

Does the Identity of Leaders Matter for Education? Evidence from the First Black Governor in the US*

Mery Ferrando[†] and Véronique Gille[‡]

November, 2019

Abstract

In this paper we study the role played by a politician from a disadvantaged minority in improving the educational outcomes of individuals belonging to the same minority. Specifically, we analyze the impact of the first African American ever elected governor, Douglas Wilder, who became governor of the Commonwealth of Virginia in 1990. Using individual level census and survey data, we identify the causal effect of the election on the educational achievements of young Blacks from Virginia by relying on a double and triple difference strategy as well as the synthetic control method. Following the election, there is a significant and sizeable increase in the probability of getting a high school diploma for young Blacks in Virginia relative to Whites and other states. Policy changes alone do not seem to explain this increase and we find evidence that the aspirations of black students improve after the governor's election, which indicates that Wilder may have acted as a role model for young Blacks in Virginia. This suggests that increasing exposure to black politicians in high-stake positions might contribute to narrow down the persistent white-black gap in education in the US.

Keywords: education; minority; political leaders; aspirations.

JEL Classification Numbers: I24; D01; O51.

*We are grateful to Andreu Arenas, David Deming, Kirabo Jackson, Sylvie Lambert, François Maniquet and David Schindler, as well as participants to the UNU-WIDER conference on Human Capital and Growth, Warwick PhD conference 2016, SSSI Chicago 2015, PoRESP Summer School, the NYUAD Behavioral Political Economy workshop and seminars in the Université catholique de Louvain, the Paris School of Economics and Tilburg University for useful comments. Ferrando gratefully acknowledges a research fellowship from the Fonds National de la Recherche Scientifique (FNRS, Belgium, mandat d'aspirant FC 99238). Gille gratefully acknowledges funding from the European Research Council under the European Union's Seventh Framework Programme (FP7/2007-2013) / ERC grant agreement 269831.

[†]Corresponding author: Tilburg University, 2 Warandelaan, 5037 AB Tilburg, The Netherlands; Tel:+31(0)134.663.711. Email: m.ferrando@uvt.nl.

[‡]Present address: IRD, DIAL, UMR LeDA, PSL, Université Paris-Dauphine, 4 Rue d'Enghien, 75010 Paris, France; Email: gille@dial.prd.fr.

1 Introduction

There are well-documented pervasive disparities in schooling attainment and test scores between Whites and Blacks in the US (Jencks and Phillips, 2011; Neal, 2006). These disparities translate into racial inequalities in the labor market. Significant differences in high school and college graduation were wide-spread in the 80's and 90's. For instance, the probability of high school graduation for a black male student at 19 years old in 1982-1983 was 13 percentage points (p.p.) lower than for a white male student, while the white-black gap for female students was 8 p.p. (Neal, 2006).

One potential explanation for the racial gap in education is the lack of role models for Blacks. Along this line, for instance, mentors and instructors have been found to affect the educational outcomes and occupational choices of young African Americans (Fairlie et al., 2014; Kofoed, 2019). Mentors and instructors are likely to be perceived by students as being close and belonging to a similar pool of individuals. It remains unclear, however, whether African Americans that reach high-stake positions, such as politicians in powerful positions, can contribute to close the racial gap in education. While these individuals tend to belong to an elite and can be perceived as being more distant from other citizens, by reaching a very visible and competitive position they could have a stronger and more wide-spread effect. In this paper, we study the impact of the first black governor ever elected in the US on the educational outcomes of young African Americans¹ from the concerned state. The first Black to be elected as governor in the US was Douglas Wilder, who became governor of the Commonwealth of Virginia in 1990. Being the first, Douglas Wilder is likely to have a larger potential effect than subsequent black governors, specially if higher ranked officers arrive to power in between (like Barack Obama in the US). Moreover, the election of Douglas Wilder had symbolic importance to the black community, as he was the first black governor in a Southern state, while Blacks were historically excluded from politics in the South (Vogl, 2014). Virginia, in particular, was a slave state, and Richmond, its capital, the capital of the Confederacy. Ordinary citizens also identified with Douglas Wilder's personal story as he was the grandson of slaves and suffered from discrimination, in particular during his studies (Jeffries, 2000). Therefore, his election raised a lot of expectation and hope among the black community (Jeffries, 2000).

There is growing evidence from developing countries showing that the identity of political leaders², such as their gender or ethnicity, matters for the educational outcomes of the group

¹For sake of simplicity, we will use African American and Black interchangeably but note that we exclude black Hispanics from the analysis.

²The term identity is widely used in this literature to refer to a salient characteristic of the leaders such as their religion, gender, ethnicity or race. More precisely, identity is defined as social categories that are

they belong to. In particular, the educational attainment of children has been shown to improve after the election of politicians sharing the same identity (Beaman et al., 2012; Franck and Rainer, 2012). Beaman et al. (2012) find that the increase in female representation in India, following the implementation of a system of quotas for women in village councils, positively affected the educational outcomes of girls. Franck and Rainer (2012) find that political leaders from ethnic groups improved primary school attendance, completion and literacy of the groups they belong to in sub-Saharan Africa. The available evidence has identified three main channels through which politicians from a particular group can affect the educational outcomes of that group. Politicians from a disadvantaged or minority group can foster the aspirations of the group. For instance, Beaman et al. (2012) find that the above-mentioned increase in educational outcomes of girls in India due to reserved positions for women can be explained by an increase in aspirations. But political leaders can also contribute to changing perceptions about a specific group in the rest of the population, which may reduce discrimination against them. Finally, political leaders can also directly implement educational or other type of redistributive policies oriented to their group (Chattopadhyay and Duflo, 2004; Pande, 2003).

Despite this growing evidence for the developing world, there is little evidence for developed countries. In particular, the potential role of black politicians to close the racial gap in education in the US has received little attention. No previous study has identified a significant effect of a black politician on a relevant educational outcome.³ This gap in the literature is possibly explained by the type of identification strategy exploited so far. To identify the causal effect of the identity of elected leaders on individual outcomes, most of the literature has been relying on two strategies: regression discontinuity designs based on close elections (see for instance Ferreira and Gyourko, 2014; Clots-Figueras, 2011, 2012) or quotas (see for instance Chattopadhyay and Duflo, 2004; Beaman et al., 2012; Iyer et al., 2012). The use of these two strategies has provided the literature with well identified estimates of the effect, but it has also restricted the scope of these studies and therefore their external validity. The regression discontinuity design with close elections is, for example, based on strong identifying assumptions that can only be met in specific contexts: one needs many close elections with at least one candidate with the identity at stake. This restricts the analysis to local elections, and excludes the study of groups with few representatives. It also requires the behavior of voters not to change with the identity of the candidates, which

associated with certain behaviors (Akerlof and Kranton, 2000).

³DellaVigna (2010) studies the effect of the election of Obama on the outcomes and perception of potential achievements among African Americans. He finds that the Obama election events did not have significant impacts for Blacks relative to Whites. The only exception is a positive, though weak, effect on the number of applications of African Americans to a top Law School.

does not hold in contexts where minority groups are heavily discriminated against, such as Blacks in Southern states in the US (Vogl, 2014). As for the literature using quotas, it has disproportionately been relying on the quota system in Indian local elections (Beaman et al., 2012; Chattopadhyay and Duflo, 2004; Iyer et al., 2012). The previous literature has therefore mostly focused on local elections. With the exception of Franck and Rainer (2012), little is known about the impact of elected candidates from minority groups in high-stake positions. Whether these two types of politicians have a similar effect is uncertain. Local leaders are closer to citizens but less powerful. On the other hand, leaders on high-stake positions have more political power to change policies and can generate a stronger role model effect. Moreover, most studies are for developing countries, and particularly for India. It is worth studying whether similar effects can be found in a completely different setting.

The goal of this paper is twofold. First, we provide evidence on a new channel, namely the election of a black politician in a high-stake position, that contributed to close the racial gap in educational attainment within the US. Second, we contribute to the literature on the effect of the identity of politicians with an identification strategy based on an historical event. This allows us to study the effect of a powerful leader on a *discriminated minority in a developed country*, who, until recently, had few elected politicians in important positions.

