Education, Crowding-out, and Black-White Employment Gaps in Youth Labor Markets: Evidence from No Pass, No Drive Policies

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Abstract

We study how educational attainment and school enrollment status differentially affect Black and White teen part-time employment in the context of No Pass, No Drive policies. These policies require that teens maintain enrollment and regular attendance in school in order to hold a driver's license, and previous research (Barua and Vidal-Fernandez 2014; Kennedy 2020) shows they cause large increases in school enrollment and educational attainment. Using difference-in-differences estimation, we find that No Pass, No Drive policies cause a 5 percentage point increase in Black teen part-time employment, but do not cause an associated change in White teen employment. Rather, this increase in Black teen part-time employment is offset by a 1.7 percentage point decrease in part-time employment for White young adults (aged 18-25). Event study specifications show that these patterns are driven by long-term compositional changes in the young adult workforce. There are no immediate effects of No Pass, No Drive policies on employment, but these policies cause an increase in the educational attainment of teens, who then become less likely to accept part-time work as young adults. This evidence suggests substantial "crowding out" of Black teens by young adults in part-time work, and that efforts to promote full-time work or post-secondary school attendance for young adults may additionally aid Black teens in part-time job finding.

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1 Introduction

In the United States, 26.4 percent of all teens aged 16 or 17 participate in the labor force, accounting for nearly 2 million jobs.[1] Despite the large size of teen labor markets, many conventional questions in labor economics have been understudied in the context of teen labor markets. The effects of minimum wages have been the primary focus of economists on teen labor markets, likely because teen labor markets are dissimilar from other labor markets; teen employment is largely in low-skilled, low-paid, part-time, temporary jobs that are unlike the conventional labor market for adults.[2] In this study, we examine how educational attainment and access to transportation affect Black-White employment differentials and racial discrimination in teen labor markets, looking specifically at No Pass, No Drive policies in the US.

No Pass, No Drive (NPND) policies are widespread, low-cost policies that have been implemented in 28 states since 1988. These policies mandate that teens fulfill school-related requirements in order to legally hold a driver's license. In this study, we focus solely on the largest group of NPND policies, which Kennedy (2020) classifies as "Enrollment-based policies." Enrollment-based policies require that teens remain in school and regularly attend (typically at least 90% attendance required) to legally hold a driver's license while under the age of 18. These policies have been shown by Kennedy (2020), Barua and Vidal-Fernandez (2014), and Krimmel (2000) to increase the likelihood that teens remain in school. We use difference-in-differences estimation to identify the effects of Enrollment-based policies on teen employment, exploiting the rollout of these policies over 20 states and 25 years. Combining increased school enrollment with the revocation of licenses for teens who do not comply with NPND policies (i.e. truant and dropout students), we would expect that Enrollment-based NPND policies reduce teen employment.

Instead, we find that Enrollment-based policies cause a 0.7 percentage point *increase*, though statistically insignificant, in teen part-time employment, with no associated decrease in teen full-

[1] Source: Current Population Survey 2018

[2] See Brozen (1969), Wellington (1991), Portugal and Cardoso (2006), Giuliano (2013), and many others for minimum wage studies focusing primarily on teen labor markets.

time employment. Furthermore, we find this gain in part-time employment is only realized by Black teens; Black teen part-time employment increases by 5 percentage points, with no decrease in White teen part-time employment. Given that NPND policies should not increase overall labor supply or demand, we look at the effects of NPND policies on young adult employment. After the first few years of a NPND policy, young adults were treated by the policy as teens, so NPND policies may be causing compostional changes in the youth labor force. We find that young adult part-time employment (ages 18-24) decreases by 1.4 percentage points due to NPND policies. Further investigating by race as before, we find that this reduction in part-time employment comes entirely from White young adults – we find null effects for Black young adult part-time employment, and, if anything, positive effects on Black full-time employment. Event studies show that none of these effects occur immediately, but rather begin 2-5 years after the implementation of a NPND policy.

Taking all of these results together, our findings suggest that NPND policies reduce Black-White teen employment gaps not by causing Black teens to displace White teens from part-time jobs, but rather by causing Black teens to fill part-time jobs left vacant by White young adults, who increased their educational attainment due to the NPND policy and no longer participate in the part-time labor market. This has important implications for our understanding of racial dynamics in the youth labor force. There is a small literature on racial discrimination and disparities in teen labor markets. Derenoncourt and Montialoux (2020) study the effects of minimum wages on racial disparities, showing that the expansion of industries covered by the minimum wage in the 1966 Fair Labor Standards Act explains over 20% of the decrease in the Black-White wage gap during the Civil Rights Era. They do not focus solely on teen employment, but teen workers make up a large portion of their affected sample. Additional studies in urban economics show that spatial mismatch and job accessibility decrease Black teen employment, such as Ihlanfeldt and Sjoquist (1990), Larson and Mohanty (1999), and O'Regan and Quigley (1996). However, issues with education and discrimination also certainly exist in teen labor markets, and are important to our understanding of low-skilled and part-time work as well as the opportunity costs of secondary education. Numerous studies have shown that Black-White wage and employment differentials have stagnated or

even widened since the 1980s (Bound and Freeman, 1992; Chandra, 2000; Johnson and Neal, 1997; Rivkin, 1995; Bayer and Charles, 2018). Our results suggest that in teen labor markets, comparing employment effects between Black teens and White teens overlooks an important friction. Black teens appear to be crowded out of the labor market by White young adults, and NPND policies reduce these barriers by converting some White high school dropouts into high school graduates, opening up low-skill, part-time jobs that Black teens can easily fill.

2 Background

2.1 No Pass, No Drive Policies

Since 1987, there have been 28 states that have passed a No Pass, No Drive policy, tying teens' driver's licenses to their educational choices. Following Kennedy (2020), we categorize these laws into 3 groups based on their targeted educational outcomes. Enrollment-based policies, in 20 states, require that teens under age 18 maintain current school enrollment and abide by the school attendance laws of their states in order to maintain a driver's license – both high school dropouts and truant teens have their licenses revoked under these policies. Truancy-based policies, in 5 states, only require that teens satisfy their state's school attendance law in order to maintain a driver's license. This means that a truant teen (i.e. one who is skipping school) is penalized under these laws. However, a legal dropout would not be penalized under these laws; potentially, truant teens who had their licenses revoked could instead drop out of school altogether and have their licenses reinstated. Behavior-based policies, in 5 states, target teen behavior – primarily crime (either at school or in general) or non-criminal violations resulting in school suspension. The policies are listed in Table 1, reproduced from Kennedy (2020).

Twenty-six No Pass, No Drive (NPND) policies are currently ongoing; Delaware's was repealed in 2018, and Kentucky's was temporarily halted by their Supreme Court. There is heterogeneity in exemptions to these policies, shown in Table 1, but we do not exploit this variation because it

is unclear how widely these exemptions were enforced and utilized and whether other states had similar exemptions. Additionally, there is heterogeneity in the reporting mechanisms used in these states; for example, Kentucky uses an automatic electronic reporting system where students who drop out of school or fall below the minimum attendance threshold are "flagged" in the system and a notice is immediately sent to the state licensing office. Texas, however, requires teens submit a form to the licensing office each year signed by their school's registrar stating the teen has met all of the attendance requirements over the previous year. Due to the subjective nature of attempting to categorize these systems, and due to uncertainty in how electronic reporting systems were implemented over time, we also do not exploit variation in reporting systems.

2.2 No Pass, No Drive Literature

To our knowledge, only five empirical studies have been performed on No Pass, No Drive policies, mostly studying educational outcomes. Krimmel (2000) studies the initial rollout of the policy in Kentucky, where counties could opt-in to the policy for the first few years of the policy's life. He shows that counties enacting Kentucky's Enrollment-based NPND policy saw an initial 11 percent reduction in the dropout rate, compared to an 8 percent reduction in counties choosing not to implement the policy. This is consistent with the mechanisms we discuss in our study, where "marginal dropouts" delay their dropout decision, at least temporarily, under Enrollment-based NPND policies.

Barua and Vidal-Fernandez (2014) study NPND policies on a national level, looking at high school completion, completed grades, and some student time use outcomes. They find that years of schooling increased by 0.05, and the probability of graduating high school increased by 1 percentage point. They also look at the Monitoring the Future teen time use survey, and find that NPND policies reduce the probability of skipping school (-1.8%), increase weekly hours of homework (+0.2 hours), reduce weekly working hours (-0.1 hours), increase the proportion of teens with licenses (+0.7%), and marginally decrease the probability of having a traffic accident (-1.6%). Barua and

Vidal-Fernandez (2016) study the effects of NPND policies on juvenile crime, finding that NPND policies cause declines in violent, property, and drug crimes among teenage males. Additionally, Gilpin (2019) finds that NPND policies decrease traffic fatalities by 7.3%, mostly through incapacitation effects.

Our analysis differs along a few key dimensions. First, our data is representative of *all teenagers*, while the Monitoring the Future survey used by Barua and Vidal-Fernandez (2014) is only representative of *teen high school students*, and does not include any high school dropouts. Given that all education-related papers in the NPND literature show that NPND policies cause marginal dropouts to change their decisions, it is crucial to include high school dropouts in our sample to avoid selection issues. This issue is most easily seen in Barua and Vidal-Fernandez's result on the proportion of teens with driver's licenses – NPND policies increase the proportion of teens with a driver's license by 0.7 percentage points among teens enrolled in school, but the NPND policies, if enforced, revoke the driver's licenses of teen dropouts. Given that 5-10% of all teens drop out of high school, Enrollment-based NPND policies would only need to revoke the licenses of one fifth of all dropouts to cancel out the increase shown by Barua and Vidal-Fernandez. Second, we categorize NPND policies into three groups based on their targeted educational outcomes, as mentioned in the previous section. Given that the three policies have different effects on educational outcomes, they will presumably have different effects on teen behavior as well.

