019). However, because of the differences in licensing regulations between states, the barriers to renewing or transferring licenses limit the professional market's labor mobility. The licensing costs are also shown in limited labor supply and a higher risk of pushing up the professional services' prices (Mulholland and Young, 2016).

The first state to grant licenses to DACA recipients, Florida, started the licensing revolution in 2014. Nineteen states have clearly claimed DACA recipients are eligible for any occupational licenses in the following eight years. However, no one study can define the impacts or effects of this policy change on DACA recipients within states or the nation. First, there has been insufficient time to study the impacts because most states enacted this legalization around 2017 or later. Having only a few years of data or a limited study period carried an unpleasant challenge. Second, because DACA recipients are part of undocumented immigrants, their information is challenging to collect in any datasets. Therefore, most previous research only defined this licensing policy change and summarized possible positive effects, such as higher wages or better outcomes, without empirical studies. This paper is the first paper that uses an estimated sample of DACA recipients to understand the influences of granting licenses empirically using SCM, which provides a more developed understanding of this policy change and its impacts.

DATA DESCRIPTION AND METHODOLOGY

Data Description

To explore the relationship between granting licensing to DACA recipients and their labor market outcomes, we use the primary data set consisting of the Current Population Survey files provided by the U.S. Census Bureau and the Bureau of Labor Statistics (Flood et al., 2020) from March 2007 to December 2020. In 2007, the DREAM Act bill, which granted resident status to undocumented youth in the United States upon meeting specific qualifications, was first considered by Congress. While this bill did not pass, it nevertheless officially started debates on the legal rights or permanent relief for undocumented youth in the U.S. In June 2012, the temporary release program DACA policy was signed by President Obama. In order to have enough pre-treatment data and consider the pre-policy change effect, we start our data sets from 2007. The latest data we extract from the CPS is December 2020.

Because there is no available data for undocumented immigrants and DACA recipients in CPS, we must use the residual method and DACA-eligible criteria to estimate a DACA recipients' sample. The residual method provided by Passel et al. utilizes legal immigrants' criteria to filter out legal migrants, which leaves undocumented immigrants. (Jeffery S. Passel, 2018). An individual is deemed legally in the U.S if she or he: arrived before 1980, has U.S citizenship, receives public benefits or financial aid, works in the government sector, was born in Cuba, or has a spouse who is a legal immigrant or U.S citizen. Firstly, personal information such as year of migration, citizenship status, class of work, and birthplace is directly available in CPS. Secondly, we mainly use the information on SNAP (food stamps), public medical aids, SSI, TANF, LIHEAP, and public housing programs in CPS to define whether an individual is eligible for public benefits. Thirdly, according to the relationship between each household member, we filter out the individuals whose spouses are citizens, naturalized citizens, or legal immigrants. When these individuals are removed, the remainder of the sample are considered undocumented immigrants (Jeffery S. Passel, 2018). Based on individuals' undocumented status, applicants for the DACA program have to (i) be at least 15 but under 31 by June 15, 2012, (ii) have entered the United States before age 16, (iii) have continuous residence in the United States since June 15, 2007, and be present at the time of application, (iv) be In school, have graduated or completed high school, or have honorably discharged from the military, and (v) not be convicted of a felony (Singer and Svajlenka, 2013). Using age in 2012, age while entering the U.S., educational attainment or years of education, and whether in armed forces, we finally get an estimated sample of DACA recipients from 2007 to 2020.

Licensing status is defined by three basic questions asked during the survey in CPS in 2015. i) Do you have active licenses or certifications? ii) Did the government issue these licenses or certifications? iii) Can these licenses or certifications be used for work (Flood et al., 2020)? Only individuals who answered "YES" to all three questions above have active licenses. If he or she answers "NO" to any of these questions, she or he is not licensed. Because the information for the third question was missing in 2015, we collected all licensing information from 2016 to 2020 in CPS.

Each individual's labor market information, such as employment status, hourly wage, and weekly working hours, is directly from CPS. If she or he is paid by salary, we calculate hourly wage using weekly wage and usual working hours per week. In all datasets, we adjusted our results by using "EARNWT" the personal-level weights used for any studies that include any variables in the outgoing rotation group in CPS. In order to get detailed information about labor market outcomes, we only keep individuals interviewed in the fourth month (who are about to rotate out of interviews) and the eighth month (rotate back in to get an interview again).