We identify the causal effect of the election of Douglas Wilder with a combination of difference-in-differences, triple difference and the synthetic control method. In the first part of the paper we show how schooling outcomes of young Blacks evolve after Wilder’s election using individual level data from the US Census and the American Community Survey (ACS). We focus on high school graduation rates. To take into account the fact that any change in the schooling outcomes of young Blacks might be driven by other changes in Virginia at that time, we first apply a difference-in-differences (DD) strategy that compares the evolution of outcomes between Blacks and Whites in Virginia. To control for changes affecting all Blacks in the US, we exploit an alternative difference-in-differences strategy, in which we compare Blacks in Virginia to Blacks in other states within the US with more than 10% of black population. We also apply a triple difference strategy (DDD), using both Whites and other states as controls. Finally, we build a synthetic control group following the method of Abadie and Gardeazabal (2003) and Abadie et al. (2010), which is particularly well suited for case studies.

Our main estimations show that the governor’s term in office is related to an increase in the probability of having a high school diploma among young Blacks in Virginia between 1.7 and 3.2 p.p., depending on the specification. These results are robust to alternative specifications and are not driven by pre-existing changes in graduation rates. Similar qualitative results are found using an alternative dataset (*i.e.* the Current Population Survey - CPS).

Finally, using administrative data from the Common Core of Data (CCD) we also observe a significantly larger graduation rate in counties with a larger share of Blacks after the election of Douglas Wilder. While the Census and the CPS provide information on the stock of individuals that have finished high school, the CCD gives information on the flow of graduates in every year. All of our data sources and specifications generate consistent findings that show that the election of Douglas Wilder led to higher educational achievements among young Blacks aged 18 to 20 years old at that time.

In the second part of the paper we provide suggestive evidence on the channels underlying the observed effect. We first study whether higher expected returns of education play a role by looking at the evolution of wages and unemployment among black young adults. We do not find any evidence that labor market outcomes for Blacks in Virginia relative to the control groups improve after the election of Wilder. Second, using data on per-pupil spending and exploiting the age profile and timing of dropout we analyze the role of the main changes in educational policies during the period. Our results suggest that educational policies alone cannot explain the differential change that we observe for Blacks. Finally, using data on aspirations from the Higher Education Research Institute (HERI), we analyze whether the aspirations of black students improve after the election of the governor. Our results show an increase in aspirations of black students in Virginia relative to the control groups during Wilder's term, as measured by self-rated drive to achieve and academic ability.

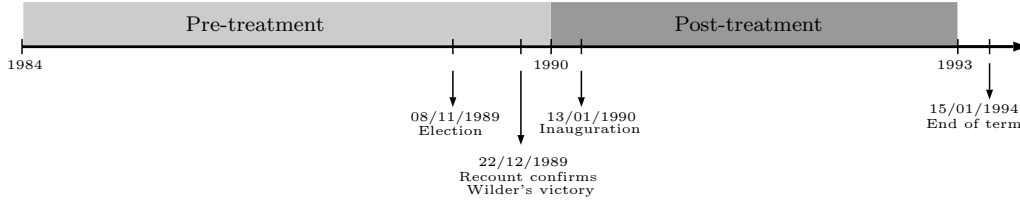
The rest of the paper is organized as follows: section 2 describes the context of the case study; section 3 explains the data sources; section 4 describes the empirical strategy; section 5 shows the main results; section 6 explores the channels; section 7 concludes.

2 Context

Douglas Wilder is the first African American to have been elected to the position of Governor in the US.⁴ African Americans were underrepresented in top political positions in 1990. For example, they accounted for only 5.7% of the seats in the House of Representatives whereas

⁴The office of Governor was once before held by a person from African descent, Pinckney Benton Stewart Pinchback in Louisiana in 1872-1873. P.B.S. Pinchback was lieutenant governor and had to take office during 15 days to transition in a period of election from the previous governor to the next governor. P.B.S. Pinchback was not elected. After Douglas Wilder, only two African Americans became Governors: Deval Patrick, who was elected in 2007 in Massachusetts, and David Paterson, who was sworn in as governor in 2008 in the State of New-York. In this paper we do not study these other two cases. There are data limitations to study the impact of the election of Deval Patrick because Massachusetts is a small state and the number of observations for Blacks is small. David Paterson was not elected but nominated after the resignation of the previous governor and stayed in office only two years.

Figure 1: Timing of the election and strategy



they represent 12% of the population.⁵⁶ The underrepresentation of Blacks in politics was historically particularly acute in the South (Vogl, 2014) and Virginia had a crucial position among Southern states given that it hosted the capital of the Confederacy. Therefore, as it is explained in more detail in section 6.1, the election of Wilder was an important event for Virginia and had symbolic importance. It is worth noting that despite the polls, which predicted a large victory for Wilder, the turnout rate was particularly high for a gubernatorial election. 66.7% of the registered voters came to the booth in 1989, whereas only 53% voted in the election of 1985. The exit polls also show that between 92% and 94% of black voters voted for Wilder (Traugott and Price, 1992), which reveals a strong collective identity.

Wilder was elected as a democratic candidate. Given that the previous governor of Virginia was also from the democratic party, the election of Wilder did not create any political rupture. The electoral law of Virginia forbids incumbents from being candidates, so he did not stand for the 1993 election and was followed by a republican white governor.

Figure 1 shows the timing of the election of Wilder. He was elected on November 8, 1989. Because the margin of victory was very small (less than 7,000 votes), his opponent asked for a recount and the victory of Wilder was confirmed in December 1989. He took office as governor of Virginia on January 13, 1990 and left on January 15, 1994. For sake of simplicity, we assume that the mandate of Wilder began at the beginning of January 1990, and we consider the period from January 1984 to December 1989 as the “pre-treatment” period and the period from January 1990 to December 1993 as the “treatment” period.

An interesting feature of Virginia is that governors are particularly powerful, which gives them among other things appointment power. Douglas Wilder seems to have used this power in favor of Blacks: 25% of Wilder’s appointments to state boards and commissions were African Americans, which is quite large compared to 15% and 10% for his two immediate

⁵Source: History, Art and Archives website of the US House of Representatives <http://history.house.gov/Exhibitions-and-Publications/BAIC/Historical-Data/Black-American-Representatives-and-Senators-by-Congress/>.

⁶Nowadays, they amount to 12% of House members, which is about equal to the share of Americans who are black.

predecessors. Moreover, he appointed many Blacks to significant positions. Notably, two African Americans were appointed to the governor’s cabinet for the first time (Secretary of Education and Administration) (Jeffries, 2000).

3 Data

3.1 Data on educational attainment

To explore the changes in educational attainment of Blacks after the election of Douglas Wilder, we rely on three sources of data: the United States Census and the American Community Survey (ACS), the Current Population Survey (CPS) and the Common Core of Data (CCD).

Our main source of data are the United States Census and the ACS, downloaded from IPUMS USA (Ruggles et al., 2019). We pool the 5% extract of the 2000 Census with the ACS 2005-2009 and 2010-2014 5-year samples (hereafter Census data), which also represent 5% of the population. We focus on the individuals born between 1955 and 1975. This sample gives us 15 years of pre-treatment data, which provides a long span to check for pre-treatment trends (Wolfers, 2006).⁷ Our last cohort is 1975 because this is the last cohort that reaches 18 years old within the governor’s term. We compare the educational attainment of individuals who were between 18-20 years old at some point during the term of Douglas Wilder as governor (cohorts born in 1970 or later, hereafter referred to as post-treatment cohorts), to the educational attainment of individuals that were 21 years old or more at the time of the election (cohorts born before 1970, hereafter referred to as pre-treatment cohorts) and thus less likely to be affected by the election.⁸

The Census data have a large sample size and sample over all the US population including individuals that are not surveyed in other data sources, such as institutionalized people. However, the Census data lack information on when individuals acquired their education. To explore the timing of educational attainment, we rely on the Current Population Sur-

⁷A large number of pre-intervention periods (relative to the size of the shock) is also needed for the synthetic control method (Abadie et al., 2010).

⁸Using CPS data, we can analyze the high school graduation rates of Blacks in Virginia by age for the pre-treatment period (1984-1989). We observe that at our lower bound of 18 years old, the average graduation rate of Blacks in Virginia is only 35.8%, which indicates that few black students graduate before that age. In the other extreme, the average graduation rate of Blacks aged 20 in Virginia is 74.0% while that of those aged 21 is 79.6%. This last figure is very close to the average graduation rate of Blacks aged 24 in Virginia for the same period (80.0%). Thus, it seems reasonable to assume that at 21 years old, most young Blacks in Virginia who would potentially get their diploma, have already got it. If, instead, the election affected the graduation rate of those aged 21 or more, given that they are considered as pre-treatment cohorts, our results would be downward biased.

vey (CPS) data from 1984 to 1993, downloaded from IPUMS-CPS (King et al., 2010) and NBER. The CPS is a nationally representative pooled cross-section, which provides monthly individual data on school enrolment and attainment.