The final study on NPND policies is Kennedy (2020), which studies how NPND policies affect their targeted educational outcomes, and demonstrates the unique education policy environment we exploit in our study. He studies how NPND policies affect retention and dropout behavior, showing that Enrollment-based NPND policies cause a false reduction in many common graduation rate estimates, caused by a 2.8 percentage point increase in 9th grade enrollment. Enrollment-based policies increase school enrollment by causing marginal dropouts to repeat the 9th grade instead of dropping out of school. Truancy-based policies have an near-opposite effect – these policies induce students to drop out of school by revoking the driver's licenses of truant teens. The annual

event dropout rate increases by 1.4 to 2 percentage points, and 11th grade enrollment decreases, corresponding to teens dropping out of school at the first available opportunity. Enrollment-based policies have little effect on late high school enrollment, causing large increases in 9th and 10th grade enrollment, while Truancy-based policies have no effect on early high school enrollment, causing large decreases in 11th and 12th grade enrollment and graduation. Overall, both Barua and Vidal-Fernandez (2014) and Kennedy (2020) show that Enrollment-based NPND policies cause marginal high school dropouts to instead remain in school, with simultaneous increases in educational attainment and grade retention occurring as a result.

3 Data and Methods

3.1 Data

Information on when each state enacted NPND policies is taken from Kennedy (2020). Details including the date of implementation and the categorization of policies are originally from each state's code of laws and legislative histories. We use teen and adult employment data from the Current Population Survey (CPS) cross-sectional data, omitting Alaska, Hawaii, and Washington DC.

There are about 260,000 teenagers aged 15 to 17 between 1985 and 2014. We focus on teens aged 15 to 17 because NPND policies only directly apply to these age groups. We also restrict our sample to avoid temporary summer work; a teen is employed if the number of weeks worked in the past year is more than 16. Since teens are usually employed part-time, we also separately investigate the effects of NPND policies on full-time and part-time employment. A teen is full-time employed if they worked more than 30 hours per week and more than 16 weeks in the past year, and is part-time employed if they worked more than 16 weeks but less than 30 hours per week.

Panel A of Table 2 reports summary statistics of our teen employment sample, regardless of

school enrollment status. About 27% of teens have a job, of whom 25% are employed full-time and 75% are employed part-time.[3] About 12% of teens are Black and 81% are White in the sample, which is consistent with the racial composition of the overall population. There is a large gap between Black and White teen employment. 30% of White teens are employed, twice the employment to population ratio of Black teens. Among employed White teens, 76% are employed part-time and 24% are full-time, compared to 69% and 31% for Black teens, respectively. Among those employed, Black teens are less likely to be employed part-time than White teens.

Since high school students and dropouts likely face different labor market conditions, Panel B of Table 2 reports summary statistics of teen employment by high school enrollment status. In the CPS, a teen was enrolled in high school full-time if in the previous year they were enrolled in high school or college full-time, enrolled in college part-time, or did not attend school but had already completed high school. Otherwise, they were considered high school dropouts.

About 93% of teens aged 15 to 17 are enrolled in high school full-time, while 7% had dropped out of high school. Only 5% of high school students are employed full-time, which is consistent with our expectation that high school students are have less available time for full-time work. About 21% of high school students have a part-time job. High school dropout teens, on the other hand, are less time-constrained than high school students, especially for full-time jobs. High school dropout teens are 6 p.p. more likely to hold a job than non-dropouts. 21% of dropouts are employed full-time and 11% are employed part-time. Similar patterns hold by race. Both White and Black high school students are more likely to hold part-time jobs and less likely to hold full-time jobs than their high school dropout counterparts. However, for those with the same school enrollment status, Black teens are less likely to have jobs than White teens. While 29% of White high school students hold jobs, only 14% of Black students are employed.

In our analysis, we control for state-level time-varying characteristics that may be related to the

[3] All statistics in Panel A are based on the total teen population of the corresponding category. 20.67% of teens are employed part-time, which is 75% of all employed teens.

enactment and effects of NPND policies. Teen population by sex and by race is from the Survey of Epidemiology and End Results (SEER) U.S. State and County Population data. State average income and unemployment rate are collected from the US Census Bureau and Bureau of Labor Statistics (BLS) respectively. Summary statistics for these data are reported in Panel C of Table 2

The teen labor market overlaps with the adult labor market, especially for young adults who were recently affected by No Pass No Drive policies. Therefore, NPND policies may also affect the young adult labor market. In the CPS, an adult is employed full-time if they are employed and their reported usual hours worked per week are greater than 35 hours, and are employed part-time if they are employed and their usual hours worked per week are less than 35 hours.

Panel A in Table 3 reports summary statistics of employment status for young adults aged 18-25. About 54% of young adults are employed full-time and 25% are employed part-time. 16% more young men than women are employed full-time and 8% more young women than men are employed part-time. Black young adults are 10% less likely to hold a full-time job and 4% less likely to hold a part-time job than White young adults. Thus the overall employment rate of Black young adults is 14% lower than for White young adults.

Barua and Vidal-Fernandez (2014) and Kennedy (2020) find that NPND policies increase educational attainment, which will likely further affect labor market outcomes. In Panel B of Table 3, we report summary statistics of young adult employment by educational attainment. Individuals whose highest years of schooling completed was 12 or above are considered high school graduates; otherwise, they are high school dropouts.[4]

About 64% of high school dropouts are employed, which is 17% lower than for those who have completed high school. For both White and Black, young adult high school graduates are more likely to be full-time and part-time employed. However, regardless of educational attainment, White

[4]People who completed 12^{th} grade but did not receive diploma are recognized as high school dropouts, and people whose high school diploma is unclear are dropped.

young adults are more likely to be employed and employed full-time than Black young adults. The gap in employment between White and Black young adults is wider for high school dropouts.

3.2 Methods

We perform difference-in-differences estimation with two-way fixed effects to identify the causal effect of No Pass, No Drive policies on employment using the estimating equation below:

$$Employment_{i,s,t} = \alpha + \beta Policies_{s,t} + \delta_t + \lambda_s + \theta X_{i,s,t} + \varepsilon_{i,s,t} \tag{1}$$

In the equation above, the outcome variables are binary indicators for whether an individual is employed, employed full-time, or employed part-time. The subscript i indexes survey respondents, s indexes states and t indexes year. The term $Policies_{s,t}$ is a dummy variable containing our three NPND policy categories, and is equal to 1 if state s has a policy in year t. $X_{i,s,t}$ includes controls varying at the individual and state-year level – these include race, gender and age at the individual level, and log median income, unemployment rate, and log teen population (ages 15-17) at the state-year level. We include state and year fixed effects (λ_s and δ_t, respectively) to control for unobserved time invariant characteristics of each state, and national time-varying trends.

To examine racial differences of the effects of NPND policies on teen employment, we perform analogous estimation by adding interaction terms between NPND policies and race. So we modify our estimating equation as:

$$Employment_{i,s,t} = \alpha + \beta Policies_{s,t} + \psi Policies_{s,t} \times Black_i + \delta_t + \lambda_s + \theta X_{i,s,t} + \varepsilon_{i,s,t} \tag{2}$$

Outcome variables and controls in $X_{i,s,t}$ are the same as in Equation (1). The term $Black_i$ is a dummy variable equal to 1 for Black individuals. In addition, we examine the dropout decisions

of teens to verify if our results are consistent with the literature and to test for differential effects of NPND policies on high school dropout rates by race. The estimating equations are the same as Equations (1) and (2), except that the outcome variable is a binary indicator equal to 1 if a teen is a high school dropout, and equal to 0 if enrolled in high school full-time.[5] he effects of NPND policies on young adult employment are examined using Equation (1), but excluding the term $Unemp.\ Rate_{s,t}$.[6]

As is typical in the difference-in-differences literature, we also estimate a dynamic event study specification, allowing the effects of NPND policies to vary over time. This specification not only allows us to test whether pre-existing trends in the outcome were parallel; it also allows us to examine important dynamics in the effects of NPND policies over time. Although NPND policies only directly affect teens, after the first few years of the policies' existence young adults were affected by NPND policies when they were teens. Given that NPND policies increase educational attainment and reduce dropout rates (Barua and Vidal-Fernandez, 2014; Kennedy, 2020; Krimmel, 2000), these policies may also affect young adult employment with a 2–5 year lag. A general form of our event study specification is presented below:

$$\begin{aligned} Employment_{i,s,t} =& \alpha + \sum_{\substack{-10 \leq k \leq 10, \\ k \neq -1}} \beta_k \mathbb{1}(NPND\ Enactment\ Year_{s,t+k}) \\ &+ \delta_t + \lambda_s + \theta X_{i,s,t} + \varepsilon_{i,s,t} \end{aligned} \tag{3}$$

In Equation (3) we are interested in β_k, the dynamic effects of the NPND policy, measured k years away from the enactment of the policy. We omit $k = -1$, the year before the policy, and stack all effects $k > 10$ and $k < -10$ into the endpoints, as is standard in the literature. In other specifications, we are interested in differential dynamic effects by race. To test this, we augment

[5] Teens aged 15–17 who are enrolled in high school part-time or enrolled in college are excluded from the analysis.

[6] State-year unemployment rates are highly collinear with adult part-time employment. These are far less correlated with teen employment, as teen labor force participation is lower than adult LFP, is less cyclical, and has mostly followed a downward trend across our sample.

the dynamic effects in Equation (3) with an interaction as below:

$$\begin{aligned} Employment_{i,s,t} =& \alpha + (\sum_{\substack{-10 \leq k \leq 10, \\ k \neq -1}} \beta_k \mathbb{1}(NPND\ Enactment\ Year_{s,t+k}) \\ &+ \gamma_k Black_i \times \mathbb{1}(NPND\ Enactment\ Year_{s,t+k}) \ ) \\ &+ \delta_t + \lambda_s + \theta X_{i,s,t} + \varepsilon_{i,s,t} \end{aligned} \tag{4}$$

In Equation (4) the differential effects by race are given by γ_k – the dynamic treatment effects for White individuals are equal to β_k, while the dynamic treatment for Black individuals are equal to $\beta_k + \gamma_k$. In both Equations (3) and (4) the variables δ_t, λ_s, θ, $X_{i,s,t}$, and $\varepsilon_{i,s,t}$ have the same meaning as in Equations (1) and (2).