Overall, we have two samples each year from 2007 to 2020. The first sample includes all individuals no matter whether he or she is employed or not, to understand the relationship between employment status and access to licenses. The second one, only including those employed, is to study the relation between log wages and log working hours, respectively, to licensing eligibility of DACA recipients. There is an average of 6,000 individuals (except there are only 3,786 individuals in the 2020 sample) in the sample each year. In order to use the SCM method, we aggregate individuals' data to state-level average data from 2007 to 2020.

Methodology

We applied a generalized synthetic control (GSC) identification strategy proposed by Yiqing Xu to identify the effects of granting licenses to DACA recipients on employment rate, log wage, and working hours (Xu, 2017). The choice of this method was motivated by the limitations of the commonly used approach in similar studies-Difference in Difference (DiD) (Lechner et al., 2011). The underlying assumption of DiD is the "parallel trends": in the absence of the treatment, the average outcomes of the treated and control units would have followed parallel paths. However, due to the possibility of time-varying confounders (across units or periods), the "parallel trends" assumption may fail or not hold in the real- world data. Moreover, we cannot conduct a random control trial to randomly allocate the treatment in the sampled population. Because we used observational data from CPS, we needed to find a better method without stringent assumptions but that suitably estimates the dynamic effects of policy change when the states implement the policy at different times.

There are three advantages to using the GSC method. First, the traditional synthetic control method is only for cases with only one treated unit. The GSC method extends the SCM to more general cases with multiple treated units or variable treatment periods. Second, the GSC method uses all observations or information from the control group, improving the efficiency of the synthetic control method (SCM). Third, the GSC method embeds a cross-validation process to automatically pick up the optimal number of factors, reducing the over-fitting (Xu, 2017). The functional form of the GSC strategy is:

$$Y_{s,t} = \sigma_{s,t} D_{s,t} + X'\beta + \lambda' f_t + \epsilon_{s,t} \tag{1}$$

where $D_{s,t}$ equals 1 if state s in year t has been exposed to granting licenses to DACA recipients, otherwise, it equals 0; $\sigma_{s,t}$ represents the heterogeneous treatment effect in the state s in year t. $X_{s,t}$ is a vector of other observable covariates; β is a vector of unknown parameters. f_t is a vector of unobserved common factors. λ_s is a vector of unknown factor loadings. $\epsilon_{s,t}$ denotes the unobserved idiosyncratic disturbances for the state s in year t. λ_s takes a linear, additive form, catching various unobserved heterogeneities, including time and state fixed effects and state-specific linear and quadratic time trends.

In each of the regressions on labor market outcomes of DACA recipients, $Y_{s,t}$ represents three different outcome variables: the average unemployment rate of DACA recipients in the state s and year t, the log of the weekly working hours, and the log of the hourly wages of DACA recipients in the state s and year t. $X_{s,t}$ includes the observed covariates: average female ratio in the total population, average age, marriage ratio, race ratio (White, Black, Hispanic, Asian, and others), and average years of education of DACA recipients in the state s and year t.

MAIN RESULTS

In this section, we present the results, beginning with the summary statistics in both treated and control groups pre- and post-treatment. We also present the overall average treatment effect (ATT) on employment rate, log wages, and log working hours of DACA recipients.

Summary Statistics

Since 2014, 17 states, including Arkansas, California, Florida, Nebraska, Nevada, New Jersey, Utah, etc., have started to include DACA recipients as eligible candidates for any occupational licenses. 33 states have not enacted policy or law to grant licenses to DACA recipients. In order to get a clean and balanced dataset, we ignore the states with missing data due to small sample size or no information available. We ignore 11 states of which one state is in the treated group and 10 in the control group. Finally, we get 16 treated states and 23 states as the control group. Figure 1 shows the status of all these 39 states from 2007 to 2020. Each rectangle represents a state-year combination in the figure. Figure 1 also visualizes the length of the treatment periods for each treated unit and displays their different effective years for the licensing policy change.