Finally, we test the robustness of our results using administrative data from the Common Core of Data (CCD) from the National Center for Education Statistics. The CCD provide school level data on the number of students enrolled in grade 12 from the Public Elementary/Secondary School Universe Survey Data and school district level data on the number of graduates from the Local Education Agency (School District) Universe Survey Data. Given that the CCD are administrative data, they have the advantage of being exhaustive. However, they also have important limitations. In particular, they do not provide race-specific statistics before 1992. Moreover, they rely on reports filled by each state and Virginia did not communicate its enrolment rates for the school year 1991-1992 and its graduation rates for the school year 1990-1991. What we can estimate is therefore limited.

3.2 Data sources for channels

To shed light on the potential mechanisms underlying the effect on school outcomes we use additional datasets. To test the aspiration channel, we use a nationally representative survey of first year college students, the CIRP freshman survey from the Higher Education Research Institute (HERI). To test whether there is a change in the returns to education for Blacks, we rely on the Current Population Survey (CPS) data from 1984 to 1993. To test the effect of educational policies, we first exploit data on per-pupil spending from the Government finances report of the annual Census of Government between 1987 and 1991. We also exploit the CPS to analyze the timing of these policies and the age groups affected by them.

3.3 Sample restrictions and definition of variables

We restrict the sample to those who declare themselves as White or Black⁹ and we only use states with at least 10% of Blacks in 1990. This leaves 20 control states.¹⁰

⁹We exclude black Hispanics, and individuals from other races due to the small sample size.

¹⁰The states included as controls are shown in Figure A.1 in the Appendix. They are: Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Illinois, Louisiana, Maryland, Michigan, Mississippi, Missouri, New Jersey, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee and Texas. The cut-off at 10% is due to data constraints: given the sample size of the Census data, states with less than 10% of Blacks do not have enough observations of Blacks without high school diploma in most cohorts. We ran an alternative specification that includes as control states those with a black population of more than 50,000 individuals, according to the 1990 Census. The results are robust to this alternative specification (available upon request). However, given that the number of observations is small for some state-cohort cells, we prefer the 10% cut-off as selection criterion.

Our educational outcome of interest is high school diploma, which is defined by a dummy equal to one if the individual has graduated from high school and zero otherwise. With the CCD, we build graduation rates at the school district level by aggregating the number of students enrolled in grade 12 and matching it to the number of graduates. We obtain graduation rates for school years 1986-1987, 1987-1988, 1988-1989, 1989-1990 and 1992-1993. As the number of graduates is measured at the end of the school year, we consider the three first school years as pre-treatment graduation rates (before the election), and school years 1989-1990 and 1992-1993 as treatment years (after the election). We then estimate if there is a higher increase in graduation rates in counties with a higher share of Blacks.¹¹

A summary table with the definition and data source of all variables is provided in Table A.1 in the Appendix.

4 Empirical strategy

Our identification strategy relies on three sources of variation: race, the state of the event and age during the governor’s term. We exploit four alternative strategies, *i.e.* two difference-in-differences specifications, a triple difference and the synthetic control method. Each of them combines at least two of these sources of variation.

4.1 Difference-in-differences and triple difference

The difference-in-differences specifications use two alternative groups as controls for Blacks in Virginia. We first use Whites in Virginia as controls and we compare changes in high school graduation rates of young Blacks to those of young Whites before and after the election. Using Whites in Virginia as the control group allows us to take into account the fact that any observed change in the educational outcomes of young Blacks might be driven by some trend or other events happening in Virginia.

We estimate the effect with the following basic equation:

$$Y_{it} = \alpha_0 + \alpha_1 Black_i \times Post_t + \alpha_2 Black_i + \alpha_3 Post_t + X_i' \omega + \epsilon_{it} \quad (1)$$

where Y_{it} is a dummy equal to 1 if individual i born in year t has a high school diploma, $Black_i$ is a dummy equal to 1 for Blacks, $Post_t$ is a dummy equal to 1 for the post-treatment cohorts while the post-treatment period covers the term of Douglas Wilder as governor of

¹¹The share of Blacks in each county is computed with the 1990 Census data downloaded from the Census Bureau website: <https://www2.census.gov/programs-surveys/popest/tables/1990-2000/counties/asrh/>. A county is usually larger than a school district.

Virginia, *i.e.* 1990-1993, X_i includes individual covariates. As mentioned in section 3.1, in the Census data we define the post-treatment cohorts as those who were between 18 and 20 years old after the election (*i.e.* cohorts born between 1970-1975),¹² while the pre-treatment cohorts are those who were 21 or older in 1990 and thus likely too old to be affected by the election (*i.e.* cohorts born between 1955-1969).

The coefficient of interest is α_1 , which measures the pre- to post-treatment change in the outcome of Blacks relative to Whites in Virginia. Additional specifications control for year of birth fixed effects and race-specific linear time trends. The standard errors are clustered at the race-year¹³ level, which is the level of the variable of interest ($Black \times Post$).

Second, we compare the evolution before and after treatment of Blacks in Virginia relative to Blacks in other states. This alternative strategy controls for any effect that might be common to all Blacks in the US. We estimate the following equation:

$$Y_{ist} = \beta_0 + \beta_1 VA_s \times Post_t + \beta_2 VA_s + \beta_3 Post_t + X_i' \omega + \epsilon_{ist} \quad (2)$$

where Y_{ist} is a dummy equal to 1 if individual i born in state s and year t has a high school diploma and VA_s is a dummy that takes value 1 if the individual was born in Virginia. The Census data provide information on the current state of residence and the state of birth. The state of residence at the specific age of 18-20 is not available. We use the state of birth as a proxy because the state of residence at older ages is expected to be endogenous to our treatment.¹⁴ The coefficient of interest is β_1 , which measures the pre- to post-treatment change in the outcome of Blacks in Virginia relative to Blacks in the control states. The standard errors are clustered at the state-year level, which is the level of the variable of interest ($VA \times Post$). We also provide confidence intervals computed with the inference procedure suggested by Conley and Taber (2011). This approach deals with the inference problems arising from the fact that there are few treated clusters (here, only one treated state).¹⁵ Additional specifications control for year of birth fixed effects, state fixed effect and state-specific linear time trends.

¹²Specifically, the post-treatment cohorts include those who were between 18 and 20 years old in 1990 (*i.e.* cohorts born between 1970-1972) or reached the age of 18 after 1990 (*i.e.* cohorts born between 1973-1975). Thus, each post-treatment cohort was at least one year of the governor's term in the age range of 18-20.

¹³For simplicity, we refer to year of birth as year.

¹⁴Using the Census of 1990, we observe that the correlation between state of birth and state of residence at 18-20 years old is relatively high (.68) for those who were born in one of the treated or control states. If we include all individuals born in any state within the US the correlation is very similar (correlation coefficient of .69). Moreover, it is unlikely that the selection into migration from and to Virginia changed before and after the election. When exploiting the CPS data in section 5.4, we use instead the state of residence at 18-20 years old.

¹⁵This inference procedure cannot be applied to the previous specification because it requires several control groups.

We also use a triple difference identification strategy, where both Whites and other states are used as controls. Our basic specification to estimate the effect is as follows:

$$Y_{ist} = \gamma_0 + \gamma_1 Black_i \times VA_s \times Post_t + \gamma_2 Black_i \times VA_s + \gamma_3 Black_i \times Post_t + \gamma_4 VA_s \times Post_t + \gamma_5 Black_i + \gamma_6 Post_t + \gamma_7 VA_s + X_i' \eta + \zeta_{ist} \quad (3)$$

The variables are defined as before. The coefficient of interest here is γ_1 , which indicates the change in outcomes for Blacks relative to Whites after 1990 in Virginia relative to the control states. The standard errors are clustered at the state-year level¹⁶ and we also provide confidence intervals based on the inference procedure from Conley and Taber (2011). Further specifications control for state and year of birth fixed effects (or state-race, year-race and state-year fixed effects) as well as a race/state-specific linear time trends.