Our identifying assumption throughout is the typical parallel trends assumption – that states without No Pass, No Drive policies provide a valid counterfactual for the trend that states with No Pass, No Drive policies would have followed, had they not enacted a policy. Given the identifying assumption holds, our estimates identify the causal effects of No Pass, No Drive policies on employment.

4 Results

4.1 NPND Effects on Youth Labor Markets, Overall and by Race

No Pass, No Drive policies make it more difficult for teens to receive and maintain a driver's license. Barua and Vidal-Fernandez (2014) and Kennedy (2020) show that NPND policies also cause teens to remain in school for longer than they otherwise would, whether by increasing their educational attainment or by delaying their eventual dropout decision. A priori we would expect both of these channels to decrease teen employment; teens who no longer have a driver's license

due to an NPND policy face additional costs of commuting to work, and teens who are enrolled in school have less time available for work than high school dropouts. However, if high school enrolled teens are preferred by employers to high school dropouts, then NPND policies may increase teen employment by encouraging high school enrollment. In addition, increasing educational attainment may cause long-termn compositional changes in low-skill labor markets. Overall, the predicted effects of NPND policies on teen employment are ambiguous.

Table 4 reports the effects of NPND policies on overall teen employment rates, as well as split by full- and part-time employment status and by race. Columns (1)-(3) present the effects of NPND policies on teen employment. We do not find significant effects of NPND policies on teen employment rates overall. However, we find racial differences in response to NPND policies, shown in Columns (4)-(6) of Table 4. In all three columns, White teen employment is neither significantly nor substantially affected, with precisely estimated null effects. However, Black teen employment is significantly increased by Enrollment-based NPND policies; overall, Black teen employment increased by 6.6 percentage points, and part-time Black teen employment increased by 5.3 percentage points due to the enactment of an Enrollment-based NPND policy.[7] About 21 percent of all teens are employed part-time, amounting to about 75 percent of all employed teens. Our results in Columns (4)-(6) of Table 4 suggest that the increases in Black teen employment are primarily driven by increasing Black part-time employment, while White teen employment is not affected.

The underlying assumption of our estimation is the typical parallel trends assumption: that trends in the teen employment rate in treated states would be parallel to trends in untreated states in the counterfactual where treatment never occurred. To examine this, Figure 1 reports event study figures for Columns (4)-(6) in Table 4, from estimating equation (4).[8] Panel (a) in Figure 1 shows that both White and Black teens have similar and relatively flat pre-policy trends in overall employment. After the enactment of NPND policies, the overall employment trend of White teens

[7]Since Behavior-based policies and Truancy-based policies are relatively rare, bootstrap-based inference procedures typically fail to reject the null. As a result, we only focus on the effects of the far more common Enrollment-based policies in this paper.

[8]Event studies for Columns (1)-(3) in Table 4 are reported in Appendix Figure A1.

is unaffected. However, the overall employment of Black teens increases over time and is significantly different from White teens. In Panel (b) of Figure 1, pre-policy trends of Black and White teen full-time employment are similar and flat. Full-time employment of Black teens increases after the NPND policies; but this effect does not grow over time. We do not observe changes in White teen full-time employment. The trends for White and Black teen part-time employment in Panel (c) are similar to trends in Panel (a), suggesting that the effect of NPND policies on Black teen employment is mainly driven by increasing part-time employment. Our results in Columns (4)-(6) of Table 4 suggest that White and Black teens respond to NPND policies differently.

Many young adults were affected by NPND policies during their teenage years. Since previous studies have found that NPND policies increase educational attainment, the labor market choices of young adults who were affected by NPND policies when they in high school may be different from those who did not. In addition, the NPND policy effects in teen and young adult labor markets may be interconnected. High school graduates are more likely to find a job and can often find a better job than high school dropouts. Thus, NPND policies may increase young adult employment by increasing their educational attainment. As higher education may change individuals' career paths by improving their job opportunities, the labor market composition of young adults may be altered by NPND policies.

Table 5 reports the effects of NPND policies on the employment of young adults aged 18–25. Columns (1)-(3) show the effects of NPND policies on young adult employment. In Column (1) we do not find a significant effect of NPND policies on the overall employment rate of young adults. Column (2) shows that NPND policies increase full-time employment by 1.25 percentage points, though it is not statistically significant. Column (3) shows that the part-time employment rate of young adults is significantly decreased by 1.42 percentage points due to NPND policies. For part-time jobs, there may be competition between teens and young adults. Labor demand for part-time jobs should be unaffected by NPND policies. Since the part-time employment of White teens is unaffected by NPND policies, the increasing part-time employment of Black teens can be

explained by the decreasing part-time employment of young adults. We also test the existence of racial differences in response to NPND policies among young adults, reported in Columns (4)-(6). In Column (6), the part-time employment rate of White young adults decreases by 1.74 percentage points due to NPND policies, while the part-time employment rate of Black young adults is not affected. In Column (5), we find that the full-time employment rate of White young adults is unaffected by NPND policies, but the full-time employment rate of Black young adults increases by 2.52 percentage points. Thus overall, NPND policies decrease the likelihood of holding a job for White young adults by 1.13 percentage points, and increase the likelihood of holding a job for Black young adults by 3.54 percentage points.

Figure 2 reports event study figures showing racial differences in response to NPND policies for young adult employment. In all three panels, White and Black young adults have flat pre-policy trends. In panel (a), pre-policy trend of White young adults is slightly positive, dropping to zero post-policy, which results in negative point estimates in Column (4) of Table 5. This pattern is likely due to our choice of omitted year at $t-1$, but is somewhat concerning. In Section 4.3 we present detrended estimates which should correct for linear pre-policy trends. In panel (b), White young adult full-time employment no post-policy changes. However, Black young adult full-time employment trends upward after the policy. This lagged effect of NPND policies on Black young adults part-time employment is likely caused by the graduation of Black young adults from high school. In panel (c), part-time employment of White young adults is slightly positive in the pre-policy periods and around zero in the post-policy periods. Part-time employment of Black young adults remains near zero before and after the policies.

If NPND policies shift job opportunities between teens and young adults, our results in Tables 4 and 5 would suggest that NPND policies shift part-time jobs from White young adults to Black teens. However, according to previous studies, the educational attainment of both teens and young adults who were exposed to NPND policies should be increased by NPND policies. It is unlikely that employers at part-time jobs would prefer to hire Black teens over White young adults. In

addition, our results show that full-time employment of Black young adults increases after the enactment of NPND policies, growing over time. Therefore, NPND policies appear to increase Black teen part-time employment and Black young adult full-time employment and decrease White young adult part-time employment by raising educational attainment, resulting in changes in the composition of the labor force.

4.2 NPND Policies, Educational Attainment, and Employment

To examine these compositional changes in the youth labor force, we test the effects of NPND policies on the high school dropout rate of teens and young adults.[9] In Columns (1) and (2) of Table 6, we find that NPND policies decreased teen dropout rates by 1.36 percentage points. In addition, Black teen dropout rates are reduced by 2.37 percentage points. We find similar, but somewhat larger effects of NPND policies on young adult high school dropout rates in Column (3) and (4). NPND policies cause a 1.5 percentage point decrease in high school dropout rates for White young adults, and a 5.4 percentage point decrease for Black young adults, resulting in a 2.6 percentage point reduction overall. For both teens and young adults, NPND policies have larger effects on educational attainment for Black youths than White youths, consistent with Barua and Vidal-Fernandez (2014).

NPND policies increase school enrollment for both White and Black teens, but only increase employment for Black teens. It is unlikely that NPND policies would change labor demand for teens or young adults. Therefore, based on our findings, NPND policies appear to change the composition of low wage labor markets so that the policies differentially affect employment by race. Higher educational attainment due to NPND policies makes White young adults leave part-time work, either for full-time work or non-labor market activity.

[9]Here we examine the status dropout rate, the proportion of people who are not enrolled in school. For teens, this is equal to $1 - SchoolEnrollment$, and for young adults this is equal to $1 - HighSchoolCompletion$.

All of these results together suggest a widespread pattern of racial discrimination. White young adults are able to find employment regardless of their educational attainment, but Black young adults appear to only find full-time work if they have High School diplomas. Since NPND policies cause a large increase in Black high school completion, we see a large increase in Black full-time employment as well. In addition, employers may only be willing to hire Black teens if they cannot fill the position with a White young adult or a Black young adult graduate. White young adults who complete high school due to a NPND policy leave the part-time labor market, leaving positions open for Black teens to fill. Overall, by increasing youth educational attainment, NPND policies increase access to employment – directly for Black young adults, and indirectly for Black teens.

4.3 Two-Way Fixed Effects with Staggered Treatment Timing

Many recent studies have cast concern on the two-way fixed effects (TWFE) design when treatment takes the form of a staggered rollout across place and time. In this section, we examine the major critiques of this growing literature in the context of our study and provide a few robustness checks verifying the validity of our estimates presented previously in Section 4.

Goodman-Bacon (2018) shows that the TWFE design can be decomposed into a weighted average of 2x2 difference-in-differences comparisons. However, these comparisons are not necessarily straightforward, as "already-treated" groups can act as controls for "not-yet-treated" groups, and mechanically the weight on an individual 2x2 comparison can be negative. We begin by calculating the weights placed on each of our 2x2 comparisons, using the "bacondecomp" command in Stata (Goodman-Bacon et al., 2019). Figure 3 shows plots of the weights and the 2x2 difference-in-differences estimates for all comparisons made in our data.[10] Enrollment-based policies have 15 "timing groups" as a few states passed NPND policies simultaneously.