We also provide a descriptive of the average labor market outcomes pre- and post-intervention for the two groups-the treated and control group. We begin by examining the average employment rate of DACA recipients in both treated and control groups. The employment rate in the control group increased from 0.9 to 0.913 after treatment, while from 0.888 to 0.916 in the treated group. Likewise, the wages and working hours respectively grow from 2.42 to 2.5 and 3.49 to 3.53 in the control while from 2.37 to 2.66 and 3.47 to 3.54 in the treated group. From the average change, we can conclude that the positive improvements in the labor market in the treated group seem more substantial than in the control group, which may be promisingly explained by licensing policy intervention (See Table 1).

TABLE 1
AVERAGE OUTCOMES FOR THE TWO GROUPS-TREATED AND CONTROL GROUPS
PRE- AND POST- INTERVENTION

Time	State	Employment rate	Log wages	Log working hours
Pre-treatment	Control	0.900	2.420	3.490
Pre-treatment	Treated	0.888	2.370	3.470
Post-treatment	Control	0.913	2.500	3.530
Post-treatment	Treated	0.916	2.660	3.540

Average Treatment Effect

Table 2 presents the overall average treatment effect (ATT) of the treated states on the employment rate, log wages, and log working hours of DACA recipients. I show results with standard errors that are calculated by parametric bootstraps 1,000 times. All regression results include both state and year fixed effects (See Table 2). The impacts of the policy changes do not appear significant at any level, even though the coefficients are all negative. The employment rate of DACA recipients is 0.7 percent lower after granting licensing. The wages decrease by 1.2 percent and working hours decline by 2.6 percent. These results are not expected, compared to what we discussed in the Institutional Background section.

TABLE 2
IMPACT OF GRANTING LICENSES TO DACA RECIPIENTS ON
LABOR MARKET OUTCOMES

Outcome variables	Employment rate	Log wages	Log working hours
	-0.007	-0.012	-0.026
	(0.016)	(0.030)	(0.027)
State fixed effect	YES	YES	YES
Year fixed effect	YES	YES	YES
Treated states	16	16	16
Control states	23	23	23

*Note: Standard errors are in parentheses and calculated by parametric bootstrap of 1,000 times. ***, ** and * implies the 1%, 5% and 10% statistically significant levels, respectively.*

We then plot the results of the ATT over time, displayed in Figures 1-3 (See Figure 1-Figure 3). The vertical line represents the policy change at time zero or when the treatment happened. We note a fluctuated deviation between the actual and the counterfactual for the employment rate over time (first decreasing, then increasing, then decreasing deviation between the actual and counterfactual). This result confirms that there are no significant impacts of the policy change on the employment of DACA recipients over time. Regarding the log wages, the ATT goes up for two periods, then decreases and becomes more fluctuated.