The coefficients of interest in the three strategies described are identified under the parallel trends assumption. The DD strategy for Virginia requires that the high school graduation rates of Blacks and Whites in Virginia would have followed the same trend in the absence of the election. A similar parallel pattern is required for Blacks between Virginia and other states for the DD strategy comparing Blacks across states. Finally, the DDD strategy requires the difference-in-differences in high school graduation rates of Blacks and Whites to evolve similarly in Virginia compared to other states in the absence of the treatment.

4.2 Synthetic control method

Finally, we estimate the effect of the election on Blacks in Virginia using Blacks in other states as controls but we build the control group following the synthetic control method (see Abadie et al., 2010). The goal of this method is to construct a control group as a convex combination of the pool of control states that can better reproduce the counterfactual trajectory in high school graduation that Blacks in Virginia would have followed in the absence of the election. In order to build the synthetic control, we match the lagged high school graduation rate of Blacks as well as the following additional predictors of high school graduation: the share of Blacks, the unemployment and employment rate among Blacks, the GDP per capita (in log), the student-teacher ratio and the per-pupil spending by state (see notes in Table A.1 for a detailed description of the predictors and their sources). For inferential purposes, we apply the method proposed by Abadie et al. (2010) based on placebo tests applied to each state in the donor pool (see section 5.3).

¹⁶While the variable of interest ($Black \times VA \times Post$) is at the state-race-year level, state-year clustering is more conservative because it allows for any correlation within a state-year cell. However, clustering at the state-race-year level yields similar results (results available upon request).

5 Results on educational attainment

In this section we present the results on the evolution of the educational outcomes of young Blacks in Virginia before and after Wilder’s election. Section 5.1 shows the evolution of high school diploma for pre- and post-treatment cohorts using the raw Census data. Section 5.2 presents the results with the DD and DDD specifications. Section 5.3 shows the results using the synthetic control method. Section 5.4 checks the timing of the effect and its robustness using the CPS data. Finally, section 5.5 checks the robustness of the results using the CCD as additional alternative dataset.

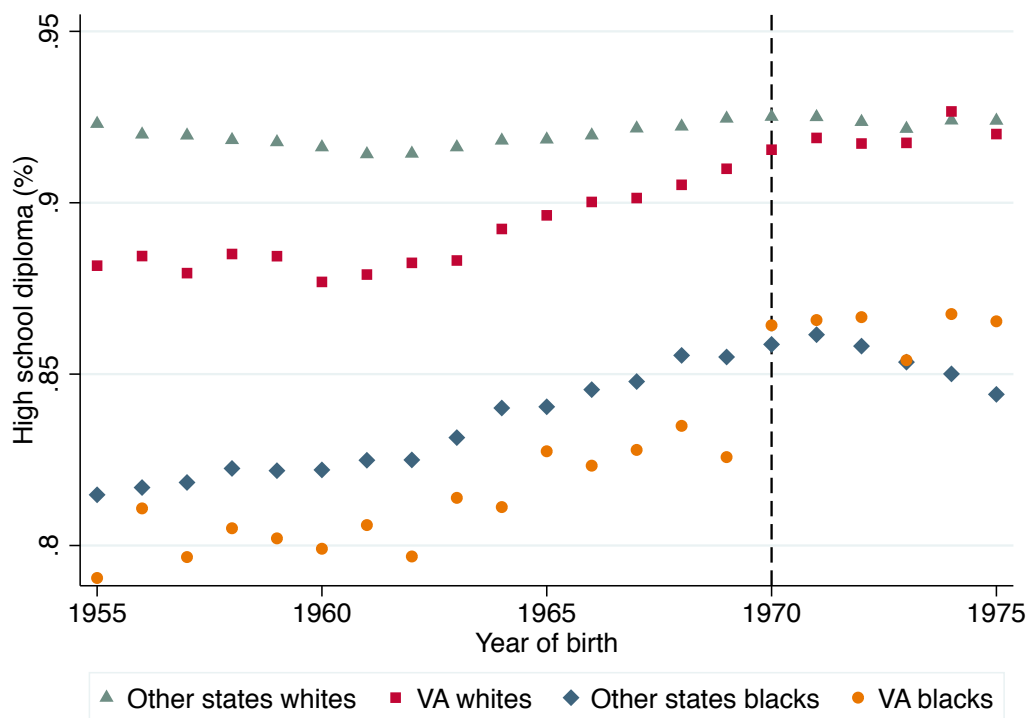
5.1 Descriptive statistics

We first look at the evolution of high school graduation by year of birth for young Blacks born between 1955 and 1975 using the Census data. Figure 2 shows the share of individuals with a high school diploma by year of birth, state (Virginia vs. control states) and racial group (Blacks vs. Whites). Those that were born before 1970 were 21 years old or older when Douglas Wilder arrived to power (pre-treatment cohorts), and those born in 1970 or later were 18-20 years in 1990, or reached the age of 18 during Wilder’s term (post-treatment cohorts). While all non-treated groups have a smooth trajectory before and after 1970, we observe a substantial jump in the probability of getting a high school diploma for Blacks in Virginia born in 1970 compared to those who are born before. The average graduation rate remains at a high level for all post-treatment cohorts. If we focus on Blacks in Virginia we observe that the jump in 1970 implies an increase in the probability of getting a high school diploma of 4 p.p. for those born in 1970 compared to those born the year before. We find a similar effect if we compare the average graduation rate of post-treatment cohorts of Blacks in Virginia to pre-treatment cohorts (see Table A.2 in the Appendix). Moreover, the raw data indicates that the gap between Blacks in Virginia and Blacks in the control states observed for cohorts born before 1970 disappears for cohorts born in 1970 or later.

The raw data provide suggestive evidence regarding the identifying assumption of the DD and DDD strategies. We observe that Blacks in other states have a similar pre-treatment trend to Blacks in Virginia, which gives support to the assumption that both groups would have had a similar trend after 1990 in the absence of the election (equation (2)). Similarly, Whites in Virginia have a rather similar increasing pre-treatment trend to Blacks in Virginia, specially for cohorts born after 1960, which gives support to the alternative DD specification in equation (1). However, Whites in Virginia and in other states have converging trends before 1970, which indicates that the parallel trend assumption may not hold for the DDD specification. We formally compare the pre-treatment trends between Blacks in Virginia and

the control groups in the following section.

Figure 2: Governor from minority and high school diploma. Raw data.



Source: Census 2000 & ACS 2009-2014. The graph plots the raw share of people with high school diploma by year of birth, state (Virginia vs. control states) and racial group (Blacks vs. Whites).

Table A.2 in the Appendix displays additional descriptive statistics. We observe in particular that the DD coefficient for the share of Blacks, which compares the share of Blacks for Virginia and control states before and after 1970, is statistically different from zero. Specifically, the pre- to post-treatment change in the share of Blacks in Virginia relative to the control states is -4 p.p. If there is some selection associated with this decrease, such as selective migration or a decrease in the number of children among black families, this could bias the treatment effect on high school diploma. However, Figure A.2 in the Appendix shows that there is no discontinuity in the share of Blacks in Virginia or control states around 1970 but rather a smooth decrease in Virginia from 1966 and a smooth increase in the remaining states during the whole period. Thus, the jump observed for high school graduation rate in 1970 in Virginia is unlikely to be driven by this.

5.2 Difference-in-differences and triple difference

5.2.1 Identifying assumptions

In this section, we test whether the pre-election trends are similar between each alternative treatment and control group. Table 1 reports the pre-treatment trends for the cohorts born between 1955 and 1969. Column 1 shows the pre-treatment trends for Blacks compared to Whites (DD specification for Virginia), Column 2 shows the pre-treatment trends for Blacks in Virginia relative to Blacks in other states (DD specification for Blacks) and Column 3 checks if Blacks relative to Whites in Virginia have a differential trend compared to Blacks relative to Whites in the control states (DDD specification). For both DD specifications, the results indicate that we cannot reject that the trends for treated and control cohorts are similar before the event. The coefficients on the interaction term between Blacks and the linear trend ($Black \times Year\ trend$ in Column 1) and Virginia and the linear trend ($VA \times Year\ trend$ in Column 2) are very close to zero and not statistically significant. These results support the use of both DD strategies to understand the changes in schooling outcomes of young Blacks during Wilder’s term. For the DDD, the coefficient in Column 3 on $Black \times VA \times Year\ trend$ is also very small but statistically different from zero. As already mentioned, this result is in line with what we observe from the raw data in Figure 2, which shows a much flatter pre-treatment trend for Whites in other states than the rest of the groups. As the coefficient is quite small and negative we still run this specification as a robustness check and we control for the trend, but we prefer both DD specifications over DDD.