[10]Since our main object of interest in these regressions is the interaction between Enrollment-based policies and Black teens, we effectively estimate a triple difference model for these decompositions – treating each state as if it contained a "Black" state and a "White" state that were treated with NPND policies simultaneously. We also omit Kentucky, Louisiana, and Oregon from our sample, as they change their policy in the middle of our sample.

From these figures, we can see that the majority of our identification comes from "within" variation and a comparison of treated states to never-treated states. The within variation comes from partialling out the control variables; since the main variable of interest is the interaction of Enrollment×Black, the non-interacted Enrollment-based policy indicator is a control variable that, as should be expected, has high weight in the difference-in-differences design. The high weight on comparisons of treated to never-treated states is also unsurprising, since 28 of the 45 states in our sample were never treated with Enrollment-based policies. We also never have negative weight placed on a 2x2 comparison, so our estimates are not threatened by negative weight bias. The majority of our treated vs. never-treated comparisons have similar weight, with only one comparison truly standing out in all three figures – the 1998 timing group, with a weight of about 0.14 containing Georgia, North Carolina, and South Carolina.[11] These three states are typical NPND states – medium-sized Southern states with a mix of urban and rural population, and a large number of Black teens. In addition, our results are not solely driven by this 2x2 comparison and the within component of the decomposition – if anything, these two estimates are smaller than our overall estimated effect of Enrollment-based policies on Black teen employment, and may be slightly biasing us toward zero if these 2x2 comparisons are indeed overweighted relative to the true population effect.

Figure 4 shows six plots of the relevant difference-in-difference weights for young adults. On the left are weights for White young adults, and on the right are weights for Black young adults. These figures are similar to those for teens – a large "within" component, with the majority of the remaining variation coming from never-treated vs. timing group comparisons. As with teens, the largest weight corresponds to the 1998 timing group, with a weight of 0.086, with the 1996 and 1994 timing groups having similarly large weights of 0.062 and 0.054, respectively. For full-time and overall employment, the "within" component and 1998 timing group are larger in magnitude than the overall effect size for White young adults, but otherwise these figures show no reason for

[11] Since our controls and timing groups do not change, the weights in all 3 figures are identical – the only differences between these three figures are in the 2x2 difference-in-differences estimates.

concern – again there are no negative weights, and no single 2x2 comparison dominates and drives the overall effects shown in Table 5.

Next, we consider the reweighted balance test proposed by Goodman-Bacon (2018) – estimating the relationship between different covariates in our regressions and the effective treatment status of different state-year pairs. Since we have no negative weights, this is equivalent to a comparison of means between treated and untreated state-year pairs, weighted by the 2x2 difference-in-difference weights from Figures 3 and 4. Table 7 shows the results from this exercise.

The balance test shows a few significant differences between treated and untreated groups. In the Black teen sample, treated groups have higher state average income and unemployment rates than untreated groups. However, we find that Enrollment-based policies increase Black teen employment, so the above-average unemployment rate is likely dampening the true effects of the policy. Similarly for young adults, treated White young adults have below-average unemployment, while treated Black young adults have above-average unemployment, the opposite of our findings. Importantly, there are no differences between treated and untreated groups in urbanicity. Overall, the sample is somewhat imbalanced, but this imbalance is unlikely to create substantial bias in our estimates.

Finally, we consider detrending our estimates. Given that, in particular, our event studies for young adults have positive, occassionally significant pre-existing trends, removing a linear trend from our main estimates is sensible. Goodman-Bacon (2018) provides a method for detrending that removes pre-treatment trends in the outcome variable, grouped by timing group. The advantage of this method over the more common inclusion of state-specific linear trends in our model is the weights of each 2x2 difference-in-differences component remain unchanged via this method. We use data only from the first three years of our sample, 1985-87, before any state enacted an Enrollment-based policy, and estimate the model below:

$$Employment_{st} = \beta_0 + \beta_k \, TG_k \times t + \delta_t + \lambda_s + \theta X_{s,t} + \varepsilon_{s,t} \tag{5}$$

In this equation, t represents calendar year, from 1985 to 1987, and TG_k represents a dummy variable for inclusion in "timing group" k. All other variables correspond to their counterparts in Section 3.2. After this, we use the estimates to construct residuals from the whole sample, 1985-2014. These residuals then become the outcome variable for our main regressions from Equations 1 and 2. This is a two-stage process for which the literature has not derived correct standard errors, so in Tables 8 and 9 below, we will only focus on the direction of the effects, not on the magnitude or statistical significance.

Both Tables 8 and 9 show similar patterns to what we observed in Tables 4 and 5, respectively. White teen employment is largely unaffected by Enrollment-based policies, while Black teen employment is increased. In addition, White part-time employment for young adults is decreased, while Black part-time employment is unaffected. The major difference between Tables 5 and 9 appears in full-time employment. Table 5 showed no effect on White young adult full-time employment, and an increase in Black young adult full-time employment. Table 9 shows a decrease in both White and Black young adult full-time employment, leading to decreases in overall employment for both groups. Due to this inconsistency, we hesitate to make strong claims about the effects of No Pass, No Drive policies on young adult full-time employment, noting only that the NPND effects on education have ambiguous implications for full-time employment as well; some young adults may find it easier to obtain a full-time job as their educational attainment increases, but some young adults may enter higher education and forego full-time work as a result.

4.4 Robustness Checks: Alternative Samples and Definitions

In the discussions above, we focus on the effects of NPND policies on youth labor markets because teens aged 15-17 are subject to the policies and young adults aged 18-25 were subject to the

policies when they were teens. Some adults older than 25 may have also been directly affected by NPND policies when they were in high school in states that have had a NPND policy for more than 8 years. Older adults, however, should be largely unaffected by NPND policies since they completed high school before the enactment of NPND policies. Table A1 shows the effects of NPND policies on employment of older adults aged 26-60. Column (5) shows that the full-time employment rate of older Black and White adults is not affected by NPND policies. Unlike young adults, in Column (6) we find older White adults' part-time employment is unaffected, while older Black adults' part-time employment increases by 1.2 percentage points. Perhaps some of the part-time job vacancies induced by higher educational attainment among White young adults are filled by older Black adults. But most older adults are too old to have been directly affected by NPND policies, so full-time employment remains unaffected.

In section 4.1 we analyze the effects of NPND policies on teen and young adult labor markets separately. Our definition of teen employment is different from young adult employment because the teen labor market is different from the conventional labor market. To show that our results in section 4.1 are robust, Tables 11 and Table 12 report results on a pooled sample, including all youths aged 15–25. The employment status of teens and young adults is defined using our definition of teen employment in Table 11, and with our definition of young adult employment in Table 12. Results in both tables show that NPND policies increase the full-time and part-time employment of Black youths, and decrease White part-time employment. Overall, results on the pooled youth sample are consistent with our findings in section 4.1.

5 Conclusion

No Pass, No Drive policies have unusual and important effects on teen labor markets. Black teenagers are 4.9 percentage points more likely to hold part-time jobs after the implementation of an NPND policy. These jobs appear to come from a reduction in part-time employment for White

young adults. NPND policies reduce barriers keeping Black teens out of part-time employment, without displacing White teens from part-time jobs. Importantly, these short-term effects on teen employment can have long-term impacts on the dynamics of Black-White employment differentials. As Black teens accumulate labor market experience at a younger age under NPND policies, unadjusted Black-White wage and employment gaps should close. As a result, NPND policies can at least partially aid in overcoming the stagnation in Black-White labor differentials we have observed over the past 30-40 years.

Moving forward, our results suggest a few avenues for future research. First, do similar policies affect teen Black-White labor differentials? Minimum wage laws, compulsory education, and other policies affecting teen employment and/or educational choices may have similar effects to those we show in this study. Second, how persistent are Black-White differentials in teen employment? We show that the teen Black-White employment gap closes as a result of NPND policies; should we expect this narrower gap to persist across the lifecycle? Overall, racial disparities in low-wage, low-skill labor markets should be a more important and active area of research, and our findings demonstrate that teen labor markets are an important and interesting area which policies should target to eliminate racial employment gaps.

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[12]Teen parents are exempt from Alabama's NPND policy.

[13]In the original version of this policy, Iowa had an exemption for working students. This exemption was removed in 2005.

[14]Kentucky instituted this policy in 1990 in some counties; however, the law was struck down by the Kentucky Supreme Court in 2003 (*D.F. v Codell*). A new law, identical to the original for the purposes of this research, was implemented in 2007.

[15]Teens can be exempted from Virginia's NPND policy with parental permission.

[16]Not all counties in Wisconsin enacted a NPND policy, and there is within-state variation in timing that is not explored in this study.

[17]Delaware's No Pass, No Drive law was repealed on August 29, 2018.

[18]Rhode Island has provisions to revoke the licenses of truant students and students who are suspended from school. I categorize Rhode Island as both a Truancy-Based and Behavior-Based policy as a result.

[19]Louisiana and Oregon initially had Behavior-Based policies focusing on discipline, but then changed to Enrollment-Based policies focusing on dropouts at a later date.