FIGURE 1
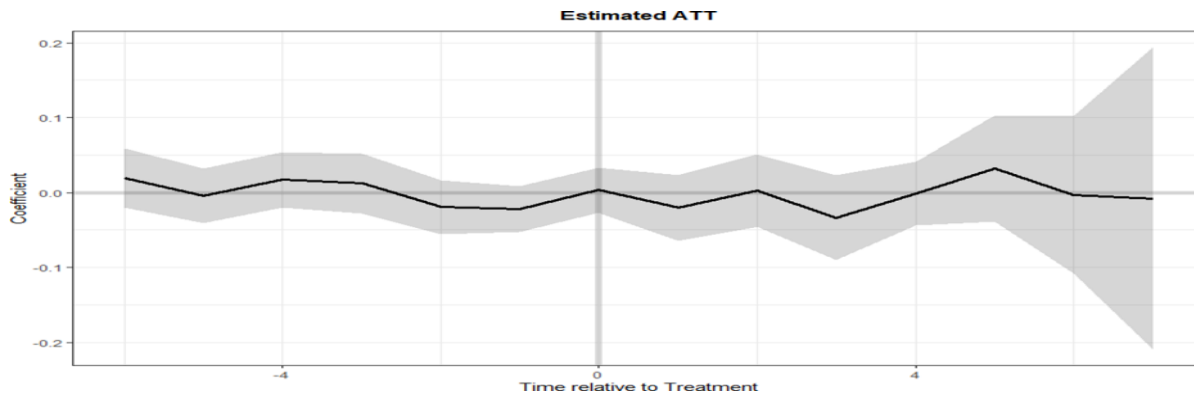**AVERAGE TREATMENT EFFECT ON THE TREATED-EMPLOYMENT RATE**

FIGURE 2
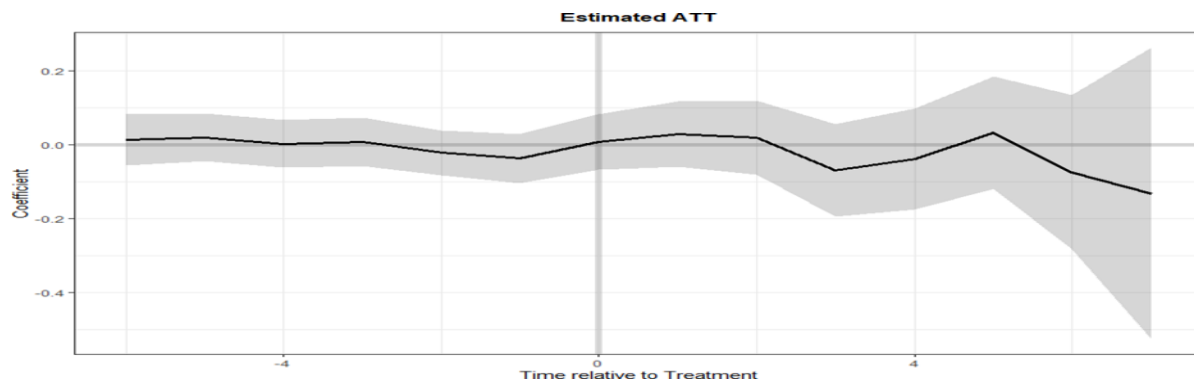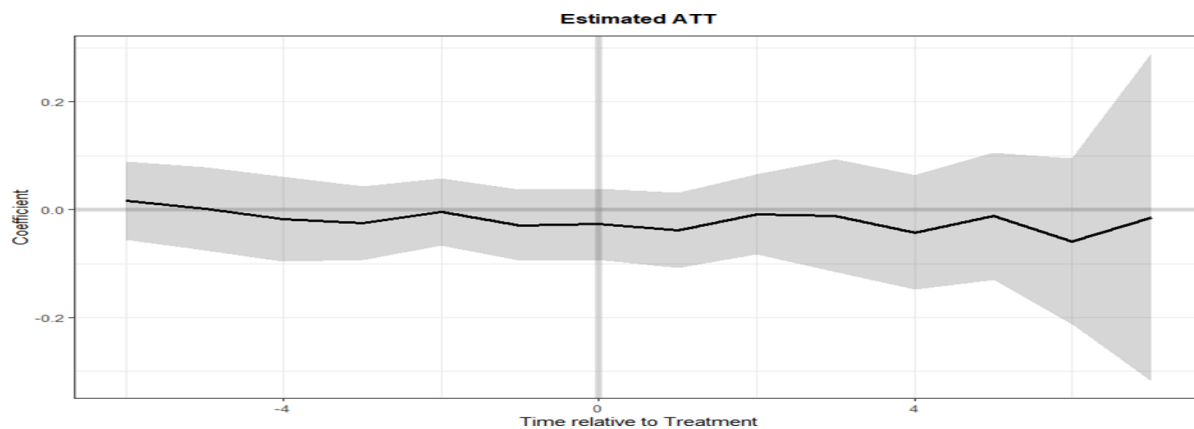**AVERAGE TREATMENT EFFECT ON THE TREATED-LOG WAGES**

FIGURE 3
AVERAGE TREATMENT EFFECT ON THE TREATED-LOG WORKING HOURS

For a better view of the impact, we can refer to Figures 4-6 (See figure 4-Figure 6). They show the actual trends of employment rate, log wages, and working hours. For each outcome, the treatment is compared to its counterfactual. For the employment rate, the licensing access has fluctuated effects. From the treatment date, the employment rate of the states where the policy was enacted is below the

counterfactual for only two-year periods. For the log wages, we note a relatively continual positive gap for the first two-year periods after the policy change, but this gap gradually disappears over time. Regarding the log working hours, we prove that from the date of the event, the working hours of DACA recipients in treated states are below the counterfactual. This is consistent with the results in Figures 1-3 above.