5.2.2 Estimation results

We now study the change in the educational outcomes of Blacks with both DD strategies under different specifications. Columns 1-4 in Table 2 compare the difference in high school graduation rates between Blacks that were 21 or older in 1990 in Virginia and Blacks that were 20 years old or younger in 1990 to the same difference for Whites in the same state. The coefficient on Treated is $Black \times Post$. In Columns 5-8 the pre- to post-treatment difference in high school graduation rates for Blacks in Virginia is compared to the same difference for Blacks in other states. The coefficient on Treated is $VA \times Post$.

The basic specification in Column 1 shows that Blacks born in 1970 or later in Virginia have a significant increase in their probability of getting a high school diploma relative to Whites. Controlling for time effects that are common across groups by including year dummies does not affect the results (Column 2). Column 3 additionally allows for a different time trend for Blacks and Whites. The estimated coefficient is only slightly lower than the previous ones. Finally, Column 4 controls for the language currently spoken at home

Table 1: Test for parallel trend before treatment.

Dependent variable:	High school diploma		
	(1)	(2)	(3)
	DD Virginia	DD Blacks	DDD
Black \times VA \times Year trend			-0.002*** (0.001)
VA \times Year trend		-0.000 (0.001)	0.002*** (0.001)
VA		-0.015* (0.008)	-0.053*** (0.007)
Black \times Year trend	0.001 (0.001)		0.003*** (0.000)
Black	-0.086*** (0.008)		-0.124*** (0.005)
Year trend	0.002*** (0.000)	0.003*** (0.000)	0.000 (0.000)
Black \times VA			0.039*** (0.008)
Constant	0.864*** (0.004)	0.793*** (0.006)	0.917*** (0.006)
Observations	175,375	799,047	4,916,415
R^2	0.011	0.001	0.014

Source: Census 2000 & ACS 2009-2014. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The sample is composed of individuals born between 1955 and 1969. The standard errors are clustered at the race-year level in Column 1 and at the state-year level in Column 2 and 3.

as a proxy for the social context when growing up. These results confirm our previous findings using raw data: there is a significant reduction in the white-black gap in high school graduation for post-treatment cohorts. The magnitude of the coefficient implies an increase in the probability of getting a high school diploma of around 2 p.p. among Blacks.

The results are quite similar for the alternative DD specification in Columns 5-8, which compares Blacks across states. The estimates are very close to each other across specifications and imply an effect of 3 p.p. The most conservative specification among both DD specifications (Column 3) implies that the probability of getting a high school diploma increase by at least 1.7 p.p. among Blacks.

The inference procedure of Conley and Taber (2011) requires many control groups and can only be used with the specification in Columns 5-8 where Blacks in Virginia are compared to Blacks in other states. The confidence intervals reported in square brackets confirm that the estimated effect is significantly different from zero for all specifications.

Next, we estimate the effect of the election of Wilder on the racial gap in high school diploma in Virginia controlling for the evolution of Blacks relative to Whites in other states. This specification allows us to verify that the change measured in Table 2 is not driven by

Table 2: Governor from minority and high school diploma. Difference-in-differences.

Dep. variable:					High school diploma			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	DD: Blacks vs Whites in Virginia				DD: Blacks in VA vs in other states			
	Treated: Black \times Post				Treated: VA \times Post			
Treated	0.023*** (0.005)	0.023*** (0.002)	0.017*** (0.004)	0.023*** (0.002)	0.031*** (0.005) [.006,.05]	0.031*** (0.003) [.006,.05]	0.030*** (0.004) [.024,.036]	0.032*** (0.003) [.007,.05]
Black	-0.080*** (0.004)	-0.080*** (0.001)	-1.204* (0.597)	-0.080*** (0.001)				
Post					0.023*** (0.003)			
VA						-0.021*** (0.004)		
Observations	232,181	232,181	232,181	232,181	1,071,425	1,071,425	1,071,425	1,071,425
R^2	0.018	0.018	0.018	0.019	0.005	0.009	0.010	0.009
Year dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
State dummies	No	No	No	No	No	Yes	Yes	Yes
Race time trends	No	No	Yes	No	No	No	No	No
State time trends	No	No	No	No	No	No	Yes	No
Extra control	No	No	No	Yes	No	No	No	Yes

Source: Census 2000 & ACS 2009-2014. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The sample is composed of individuals born between 1955 and 1975. The *Post* indicator refers to individuals born between 1970 and 1975. The standard errors, clustered at the race-year level in Columns 1-4 and at the state-year level in Columns 5-8, are reported in parenthesis. The Conley and Taber (2011) 90% confidence intervals are reported in square brackets. All specifications include gender as a control variable. The extra control is the language spoken at home, which takes value 1 if the language is not English.

events affecting the white-black educational gap all over the US for the cohorts born in 1970 or later. Recall, however, that given the results on pre-treatment trends shown in Table 1, we use this specification as a robustness check only. Table 3 shows the results for alternative specifications.

Similarly to Table 2, most specifications in Table 3 show that post-treatment cohorts of Blacks in Virginia experience a significant increase in their probability of getting a high school diploma with respect to Whites and to the change of Blacks relative to Whites in other states. Column 1 shows the basic specification, Column 2 additionally controls for state and year dummies as well as race-specific state and year dummies that allow for a different intercept for Blacks in each state and each year. Finally, Columns 3 to 5 control for state-year dummies that take into account state-specific time effects that are common across groups. Column 4 also allows for a different trend for Blacks and Whites in each state, and Column 5 controls for the language spoken at home. The treatment effect is significant in all the specifications except for the basic one in Column 1. The magnitude of the increase

Table 3: Governor from minority and high school diploma. Triple difference.

Dep. variable:	High school diploma				
	(1)	(2)	(3)	(4)	(5)
Black \times VA \times Post	0.006 (0.004) [-.034,.027]	0.009** (0.004) [-.012,.022]	0.012*** (0.003) [.003,.024]	0.026*** (0.004) [.022,.029]	0.012*** (0.003) [.003,.024]
Black \times VA	0.009*** (0.002)				
Black \times Post	0.018*** (0.003)				
VA \times Post	0.025*** (0.004)	0.023*** (0.002)			
Black	-0.088*** (0.002)	-0.067*** (0.004)			
VA	-0.030*** (0.003)				
Post	0.005* (0.003)				
State dummies	No	Yes	No	No	No
Year dummies	No	Yes	No	No	No
Black-state dummies	No	Yes	Yes	Yes	Yes
Black-year dummies	No	Yes	Yes	Yes	Yes
State-year dummies	No	No	Yes	Yes	Yes
Time trends	No	No	No	Yes	No
Extra control	No	No	No	No	Yes
Observations	6,437,014	6,437,014	6,437,014	6,437,014	6,437,014
R^2	0.015	0.023	0.023	0.023	0.023

Source: Census 2000 & ACS 2009-2014. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The sample is composed of individuals born between 1955 and 1975. The standard errors, clustered at the state-year level, are reported in parenthesis. The Conley and Taber (2011) 90% confidence intervals are reported in square brackets. Control variables are defined as in Table 2.

in graduation rates among Blacks in Virginia varies from 0.9 to 2.6 p.p., which are for the most part smaller than the estimates for the DD specifications shown in Table 2. The 90% confidence interval computed with the method of Conley and Taber (2011) reported in square brackets includes 0 in the first two Columns, but excludes 0 in Columns 3-5, which confirms that the coefficient is likely to be significantly different from zero.

The presence of serial correlation in our outcome may downward bias the standard errors. To address this, we further estimate the effect by following a very simple procedure as suggested by Bertrand et al. (2004), which gets rid of the time dimension by averaging the data in two periods (before and after the election). We follow this procedure for the following specifications: DD for Blacks in Virginia vs. Blacks in other states and DDD.¹⁷ Results for

¹⁷We proceed as follows: regress Y_{ist} on individual covariates (*i.e.* gender), average the residuals into two

the DD specification are still significant at 99% and of very similar magnitude, showing an effect of around 3 p.p. Results for DDD, however, are not precisely estimated. The effect is similar in magnitude to the main specification but not statistically significant (see Table A.4 in the Appendix).