Table 1: No Pass, No Drive Policies in the United States

State Name	Policy Enactment Year	Hardship/Working Exemption	GED Exemption	2013 Min. Dropout Age
Enrollment-Based				
Alabama[12]	1993	Yes	No	17
Arkansas	1989	Yes	No	17
Florida	1997	Yes	Yes	16
Georgia	1998	No	No	16
Idaho	1996	No	No	16
Illinois	2007	No	No	17
Indiana	1991	Yes	No	18
Iowa	1994	No[13]	No	16
Kentucky	1990, 2007[14]	Yes	No	16
Louisiana	2009	No	No	18
Mississippi	1994	No	No	17
North Carolina	1998	Yes	No	16
Ohio	1992	No	Yes	18
Oklahoma	1996	Yes	No	18
Oregon	2000	No	Yes	18
South Carolina	1998	No	No	17
Tennessee	1990	No	No	17
Texas	1995	No	No	18
Virginia[15]	1996	No	No	18
West Virginia	1988	No	No	17
Wisconsin[16]	1988	No	No	18
Truancy-Based				
California	1992	No	No	18
Delaware[17]	2000	Yes	No	16
Nevada	2003	No	No	18
New Mexico	2005	No	Yes	18
Rhode Island[18]	2005	Yes	No	18
Behavior-Based				
Kansas	1999	No	No	18
Louisiana	2004[19]	No	No	18
Oregon	1995[19]	No	Yes	18
Rhode Island	2005	Yes	No	18

Notes: Policies are grouped by category. *Enrollment-Based* policies require that teens under the age of 18 must be enrolled in school and regularly attending to hold a driver's license. The states noted under columns "Hardship/Working Exemption" and "GED Exemption" allow teens who can demonstrate they have sufficient hardship/full-time employment or have received a high school diploma equivalent, respectively, to be exempt from the No Pass, No Drive Policy. *Truancy-Based* policies require that teens subject to compulsory school attendance must attend school to hold a driver's license; these policies do not place any requirements on high school dropouts. *Behavior-Based* policies allow states to revoke the licenses of teens who commit certain crimes, who commit crimes on school grounds, or who receive school suspensions or expulsions, with the exact requirement varying by state.

Table 2: Summary Statistics: Teens

Panel A: Teen Employment (aged 15-17)

Percent	Overall	Male	Female	White	Black
Sample	100	51.19	48.81	80.58	12.06
Employed	27.38	26.38	28.43	30.21	14.52
Full-time	6.72	7.51	5.89	7.24	4.55
Part-time	20.67	18.88	22.54	22.94	9.97

Panel B: Teen Employment (aged 15-17) by High School Enrollment Status

Percent	High School Enrolled 93.08			High School Dropout 6.92		
	Total	White	Black	Total	White	Black
Employed	26.48	29.27	13.77	32.52	35.59	18.64
Full-time	5.18	5.53	3.74	21.2	23.39	10.95
Part-time	21.3	23.74	10.03	11.32	12.13	7.69

Panel C: State Time-Variant Characteristics

Yearly	Mean	Std. Dev.	Min	Max
Total Teen Population	389431	434122.1	25369	2834241
State Median Income	28994.86	11005.99	9940	70379
Unemployment rate	5.805	1.915	2.3	13.7

Notes: This table reports summary statistics for teens. Panel A reports statistics for teen employment, regardless of school enrollment status. Panel B reports statistics for teen employment by school enrollment status. Panel C reports statistics for teen population, state median income and unemployment rate. All statistics in Panels A and B are based on the total teen population of the corresponding category.

Table 3: Summary Statistics: Young Adults

Panel A: Young Adult Employment (aged 18-25)

Percent	Overall	Male	Female	White	Black
Sample	100	48.61	51.39	79.99	12.05
Employed	79.02	83.27	75.01	81.71	67.81
Full-time	54.39	62.59	46.64	56.57	46.47
Part-time	24.63	20.68	28.37	25.14	21.34

Panel B: Young Adult Employment (aged 18-25) by Educational Attainment

Percent	High School Graduate			High School Dropout		
	83.89			16.11		
	Total	White	Black	Total	White	Black
Employed	81.268	83.79	71.73	63.91	67.42	48.38
Full-time	54.24	56.66	56.66	47.16	50.76	31.10
Part-time	27.02	27.73	22.85	16.74	16.66	17.28

Notes: This table reports summary statistics for young adult employment (ages 18–25). Panel A reports summary statistics for all young adults. Panel B reports summary statistics of young adult employment by educational attainment.

Table 4: Teen Employment

	All Teens			Black vs. White Teens		
	(1) Employed	(2) Full-time	(3) Part-time	(4) Employed	(5) Full-time	(6) Part-time
Enrollment	0.00489	-0.00251	0.00739	-0.00842	-0.00515	-0.00326
	(0.00590)	(0.00327)	(0.00443)	(0.00540)	(0.00326)	(0.00469)
Behavior	0.00750	-0.00449	0.0120*	0.00196	-0.00568	0.00765
	(0.0101)	(0.00610)	(0.00704)	(0.00746)	(0.00585)	(0.00633)
Truancy	-0.00335	-0.000839	-0.00251	-0.00753	-0.00145	-0.00608
	(0.0124)	(0.00674)	(0.0108)	(0.0126)	(0.00646)	(0.0108)
Enrollment × black				0.0659***	0.0131***	0.0528***
				(0.00966)	(0.00450)	(0.00860)
Behavior × black				0.0358*	0.00756	0.0282
				(0.0190)	(0.00630)	(0.0194)
Truancy × black				0.0454***	0.00720	0.0382***
				(0.0105)	(0.00585)	(0.0106)
Black	-0.0101	0.00224	-0.0123	-0.0378***	-0.00311	-0.0347***
	(0.0105)	(0.00327)	(0.00897)	(0.0122)	(0.00422)	(0.0103)
Observations	191676	191676	191676	191676	191676	191676

Notes: Standard errors in parentheses, clustered by state. This table shows results from estimating Equations 1 (Columns 1–3) and 2 (Columns 4–6) on teen employment. Columns (1)-(3) report the effects of NPND policies on total teen employment, and Columns (4)-(6) report differential effects by race. The dependent variable in Columns (1) and (4) is an indicator for employment in any job. The dependent variable in Columns (2) and (5) is an indicator for full-time employment (≥30 hours/week). The dependent variable in Columns (3) and (6) is an indicator for part-time employment (<30 hours/week). All specifications control for state-level average annual income, unemployment rate, total teen population, urbanity, household income, and state and year fixed effects.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5: Young Adult Employment

	Overall			Black vs. White		
	(1)	(2)	(3)	(4)	(5)	(6)
	Employed	Full-time	Part-time	Employed	Full-time	Part-time
Enrollment	-0.00166	0.0125	-0.0142***	-0.0113**	0.00610	-0.0174***
	(0.00511)	(0.00791)	(0.00507)	(0.00557)	(0.00798)	(0.00473)
Behavior	0.00695	0.0135*	-0.00653	-0.00313	0.00440	-0.00752
	(0.00661)	(0.00744)	(0.00735)	(0.0110)	(0.00862)	(0.00724)
Truancy	-0.00850	-0.00167	-0.00684	-0.0127*	-0.00647	-0.00619
	(0.00535)	(0.00717)	(0.00727)	(0.00634)	(0.00757)	(0.00739)
Enrollment × black				0.0467***	0.0313***	0.0154**
				(0.00934)	(0.00631)	(0.00743)
Behavior × black				0.0563***	0.0508***	0.00547
				(0.0181)	(0.0136)	(0.00958)
Truancy × black				0.0395***	0.0434***	-0.00391
				(0.0125)	(0.00741)	(0.00806)
Black	0.0380***	0.0462***	-0.00824	0.0173*	0.0303***	-0.0130
	(0.00870)	(0.00656)	(0.00659)	(0.00925)	(0.00687)	(0.00776)
Observations	395076	395076	395076	395076	395076	395076

Notes: Standard errors in parentheses, clustered by state. This table shows results from estimating Equations 1 (Columns 1–3) and 2 (Columns 4–6) on young adult employment. Columns (1)-(3) report the effects of NPND policies on total young adult employment, and Columns (4)-(6) report differential effects by race. The dependent variable in Columns (1) and (4) is an indicator for employment in any job. The dependent variable in Columns (2) and (5) is an indicator for full-time employment ($\geq$35 hours/week). The dependent variable in Columns (3) and (6) is an indicator for part-time employment ($<$35 hours/week). All specifications control for state average annual income, young adult population, and state and year fixed effects.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6: High School Dropout

	Teens		Young Adults	
	(1)	(2)	(3)	(4)
Enrollment	-0.0136***	-0.0109**	-0.0256***	-0.0146***
	(0.00453)	(0.00438)	(0.00610)	(0.00542)
Behavior	-0.00298	-0.00576	-0.00446	0.000925
	(0.00455)	(0.00541)	(0.0106)	(0.00907)
Truancy	0.00160	0.00231	0.00945*	0.0159***
	(0.00512)	(0.00526)	(0.00541)	(0.00571)
Enrollment × black		-0.0128*		-0.0527***
		(0.00643)		(0.0109)
Behavior × black		0.0165***		-0.0318*
		(0.00610)		(0.0175)
Truancy × black		-0.00424		-0.0557***
		(0.00608)		(0.0127)
Black	-0.00546	-0.00151	0.0440***	0.0687***
	(0.00672)	(0.00770)	(0.0108)	(0.0125)
Observations	187545	187545	362411	362411

Notes: Standard errors in parentheses, clustered by state. This table shows results from estimating Equations 1 and 2 on the high school dropout status of teens (Columns 1 and 2) and young adults (Columns 3 and 4). Columns 2 and 4 show differential effects by race. All specifications control for state average annual income, population, and state and year fixed effects.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7: Difference-in-Differences Reweighted Balance Test

	(1) log Average Income	(2) log Household Income	(3) Urbanicity	(4) Unemployment Rate
Black Teens				
Effective Treatment	0.407***	-0.0818	0.0188	0.703***
	(0.0748)	(0.0871)	(0.0354)	(0.0791)
White Young Adults				
Effective Treatment	0.0160	0.0469	-0.00713	-0.442***
	(0.0458)	(0.0347)	(0.0807)	(0.137)
Black Young Adults				
Effective Treatment	-0.0126	-0.251***	-0.0114	0.297***
	(0.0652)	(0.0774)	(0.0196)	(0.0722)
Observations	3000	3000	3000	3000