FIGURE 4
VARIABLE TRENDS, TREATED AND COUNTERFACTUAL
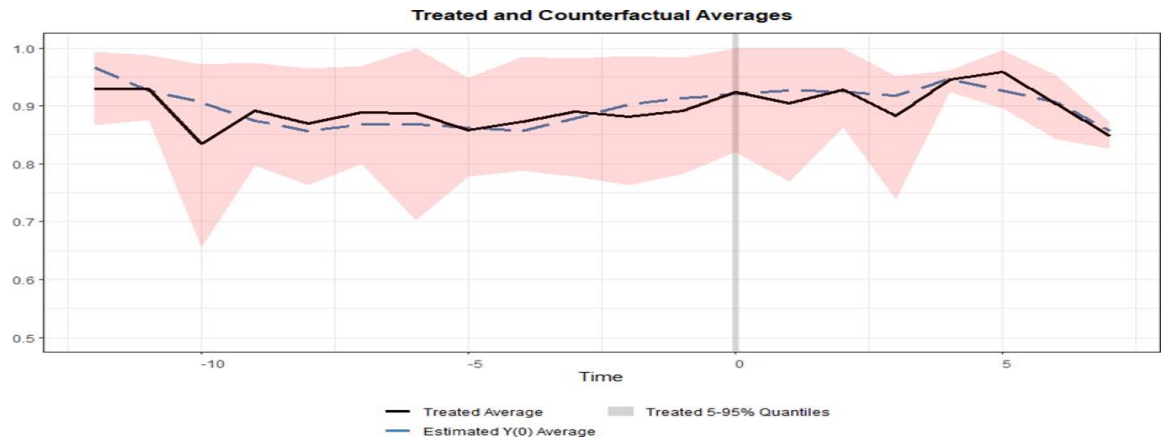**AVERAGE-EMPLOYMENT RATE**

FIGURE 5
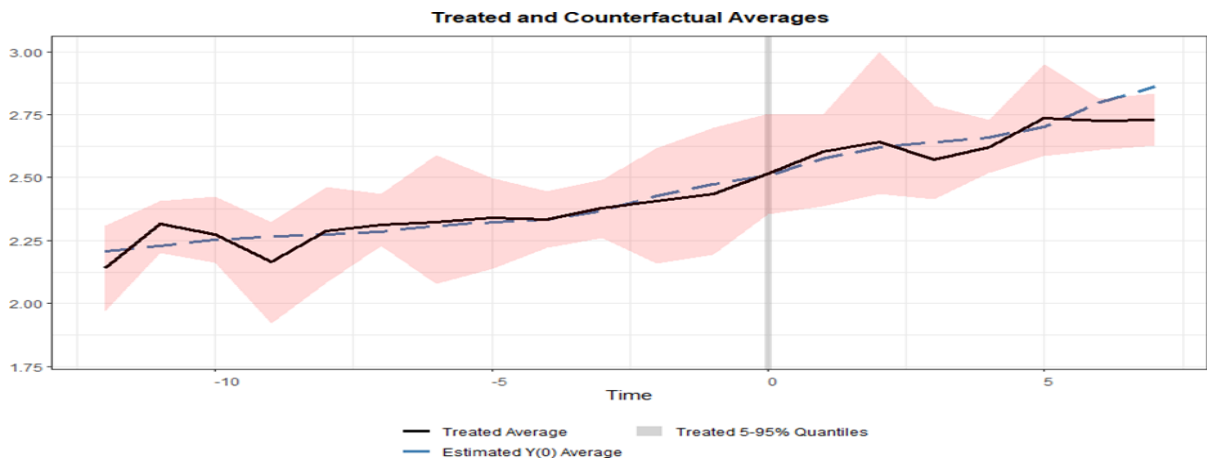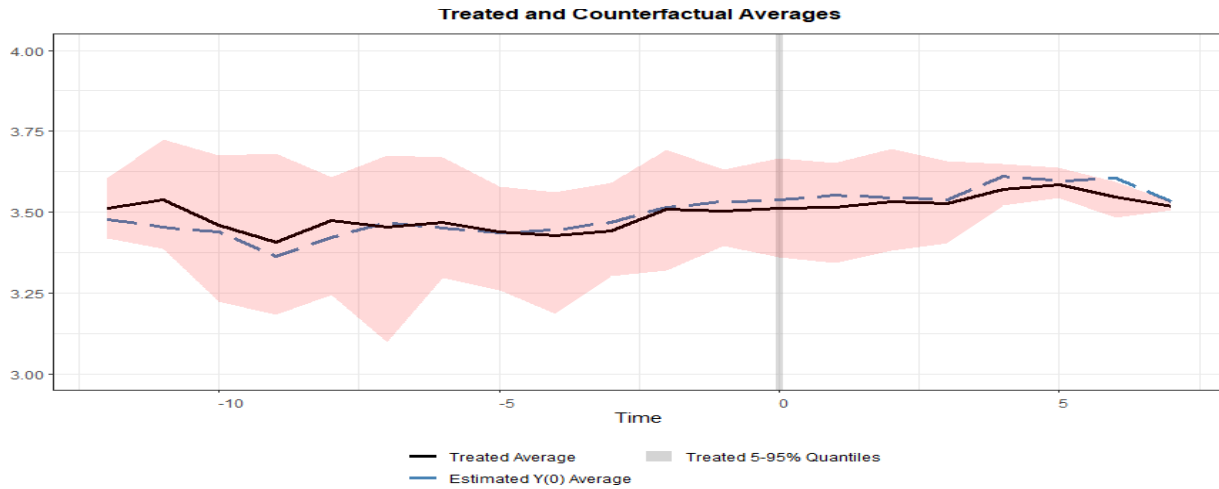**VARIABLE TRENDS, TREATED AND COUNTERFACTUAL AVERAGE-LOG WAGES**

FIGURE 6
**VARIABLE TRENDS, TREATED AND COUNTERFACTUAL AVERAGE-LOG
WORKING HOURS**

We now take a more granular look at the treatment effect. We consider the effect of each post-treatment on all labor market outcomes. The results are in Table 3. First, there are no significant impacts on any of the three outcome variables for all five periods. Second, only period 0 to 2 shows a positive impact on wages but this impact dissipates. Thirdly, there is a negative effect on working hours for all periods, including the treatment year. All results here are consistent with the graphic results above. (See Table 3).

TABLE 3
**IMPACT OF GRANTING LICENSES TO DACA RECIPIENTS ON LABOR
MARKET OUTCOMES**

Outcome variables	Employment rate	Log wages	Log working hours
Post-treatment Periods			
0	0.003	0.007	-0.027
	(0.830)	(0.846)	(0.410)
1	-0.020	0.028	-0.039
	(0.308)	(0.528)	(0.271)
2	0.003	0.020	-0.009
	(0.911)	(0.703)	(0.808)
3	-0.034	-0.070	-0.011
	(0.242)	(0.263)	(0.819)
4	-0.001	-0.039	-0.043
	(0.948)	(0.559)	(0.408)
5	0.032	0.032	-0.012
	(0.336)	(0.688)	(0.832)
State fixed effect	YES	YES	YES
Year fixed effect	YES	YES	YES
Treated states	16	16	16
Control states	23	23	23

*Note: ***, ** and * implies the 1%, 5% and 10% statistically significant levels, respectively. P-values in parentheses.*

In conclusion, the policy change of granting licensing to DACA recipients has no significant effects on the examined labor market outcomes. There is a short-term increase in wages after the policy intervention,

but this increase disappears over time. The likely reason is that there is a short-term boom in applying for licenses after the policy change. A backlog of immediately eligible candidates will take the first opportunity to apply for licenses, which may cause more apparent but short-term effects from the policy change, while the remaining pool of candidates will gradually return to the normal rate of application. After access to licenses, DACA recipients seem to work fewer hours, but not significantly at any level.