5.3 Synthetic control method

We further estimate the causal effect of the election by building a synthetic counterfactual for high school graduation of Blacks in Virginia using a pool of control states. We build the synthetic control as the convex combination of those states among the 20 control states that better match the pre-treatment predictors of high school graduation rate of Blacks in Virginia. Table A.5 in the Appendix compares the pre-treatment mean of the predictor variables, including the lagged high school graduation rate of Blacks, between Virginia, the synthetic group and the average of the 20 states in the donor pool. We observe that most variable means are relatively close between Virginia and the synthetic group. Moreover, for most variables except GDP per capita and the student-teacher ratio, the synthetic control performs better than the average of the 20 states in the donor pool.¹⁸ In particular, Blacks from cohorts born before 1970 in the average of the 20 control states have a larger high school graduation rate than in the synthetic control. Table A.6 in the Appendix shows the composition of the synthetic group. We observe that the synthetic Virginia is composed of two states: Florida (81%) and Georgia (19%).

Figure 3a shows the evolution of high school graduation rate for Blacks in Virginia and the synthetic control for cohorts born between 1955 and 1975. Virginia corresponds to the black line. Results show that the synthetic control performs well in approximating the trajectory in high school graduation of Blacks in Virginia for cohorts born before 1970 (*i.e.* our pre-treatment cohorts), which gives support to the use of the synthetic group as a counterfactual. Moreover, for cohorts born in 1970 or later, the graduation rate of Blacks in Virginia becomes and remains significantly higher than in the synthetic group.

The black line in Figure 3b displays the gap in high school graduation rate between Virginia and its synthetic group by cohort. We can easily see that the gap oscillates around zero for pre-treatment cohorts and jumps to around 3 p.p. in 1970 and remains high for all post-treatment cohorts. Results suggest that the estimated increase in high school graduation rate among Blacks in Virginia for cohorts born between 1970 and 1975 is on average 3.4 p.p., which represents an increase of approximately 4%. This result reinforces what we have

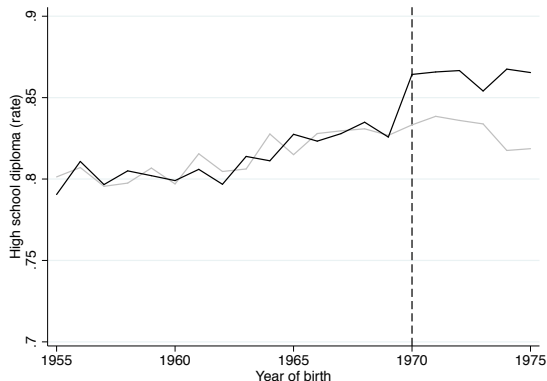
periods (before and after the election) and estimate the treatment effect on this aggregated data.

¹⁸Our results indicate that both GDP per capita and in particular the student-teacher ratio have a low predicting power for the graduation rate of Blacks born before 1970 in Virginia.

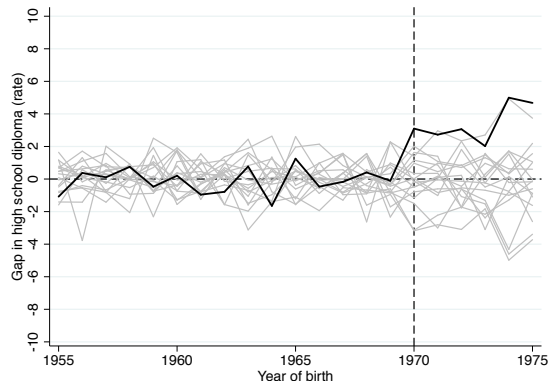
already seen for the DD strategy for Blacks in the previous section.

Figure 3: Synthetic control method. Blacks in Virginia vs. Blacks in other states.

(a) Virginia and synthetic control. Levels.



(b) Virginia and placebo states. Gaps.



Source: Census 2000 & ACS 2009-2014 (main source). Predictors come from various sources (see Notes in Table A.1). In both panels the black line corresponds to Virginia. Panel b) plots the gap in high school graduation rates between each state and its corresponding synthetic control. It excludes the District of Columbia, Delaware and Mississippi that have a pre-treatment mean squared prediction error (MPSE) more than 5 times the MPSE of Virginia.

Figure 3b also displays the results of the inference method suggested by Abadie et al. (2010). We run 20 placebo tests as follows: each test assigns the treatment to one of the states in the donor pool, including Virginia among the control states, and builds a corresponding synthetic group for each state. The gray lines in Figure 3b show the gap in high school graduation rates of Blacks between each placebo state and its corresponding synthetic control. In order to consider placebo states with a reasonable fit, we exclude from this figure any state that has a pre-treatment mean squared prediction error (MPSE) more than 5 times the MPSE of Virginia (see Abadie et al., 2010).¹⁹ This filter removes the District of Columbia, Delaware and Mississippi, leaving 17 placebo states.²⁰ We observe that the effect found in Virginia (the black line in Figure 3b) after 1970 is unusually large relative to the gaps in the placebo states. Given that there are 18 states in total, the probability of randomly finding an effect of the magnitude of the effect found in Virginia is 5.6%, which is only slightly larger than the standard significance level. Finally, we further evaluate the magnitude of the effect in Virginia relative to the gaps in the placebo states by plotting the ratios of post- to pre-treatment MSPE for each state (see Figure A.3b in the Appendix). We observe that Virginia has the highest ratio among all the placebo states. Given that there

¹⁹The MSPE measures the average of the squared errors between the rate of high school graduation in the treated state and its respective synthetic control over the pre-treatment period.

²⁰Figure A.3a in the Appendix displays all the placebo states. We observe that there are several states with gaps that significantly differ from zero in the pre-treatment period. The gap for Virginia after 1970 is still among the largest ones.

are 21 states in total, the probability of randomly finding such a large ratio among all states is almost 5%.

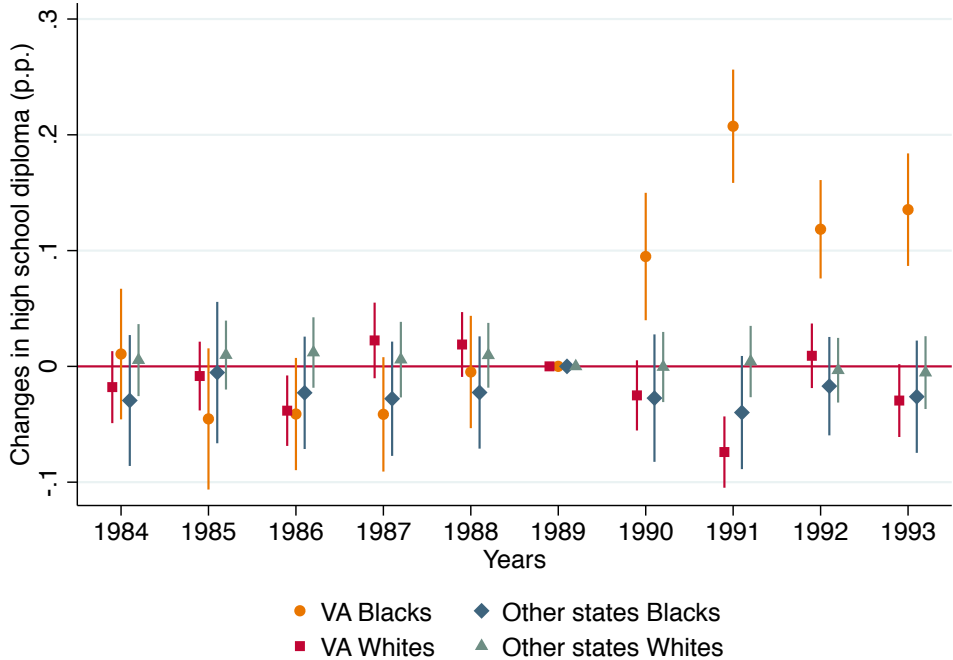
5.4 Event-study with the CPS data

The previous results using the Census data show an increase in the probability of having a high school diploma for cohorts of Blacks that were between 18 and 20 years old when Douglas Wilder arrived to power or that reached 18 during his term. However, the Census data do not provide the year at which individuals got their high school diploma. The CPS, which provides educational information for each year between 1984 and 1993, allows us to understand whether the increase in the probability of having a high school diploma among Blacks in Virginia truly follows the arrival of Douglas Wilder to power. We re-estimate equation (3) with the CPS data, allowing the coefficients to vary by year to explore the timing of the effect. We use 1989, the year of the election of Douglas Wilder, as the reference year.