Notes: Standard errors in parentheses, clustered by state. This table shows the reweighted balance test from Goodman-Bacon (2018) for four of our main control variables: log(State Average Income) in column (1), log(Household Income) for households in our estimation sample in column (2), state average urbanicity for households in our sample in column (3), and state average unemployment rate in column (4). A point estimate of zero implies that treated and untreated groups have balanced covariates, after weighting by the 2x2 difference-in-difference weights calculated previously. Statistically significant point estimates imply an imbalanced sample, and are explained further in the text.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 8: Teen Regressions, Detrended

	(1) Employed	(2) Full-time	(3) Part-time
Enrollment	0.0261	-0.0131	0.0393
	(0.0306)	(0.0113)	(0.0314)
Behavior	0.0112	-0.0280	0.0392
	(0.0330)	(0.0146)	(0.0291)
Truancy	-0.101	-0.0106	-0.0904
	(0.0745)	(0.0244)	(0.0636)
Enrollment × Black	0.605	0.132	0.473
	(0.255)	(0.148)	(0.236)
Behavior × Black	0.226	0.102	0.124
	(0.190)	(0.0677)	(0.151)
Truancy × Black	0.00900	0.0347	-0.0257
	(0.0594)	(0.0384)	(0.0749)
Black	-0.118	-0.126	0.00870
	(0.175)	(0.0722)	(0.168)
Observations	2820	2820	2820

Notes: Uncorrected robust second-stage standard errors in parentheses. This table shows the results of the second stage of the two-step procedure for removing group-specific linear trends outlined in Goodman-Bacon (2018) for our main teen regressions. Significance stars are omitted, as correct standard errors accounting for the two-step estimation for this procedure have not been derived. As a result, we focus on the direction of these estimates instead of their magnitudes, which are at times unrealistically large, but appear to have wide confidence intervals.

Table 9: Young Adult Regressions, Detrended

	Overall			Black vs. White		
	(1)	(2)	(3)	(4)	(5)	(6)
	Employed	Full-time	Part-time	Employed	Full-time	Part-time
Enrollment	-0.311	-0.242	-0.0697	-0.141	-0.0753	-0.0658
	(0.0642)	(0.0773)	(0.0514)	(0.0240)	(0.0245)	(0.0280)
Behavior	0.0723	0.0443	0.0281	-0.0323	-0.0122	-0.0201
	(0.0367)	(0.0489)	(0.0414)	(0.0351)	(0.0399)	(0.0222)
Truancy	0.0200	0.137	-0.117	0.0254	0.0647	-0.0393
	(0.0505)	(0.0653)	(0.0543)	(0.0337)	(0.0572)	(0.0725)
Enrollment × Black				-0.281	-0.400	0.118
				(0.188)	(0.231)	(0.264)
Behavior × Black				0.208	-0.00604	0.214
				(0.0810)	(0.164)	(0.231)
Truancy × Black				-0.0594	0.102	-0.162
				(0.0531)	(0.0622)	(0.0540)
Black	0.0796	-0.292	0.372	0.189	-0.415	0.604
	(0.162)	(0.196)	(0.101)	(0.134)	(0.161)	(0.119)
Observations	2744	2744	2744	2744	2744	2744

Notes: Uncorrected robust second-stage standard errors in parentheses. This table shows the results of the second stage of the two-step procedure for removing group-specific linear trends outlined in Goodman-Bacon (2018) for our main teen regressions. Significance stars are omitted, as correct standard errors accounting for the two-step estimation for this procedure have not been derived. As a result, we focus on the direction of these estimates instead of their magnitudes, which are at times unrealistically large, but appear to have wide confidence intervals.

Table 10: Employment of Adults (Aged 26-60)

	(1)	(2)	(3)	(4)	(5)	(6)
Enrollment	-0.00586**	-0.00443	-0.00142	-0.00741**	-0.00336	-0.00404
	(0.00278)	(0.00391)	(0.00251)	(0.00324)	(0.00426)	(0.00261)
Behavior	-0.00436	-0.00202	-0.00234	-0.00740*	-0.00438	-0.00302
	(0.00354)	(0.00238)	(0.00267)	(0.00405)	(0.00355)	(0.00277)
Truancy	-0.00337	-0.00349	0.000117	-0.00214	-0.00241	0.000275
	(0.00235)	(0.00371)	(0.00304)	(0.00252)	(0.00342)	(0.00304)
Enrollment × black				0.00930	-0.00632	0.0156***
				(0.00729)	(0.00813)	(0.00401)
Behavior × black				0.0210**	0.0161	0.00491
				(0.0101)	(0.0114)	(0.00506)
Truancy × black				-0.00848	-0.00858	0.0000962
				(0.00861)	(0.00816)	(0.00366)
Black	0.0387***	0.0474***	-0.00864***	0.0355***	0.0496***	-0.0142***
	(0.00724)	(0.00812)	(0.00286)	(0.00731)	(0.00819)	(0.00376)
Observations	1933693	1933693	1933693	1933693	1933693	1933693

Notes: Standard errors in parentheses, clustered by state. This table shows results from estimating Equations 1 (Columns 1–3) and 2 (Columns 4–6) on older adult employment (ages 26–60). Columns (1)–(3) report the effects of NPND policies on total older adult employment, and Columns (4)–(6) report differential effects by race. The dependent variable in Columns (1) and (4) is an indicator for employment in any job. The dependent variable in Columns (2) and (5) is an indicator for full-time employment ($\geq$35 hours/week). The dependent variable in Columns (3) and (6) is an indicator for part-time employment ($<$35 hours/week). All specifications control for state average annual income, young adult population, and state and year fixed effects.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 11: Employment of Teen and Young Adults: With Teen Definition

	Overall			Black vs. White		
	(1) Employed	(2) Full-time	(3) Part-time	(4) Employed	(5) Full-time	(6) Part-time
Enrollment	0.00639	0.00928	-0.00289	-0.00409	0.00385	-0.00795***
	(0.00584)	(0.00566)	(0.00264)	(0.00651)	(0.00620)	(0.00244)
Behavior	0.00727	0.00462	0.00265	-0.00480	-0.00390	-0.000903
	(0.00888)	(0.00813)	(0.00280)	(0.00977)	(0.00839)	(0.00358)
Truancy	-0.00852	-0.00502	-0.00350	-0.0121*	-0.00783	-0.00426
	(0.00704)	(0.00709)	(0.00425)	(0.00661)	(0.00706)	(0.00380)
Enrollment × black				0.0514***	0.0268***	0.0246***
				(0.00795)	(0.00583)	(0.00507)
Behavior × black				0.0696***	0.0492***	0.0205*
				(0.0199)	(0.00935)	(0.0118)
Truancy × black				0.0386***	0.0292***	0.00935
				(0.0124)	(0.00628)	(0.00750)
Black	0.0252***	0.0436***	-0.0184***	0.00215	0.0302***	-0.0281***
	(0.00851)	(0.00495)	(0.00581)	(0.00946)	(0.00586)	(0.00659)
Observations	586752	586752	586752	586752	586752	586752

Notes: Standard errors in parentheses, clustered by state. This table shows results from estimating Equations 1 (Columns 1–3) and 2 (Columns 4–6) on all youth employment (ages 15–25), using our teen employment definitions. In this table, a person is employed if they worked at least 16 weeks in the prior year, and must work at least 30 hours per week to achieve full-time status. Columns (1)–(3) report the effects of NPND policies on youth employment, and Columns (4)–(6) report differential effects by race. The dependent variable in Columns (1) and (4) is an indicator for employment in any job. The dependent variable in Columns (2) and (5) is an indicator for full-time employment ($\geq$30 hours/week). The dependent variable in Columns (3) and (6) is an indicator for part-time employment ($<$30 hours/week). All specifications control for state average annual income, young adult population, and state and year fixed effects.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

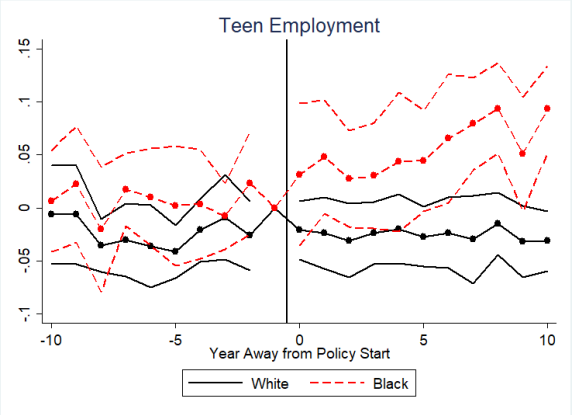
Table 12: Employment of Teen and Young Adults: With Adult Definition

	Overall			Black vs. White		
	(1)	(2)	(3)	(4)	(5)	(6)
	Employed	Full-time	Part-time	Employed	Full-time	Part-time
Enrollment	-0.00391	0.00618	-0.0101**	-0.0161**	0.000614	-0.0167***
	(0.00557)	(0.00616)	(0.00415)	(0.00612)	(0.00630)	(0.00405)
Behavior	-0.000345	0.00608	-0.00642	-0.0101	-0.000108	-0.00997
	(0.00714)	(0.00627)	(0.00538)	(0.0104)	(0.00645)	(0.00655)
Truancy	-0.00756	-0.00138	-0.00618	-0.0113	-0.00495	-0.00633
	(0.00734)	(0.00682)	(0.00594)	(0.00773)	(0.00693)	(0.00579)
Enrollment × black				0.0593***	0.0274***	0.0319***
				(0.00785)	(0.00436)	(0.00624)
Behavior × black				0.0566***	0.0363***	0.0203
				(0.0195)	(0.00877)	(0.0136)
Truancy × black				0.0386***	0.0339***	0.00469
				(0.00906)	(0.00499)	(0.00939)
Black	0.0239***	0.0343***	-0.0104	-0.00113	0.0208***	-0.0220***
	(0.00853)	(0.00463)	(0.00683)	(0.00891)	(0.00506)	(0.00787)
Observations	586752	586752	586752	586752	586752	586752