Alternative Specifications

From the results of ATT above, we conclude that granting licenses to DACA recipients has no significant effects on their labor market outcomes. The wages of DACA recipients only increase for short periods, then the effects dissipate. After the policy change, the working hours seem to decline, but not significantly. In order to understand more detailed changes in the labor market outcomes of DACA recipients, we also conduct alternative GSCs using more outcome variables: the ratio of full-time workers, the ratio of recipients who were paid by hours, and the ratio of recipients who hold different educational attainment levels (high school dropouts, high school degrees, associate degrees, and bachelor's degree), respectively, to all recipients (See Table 4).

TABLE 4
IMPACT OF GRANTING LICENSES TO DACA RECIPIENTS ON OTHER OUTCOME VARIABLES

Outcome variables	Full-time job ratio	Paid by hours ratio	High school dropouts	High school degree	Associate degree	BA degree
	-0.013	-0.008	0.030	0.002	0.002	0.017
	(0.509)	(0.741)	(0.209)	(0.955)	(0.954)	(0.199)
State fixed effect	YES	YES	YES	YES	YES	YES
Year fixed effect	YES	YES	YES	YES	YES	YES
Treated states	16	16	16	16	16	16
Control states	23	23	23	23	23	23

Note: ***, ** and * implies the 1%, 5% and 10% statistically significant levels.

We note that all results are not significant at any level. However, there is a slight decrease in the full-time worker and paid by hours workers ratios, contributing to the decline in working hours. In addition, there is a rise in the ratio of recipients who have a high school or higher degree. The benefits like wage premium through licensing may encourage recipients to attend school and pursue higher education due to the education requirements of certain licenses.

FURTHER DISCUSSION AND CONCLUSION

Since 2014, 17 states have enacted policies allowing DACA recipients access to occupational or professional licenses, which further protects the DACA recipient's legal rights and contributes to a more permanent solution for undocumented youths in the U.S. This paper uses empirical analysis to understand whether access to states' occupational licenses significantly alters DACA recipients' labor outcomes by opening opportunities for more jobs and professional careers.

We firstly define state law changes regarding granting licenses to DACA recipients in 50 states. We use these changes to separate states as treated or the control group. Combined with periods in our sample, we further specify two groups at two periods, pre- and post- treatment. Second, by conducting GSC, we find that access to professional licenses has no significant effects on DACA recipients' labor market outcomes. For the short-term analysis, licensing accessibility seems to increase recipients' wages, but this positive impact gradually disappears in the long term. Somehow, the policy change slightly declines the

recipients' working hours, but the effect is not significant. After the licensing eligibility, DACA recipients are more likely to attend a school or continue higher education such as associate degrees, which confirms the attraction of wage premiums or benefits of acquiring licenses.

In sum, we find a non-significant positive effect on labor market outcomes for DACA recipients when they can access occupational licenses. However, there are a few limitations of evidence for this study. First, because most policy changes happened in 2014 or later, we do not have a long enough period after the intervention to test the impacts of the policy changes in the long term. Second, the whole data period, especially the pre-treatment period, is limited for an optimal GSC model. Third, we may conduct measurement errors in data cleaning or analysis because we use estimated samples from CPS rather than direct data samples. Moreover, there are missing data in states with a small undocumented youth population, such as Montana and Maine. Because of the missing data, we cannot collect all states in our GSC models, which may decrease the power of the counterfactual.

While policymakers intend to improve the situation of undocumented youth, they should more thoroughly consider the barriers for these youth to live and work in the U.S. Even though the DACA policy has granted recipients work permits and temporary protection from deportation, their undocumented status is still blocking access to equal resources and opportunities. When more motivated and educated "dreamers" are willing to and have the ability to pursue professional careers, policymakers should fully utilize the talents, advantages, or potentials of our undocumented immigrants. However, because of the complexity of our licensing system and the special characteristics of immigrants, policymakers should also consider our consumers' concerns around their needs and safety, professional market development, economics opportunities, and the welfare of our whole society.

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