Figure 4 plots the coefficients. Given the much smaller sample size of the CPS, the coefficients are less precise than with the Census data. However, the results show that there is an increase in the probability of having a high school diploma among 18-20 year-old Blacks in Virginia in 1990, the year when Douglas Wilder arrived to power.²¹ On the contrary, we do not observe any increase in the probability of having a high school diploma for Blacks in other states and for Whites in Virginia or in other states during the period. These additional results are qualitatively in line with the previous findings using the Census data, and highlight that the timing of the increase that we observe for Blacks in Virginia coincides with Douglas Wilder's election.

²¹The magnitude of the effect for the post-treatment years ranges between 10 to 20 p.p., which is considerably larger than with the Census data. This discrepancy could be due to several factors beyond the small sample size of the CPS. First, the sample of individuals is different in the two datasets: the CPS does not include institutionalized persons, such as inmates in prisons or mental institutions. Second, the Census data provide information on recalled highest educational attainment, which may be less accurate than current educational attainment as provided by the CPS. Third, the econometric specification is not exactly the same: with the Census data we can only control for year of birth dummies, but not for year dummies. Finally, in the Census data we do not observe the year when individuals got their high school diploma. Thus, individuals aged 18-20 in 1990-1993 and who got their high school diploma after the age of 20 are classified as having a high school diploma in the Census data specification whereas they are marked as not having a diploma in the CPS specification.

Figure 4: Governor from minority and high school diploma. Yearly estimates. Triple difference. CPS data.



Source: CPS basic, 1984-1993. The graph plots the coefficients estimated following the specification of equation (3), allowing the coefficients to vary by year. The sample is composed of individuals aged 18-20. Standard errors are clustered at the state-year level. The vertical bars indicate the 95% confidence interval; the horizontal axis indicates the year at which individuals are surveyed; the vertical axis indicates the changes in high school graduation rates with respect to the baseline year, *i.e.* 1989.

5.5 Common Core of Data

We test the robustness of the results using a third source of data, the Common Core of Data, which are administrative data providing the rates of high school graduation in each school district. As explained in section 3, the CCD do not provide graduation rates by race before 1992, so we are only able to check whether there is a higher increase in the graduation rates of counties with a higher share of Blacks.

The results are displayed in Table 4 and show that graduation rates are higher in counties with more Blacks after the election of Douglas Wilder. These results are in line with those using the CPS and Census data. Importantly, Table 4 shows no differential increase in graduation rates for counties with a higher share of Blacks in other states.

Table 4: Governor from minority and graduation rate. Triple difference. Common Core of Data.

Dep. variable:	Share of graduates				
	(1)	(2)	(3)	(4)	(5)
Share Blacks \times VA \times Post	0.032** (0.013)	0.032** (0.015)	0.033** (0.015)	0.061*** (0.014)	0.047*** (0.014)
Share Blacks \times VA	-0.003 (0.008)	-0.003 (0.008)			
Share Blacks \times Post	-0.002 (0.004)				
Post	-0.011* (0.006)				
School district dummy	Yes	Yes	Yes	Yes	Yes
Year dummies	No	Yes	No	No	No
Black \times year	No	Yes	Yes	Yes	Yes
State-year dummies	No	No	Yes	Yes	Yes
Time trends	No	No	No	Yes	Yes
School district controls	No	No	No	No	Yes
Observations	30,128	30,128	30,128	30,128	21,260
R^2	0.595	0.598	0.654	0.657	0.760

Source: Common Core of Data, Public Elementary/Secondary School Universe Survey and Local Education Agency (School District) Universe Survey. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The standard errors are clustered at the state-year level. Information about the share of graduates is at the school district level and is available for school years 1986-1987, 1987-1988, 1988-1989, 1989-1990 and 1992-1993. *Share Blacks* is a continuous variable that indicates the share of Blacks in each county. *VA* is a dummy variable that indicates if the school district is in Virginia. *Post* is a dummy variable equal to 1 for school years 1989-1990 and 1992-1993. Column 5 additionally controls for the number of individuals enrolled in grade 12 at the beginning of the school year (in log) and the number of teachers in the school district (in log), which is only available up to 1989-1990.

6 Channels

In the previous section, we show that there is a significant increase in the probability of graduating from high school for young Blacks in Virginia relative to the control groups after Wilder’s election. In this section, we explore three channels that could potentially explain this increase. Section 6.1 analyzes whether the aspirations of young Blacks in Virginia also increase during the post-treatment period. Section 6.2 studies the evolution of expected returns to education for black young adults by looking at contemporary labor market outcomes. Section 6.3 studies whether the effects are driven by changes in educational policies.²²

²²Another possible channel, which we do not explore in this section, relates to differential changes in the required standards to get a high school diploma. We may expect teachers to change their attitudes towards

6.1 Aspirations

We first explore whether the aspirations of black students improve after the election of the first black governor of the US. Previous literature from psychology shows that adults that act as role models for adolescents can foster self-efficacy beliefs, *i.e.* beliefs in own ability to achieve a goal (Zimmerman, 2000). In turn, self-beliefs are highly correlated with academic performance (Pajares and Urdan, 2006). Populations that suffer from negative stereotypes with respect to their performance, such as African American students, tend to have lower self-beliefs and interventions aiming at improving their self-beliefs can improve their educational outcomes (Cohen et al., 2009). With respect to role models, the economic literature has mostly focused on the identity of professors and has shown that these authority figures influence the educational aspirations and outcomes of the students sharing their identity (Bettinger and Long, 2005; Fairlie et al., 2014). The size of the estimated effect in this literature is usually quite large.²³

Could the improved educational outcomes of young Blacks after 1989 come from an improvement in their self-efficacy beliefs following Wilder’s election? As underlined in Sections 1 and 2, the election of Wilder had symbolic importance and this is due to several factors. He was the first black governor ever elected in the US and as such his election raised a lot of attention. The fact that Virginia used to be the capital of the Confederacy and a very active state in slave trade reinforced the symbol. Moreover, Wilder was “a grandson of slaves”²⁴ that grew up in a poor family and suffered from discrimination. He had to leave Virginia to study Law because Blacks were forbidden from studying in Virginia Law Schools.²⁵ All these characteristics led the journalist David Lerman from the newspaper Daily Press to call him “a superstar role model for many black Virginians.”²⁶

To evaluate whether Wilder’s election could have created a role model effect for young Blacks in Virginia, we look at how the self-efficacy beliefs of Blacks relative to the control groups changed after the election. Given that the CPS does not include this information, we exploit a survey of first-year college students, the CIRP Freshman Survey from the Higher Education Research Institute (HERI), which includes questions on self-efficacy beliefs. Specifically, we look at how self-rated *academic ability* and *drive to achieve* of Blacks changed after the election of Douglas Wilder, relative to Whites and other states. These are both

black students following the election of Douglas Wilder. Unfortunately, there is no information on teachers’ attitudes or on students’ test-scores that would allow us to test this channel.

²³Fairlie et al. (2014) for example find that African Americans taught by an African American instructor reduce their dropout rates by 26.6% with respect to their average pre-treatment dropout rates (authors’ calculations based on the results presented in the paper).

²⁴Quote from the newspaper USA Today, “Historic gains for Blacks”, November 8, 1989.

²⁵Source: Virginia Union University online Library.

²⁶Source: Daily Press, September 5, 1994.

categorical variables that take values from 1 to 5. Higher values imply higher self-rated ability or drive to achieve. Table A.7 in the Appendix shows that the pre-treatment trends are parallel for drive to achieve for all identification strategies (Columns 1 to 3) as well as for academic ability (Columns 4 to 6). As the coefficient on the pre-trend variable is the smallest when using both Whites and other states as controls (Columns 3 and 6), we report here the results from the triple difference strategy and leave for the Appendix the two double difference strategies (see Tables A.8 and A.9). To study the evolution of self-efficacy beliefs among Blacks, we estimate equation (3) using an ordered logit model.

Table 5: Governor from minority and aspirations. Triple difference. Ordered logit.