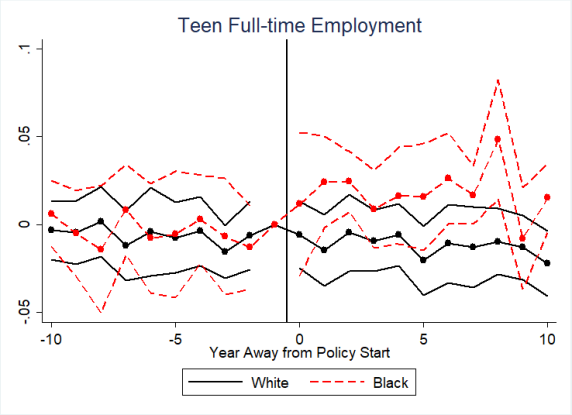
Notes: Standard errors in parentheses, clustered by state. This table shows results from estimating Equations 1 (Columns 1–3) and 2 (Columns 4–6) on all youth employment (ages 15–25), using our young adult employment definitions. In this table, a person is employed if they are currently working, and must usually work at least 35 hours per week to achieve full-time status. Columns (1)–(3) report the effects of NPND policies on youth employment, and Columns (4)–(6) report differential effects by race. The dependent variable in Columns (1) and (4) is an indicator for employment in any job. The dependent variable in Columns (2) and (5) is an indicator for full-time employment ($\geq$35 hours/week). The dependent variable in Columns (3) and (6) is an indicator for part-time employment (<35 hours/week). All specifications control for state average annual income, young adult population, and state and year fixed effects.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

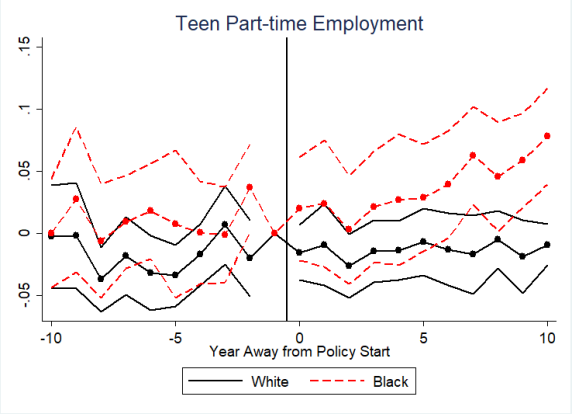
Figure 1: Event Study Graphs: Racial differences in Teen Employment



(a) Table 4, Column (4) racial differences in overall teen employment



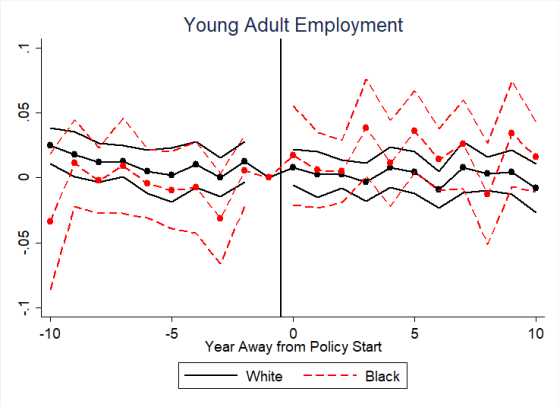
(b) Table 4, Column (5) racial differences in teen full-time jobs



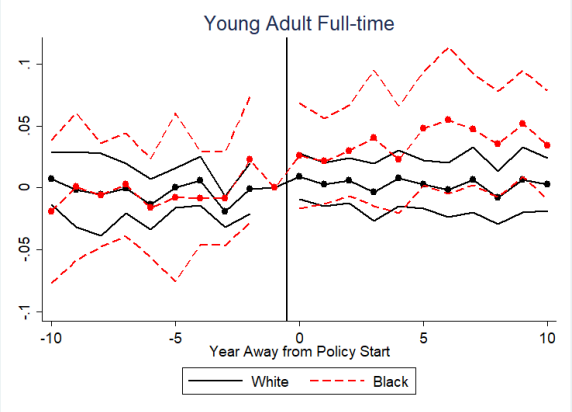
(c) Table 4, Column (6) racial differences in teen part-time jobs

Notes: These event study graphs estimate dynamic difference-in-differences models, and are labeled with the specific coefficient tested.

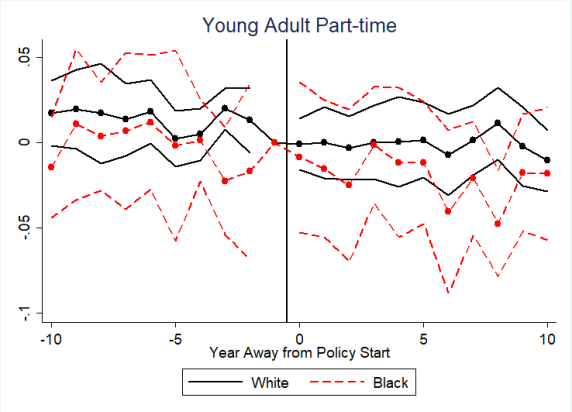
Figure 2: Event Study Graphs: Young Adult Employment



(a) Table 5, Column (4) racial differences in overall young adult employment



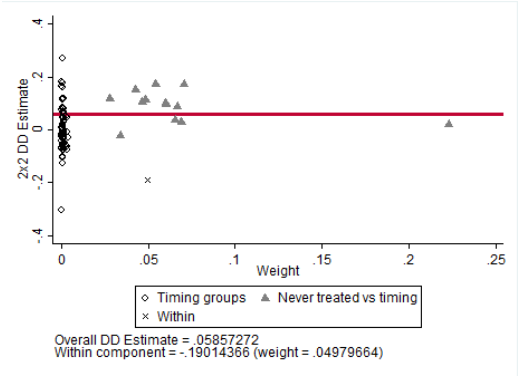
(b) Table 5, Column (5) racial differences in young adult full-time jobs



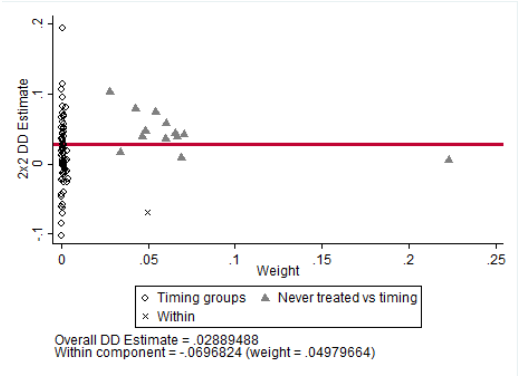
(c) Table 5, Column (6) racial differences in young adult part-time jobs

Notes: These event study graphs estimate dynamic difference-in-differences models, and are labeled with the specific coefficient tested.

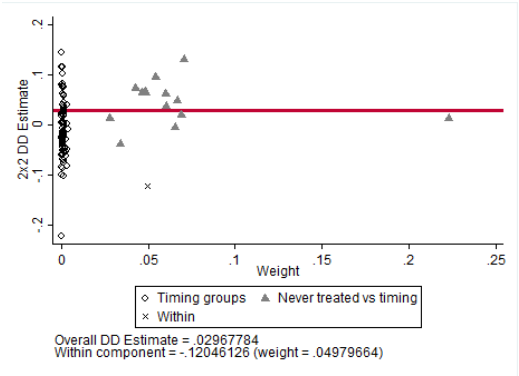
Figure 3: 2x2 Difference-in-Differences Weights, Enrollment-Based Policy Black Teen Interactions



(a) All Employment



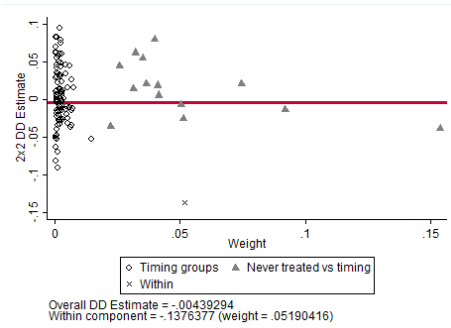
(b) Full-Time Employment



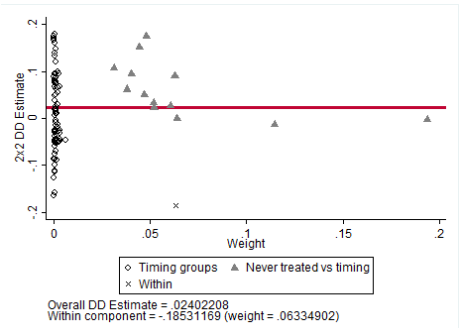
(c) Part-Time Employment

Notes: These figures show the 2x2 Difference-in-differences weights, plotted against their corresponding effect, for each of our Black teen regressions.

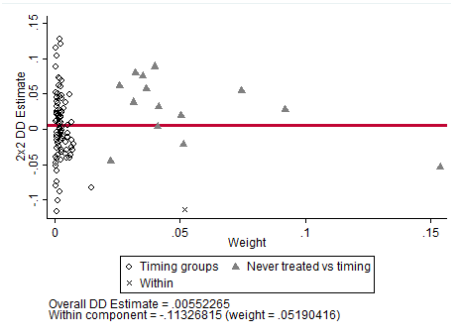
Figure 4: 2x2 Difference-in-Differences Weights, Enrollment-Based Policy Young Adults



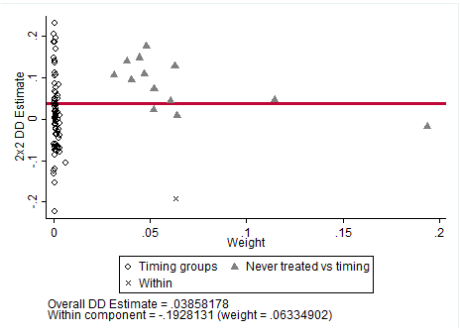
(a) All Employment, White Adults



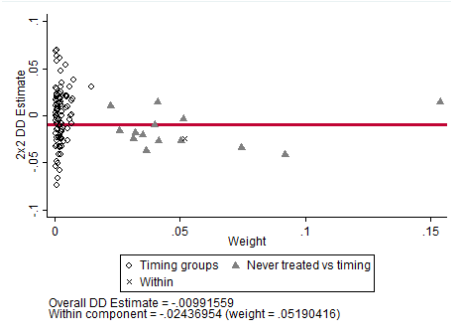
(b) All Employment, Black Adults



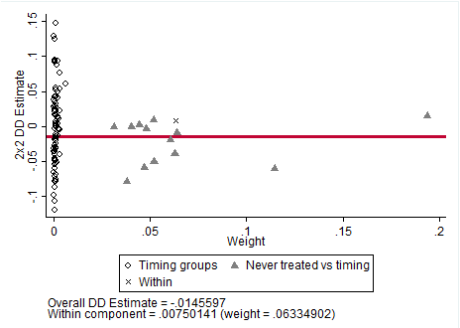
(c) Full-Time Employment, White Adults



(d) Full-Time Employment, Black Adults



(e) Part-Time Employment, White Adults



(f) Part-Time Employment, Black Adults

Notes: These figures show the 2x2 Difference-in-differences weights, plotted against their corresponding effect, for each of our main young adult regressions.

Appendices

A Additional Tables and Figures

Table A1: Adult (Aged 26-60) Employment

	(1)	(2)	(3)	(4)	(5)	(6)
Enrollment	-0.00586**	-0.00443	-0.00142	-0.00741**	-0.00336	-0.00404
	(0.00278)	(0.00391)	(0.00251)	(0.00324)	(0.00426)	(0.00261)
Behavior	-0.00436	-0.00202	-0.00234	-0.00740*	-0.00438	-0.00302
	(0.00354)	(0.00238)	(0.00267)	(0.00405)	(0.00355)	(0.00277)
Truancy	-0.00337	-0.00349	0.000117	-0.00214	-0.00241	0.000275
	(0.00235)	(0.00371)	(0.00304)	(0.00252)	(0.00342)	(0.00304)
Enrollment × black				0.00930	-0.00632	0.0156***
				(0.00729)	(0.00813)	(0.00401)
Behavior × black				0.0210**	0.0161	0.00491
				(0.0101)	(0.0114)	(0.00506)
Truancy × black				-0.00848	-0.00858	0.0000962
				(0.00861)	(0.00816)	(0.00366)
Black	0.0387***	0.0474***	-0.00864***	0.0355***	0.0496***	-0.0142***
	(0.00724)	(0.00812)	(0.00286)	(0.00731)	(0.00819)	(0.00376)
Observations	1933693	1933693	1933693	1933693	1933693	1933693

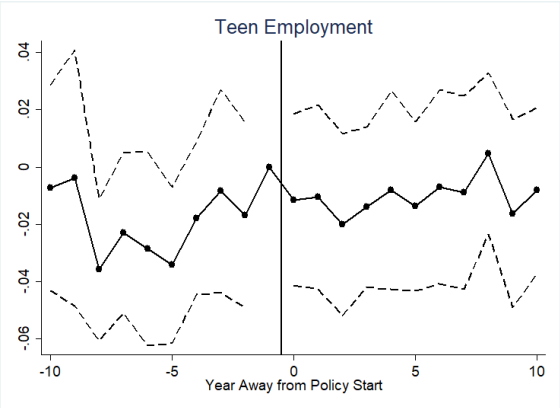
Notes: Standard errors in parentheses, clustered by state. All specifications control for state average annual income, teen population, and state and year fixed effects.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A2: Adult (Aged 19-60) Employment

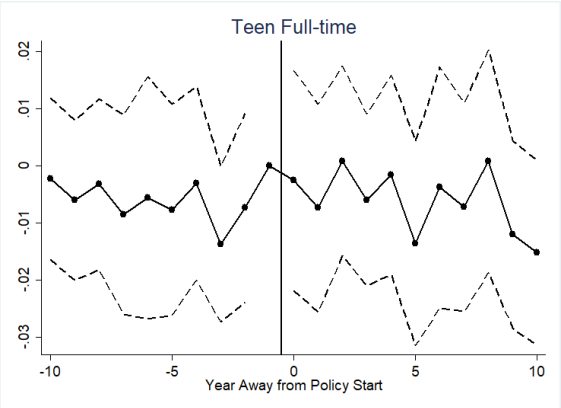
	Overall			Black vs. White		
	(1)	(2)	(3)	(4)	(5)	(6)
	Employed	Full-time	Part-time	Employed	Full-time	Part-time
Enrollment	-0.00484*	-0.000683	-0.00415	-0.00771**	-0.000593	-0.00711**
	(0.00288)	(0.00430)	(0.00282)	(0.00336)	(0.00459)	(0.00278)
Behavior	-0.00315	-0.000367	-0.00278	-0.00700*	-0.00297	-0.00403
	(0.00270)	(0.00263)	(0.00312)	(0.00409)	(0.00360)	(0.00336)
Truancy	-0.00429*	-0.00407	-0.000227	-0.00406	-0.00418	0.000123
	(0.00252)	(0.00353)	(0.00332)	(0.00289)	(0.00327)	(0.00339)
Enrollment × black				0.0167**	-0.000247	0.0169***
				(0.00688)	(0.00725)	(0.00393)
Behavior × black				0.0264**	0.0179*	0.00847**
				(0.0107)	(0.0103)	(0.00348)
Truancy × black				0.00218	0.00341	-0.00123
				(0.00865)	(0.00700)	(0.00351)
Black	0.0356***	0.0405***	-0.00491*	0.0286***	0.0395***	-0.0109***
	(0.00639)	(0.00639)	(0.00282)	(0.00668)	(0.00655)	(0.00352)
Observations	2328769	2328769	2328769	2328769	2328769	2328769

Notes: Standard errors in parentheses, clustered by state. All specifications control for state average annual income, teen population, and state and year fixed effects.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

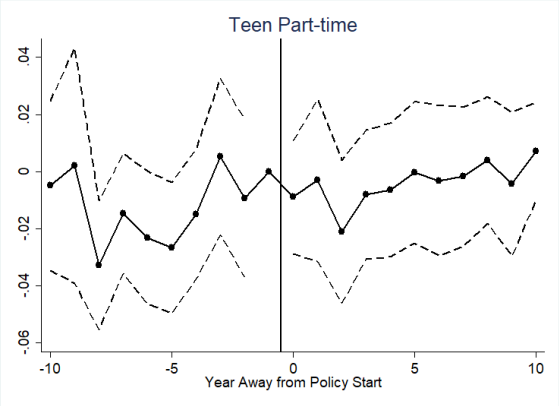
Figure A1: Event Study Graphs: Teens



(a) Table 4, Column (1) Enrollment Effects



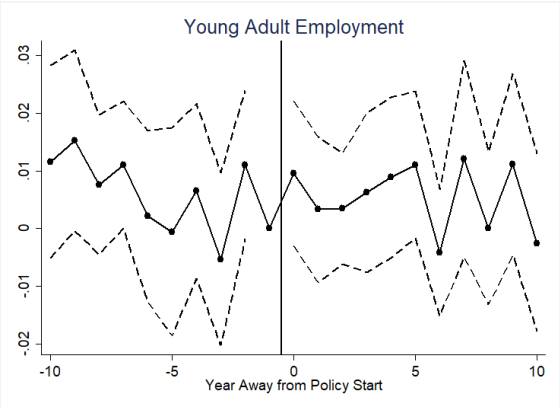
(b) Table 4, Column (2) Enrollment Effects



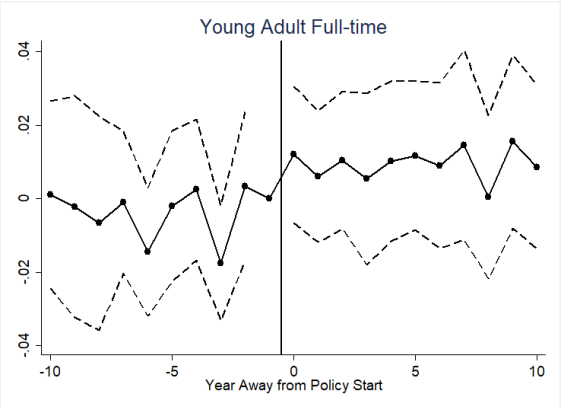
(c) Table 4, Column (3) Enrollment Effects

Notes: These event study graphs estimate dynamic difference-in-differences models, and are labeled with the specific coefficient tested.

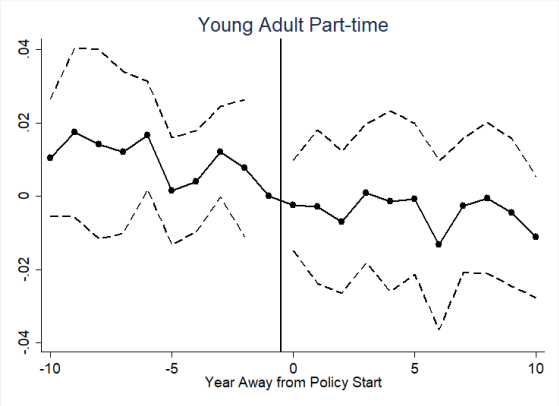
Figure A2: Event Study Graphs: Young Adult



(a) Table 5, Column (1) Enrollment Effects



(b) Table 5, Column (2) Enrollment Effects



(c) Table 5, Column (3) Enrollment Effects

Notes: These event study graphs estimate dynamic difference-in-differences models, and are labeled with the specific coefficient tested.