	(1)	(2)	(3)	(4)
Academic ability				
Black \times VA \times Post	0.373*** (0.089)	0.314*** (0.056)	0.303*** (0.066)	0.175* (0.106)
Black \times Post	0.087* (0.051)			
Observations	945,289	945,289	945,289	945,289
Pseudo R^2	0.206	0.210	0.211	0.211
Drive to achieve				
Black \times VA \times Post	0.146* (0.084)	0.117* (0.066)	0.092 (0.069)	0.169 (0.120)
Black \times Post	0.070* (0.041)			
Observations	944,246	944,246	944,246	944,246
Pseudo R^2	0.050	0.053	0.053	0.053
Year dummies	No	Yes	No	No
State dummies	No	Yes	No	No
Black-state dummies	No	Yes	Yes	Yes
Black-year dummies	No	Yes	Yes	Yes
Time trends	No	No	No	Yes
State-year dummies	No	No	Yes	Yes

Source: CIRP Freshman survey, 1985-1993. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The reported coefficients are in log-odds units. The standard errors are clustered at the state-year level. All specifications include individual gender, age, average grade in high school and mother's and father's education as control variables.

As college students are a self-selected population, the Freshman survey sample is quite likely different from the Census sample from which the main results come from. Table A.3 in the Appendix displays descriptive statistics for the Freshman survey sample. We observe that this sample presents some specific characteristics. First, as expected, Blacks are less

represented in the Freshman sample than in the Census for all states, but this is particularly true in the control states. Second, there are considerably more black women in the Freshman survey than in the Census for all states. Moreover, Blacks from Virginia in the Freshman sample appear to have less educated mothers than in other states, although the difference decreases over time.

Given these characteristics of the sample, the results reported in Table 5 should only be considered as suggestive evidence. They show that black first-year college students tend to rate their academic ability and their drive to achieve higher (although not always significantly) after 1990. We find that after the election Blacks in Virginia increase their odds ratio of being in a higher category of self-rated academic ability by 18 to 37% depending on the specification. They also increase their odds ratio of being in a higher category of self-rated drive to achieve by 10 to 17%. These results provide suggestive evidence that the increase in high school graduation rates of black students after 1990 may have partially acted through an improvement in their self-efficacy beliefs at that time. Table 5 also reports the coefficients for $Black \times Post$, which indicates how young Blacks outside of Virginia rate their academic ability and drive to achieve after 1990. Although the size of the coefficients is much smaller than for $Black \times VA \times Post$, it is positive and statistically significant, which indicates that the election of Douglas Wilder could have had spillovers in terms of self-confidence on young Blacks outside of Virginia.²⁷

6.2 Labor market outcomes

We now test whether labor market outcomes could also explain part of the increase in schooling that we observe. Better labor market conditions for black adults such as higher wages and a lower unemployment rate could foster schooling among young Blacks. In other words, Blacks could be responding to an increase in returns to schooling specific to their group. We estimate equation (3) as before to test whether the labor market outcomes of black adults in Virginia improve during Wilder's term. We focus on young adults aged 25 to 35 as they are plausibly a reference group for the young students in high school²⁸ and we look at their self-reported wages and unemployment status using the CPS data. To test whether young Blacks are responding to a specific increase in returns to high school graduation, we run the same specification for young adults who have graduated from high school. The

²⁷Results based on both DD identification strategies are qualitatively similar to the ones found here, although the estimates for *Drive to achieve* are only statistically significant in the DD strategy comparing Blacks across states when controlling for state-specific time trends (see Tables A.8 and A.9 in the Appendix).

²⁸We estimate the same regression for a set of different age groups. No improvement on labor market conditions was found for any group. Results are available upon request.

results are similar to the ones presented here.²⁹

Table 6: Governor from minority and labor market outcomes for young adults (25-35 years old). Triple difference.

	(1)	(2)	(3)	(4)	(5)
Wages					
Black \times VA \times Post	-0.050 (0.070)	-0.045 (0.060)	-0.033 (0.060)	0.071 (0.087)	-0.026 (0.061)
Observations	110,188	110,188	110,188	110,188	110,188
R^2	0.059	0.076	0.079	0.079	0.098
Unemployment					
Black \times VA \times Post	0.001 (0.007)	-0.000 (0.006)	-0.001 (0.006)	-0.020** (0.009)	-0.001 (0.006)
Observations	1,340,836	1,340,836	1,340,836	1,340,836	1,340,836
R^2	0.017	0.023	0.024	0.024	0.027
State dummies	No	Yes	No	No	No
Year dummies	No	Yes	No	No	No
Black-state dummies	No	Yes	Yes	Yes	Yes
Black-year dummies	No	Yes	Yes	Yes	Yes
State-year dummies	No	No	Yes	Yes	Yes
Time trends	No	No	No	Yes	No
Extra control	No	No	No	No	Yes

Source: CPS basic and ASEC, 1984-1993. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The standard errors are clustered at the state-year level. All specifications include individual gender and age. The extra control is household size.

Results in Table 6 show that the labor market conditions of young black adults, as measured by wages and unemployment, do not improve during Wilder’s term. The coefficients are close to zero and not statistically significant in most specifications for both wages and unemployment.³⁰ Improvements in expected returns to education among black Virginians are therefore unlikely to be the main drivers behind the increase in educational achievement that we observe.

6.3 Educational policies

Finally, the changes in educational outcomes that we observe could also be explained by educational policies introduced in Virginia immediately before or during the governor’s term of office. Two major educational policies were introduced in 1989 and 1990 in Virginia: a school funding reform and a change in the compulsory school attendance age. To the best of

²⁹Results are available upon request.

³⁰Table A.10 in the Appendix shows the results with both DD strategies. Most estimates are not statistically significant and small.

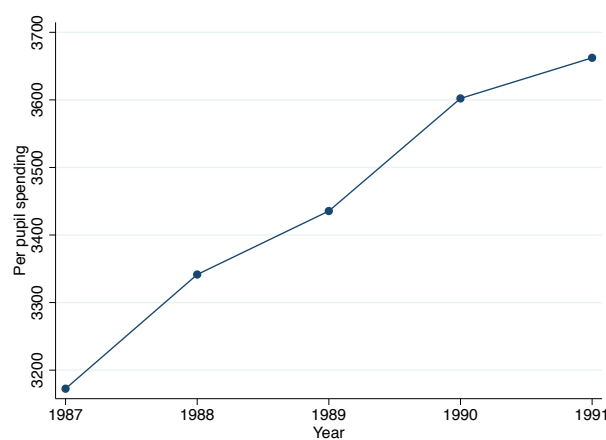
our knowledge, these two policies are the only ones that could have affected the educational attainment of young Blacks during that period in Virginia. We consider these two policies successively.

6.3.1 The school funding reform

A legislative school funding reform (SFR) was introduced in Virginia in 1989. The objective of the reform was to distribute resources more equally across school districts. This reform may affect the educational outcomes of Blacks relative to Whites under two circumstances: if following this reform per-pupil spending increases *and* the marginal return from spending is higher for Blacks than for Whites, or if counties with a larger share of Blacks in the population have a larger increase in resources relative to other counties. In this section, we evaluate these two hypotheses.

For the first hypothesis, we cannot easily check if Blacks' marginal return from spending is higher than for Whites. But we can check if per-pupil spending increased at a higher rate after 1989 in Virginia, using data from the Government finances report of the annual Census of Government.

Figure 5: Evolution of per-pupil spending in the Commonwealth of Virginia 1987-1991



Source: Government finances report of the annual Census of Government, 1987-1991. The amounts are in dollars adjusted for inflation, using the annual average of the CPI index for all urban consumers from the Bureau of Labor statistics.

Figure 5 plots the evolution of current per-pupil spending in Virginia between 1987 and 1991.³¹ Spending is adjusted for inflation, using the annual average of the CPI index for

³¹We start in 1987 because the way per-pupil spending is calculated changed after 1986. Thus, figures

all urban consumers from the Bureau of Labor statistics. The graph shows that there is an increase in per-pupil spending over the period, but this increase is relatively stable and if anything tends to slow down after 1990.

To check whether the evolution of spending in Virginia is similar to other states, Table 7 also reports the evolution of per-pupil spending in Virginia relative to other states using a difference-in-differences estimation strategy. The first line compares the period 87-88 with the period 89-91. The coefficients are small and not significantly different from zero. Given the average magnitude of per-pupil spending before 1989 the point estimates are also not economically significant. This suggests that per-pupil spending did not evolve differently in Virginia compared to other states after 1989. As policy changes are likely to take time to be implemented, we also check whether a change happened later, by comparing the period 87-89 to the period 90-91 in line 2, and the period 87-90 to 91 in line 3. The results are similar across lines. The changes in educational outcomes of young Blacks are therefore not likely driven by a faster increase in per-pupil spending after 1989, 1990 or 1991.

Table 7: Changes in per-pupil spending. Difference-in-differences.

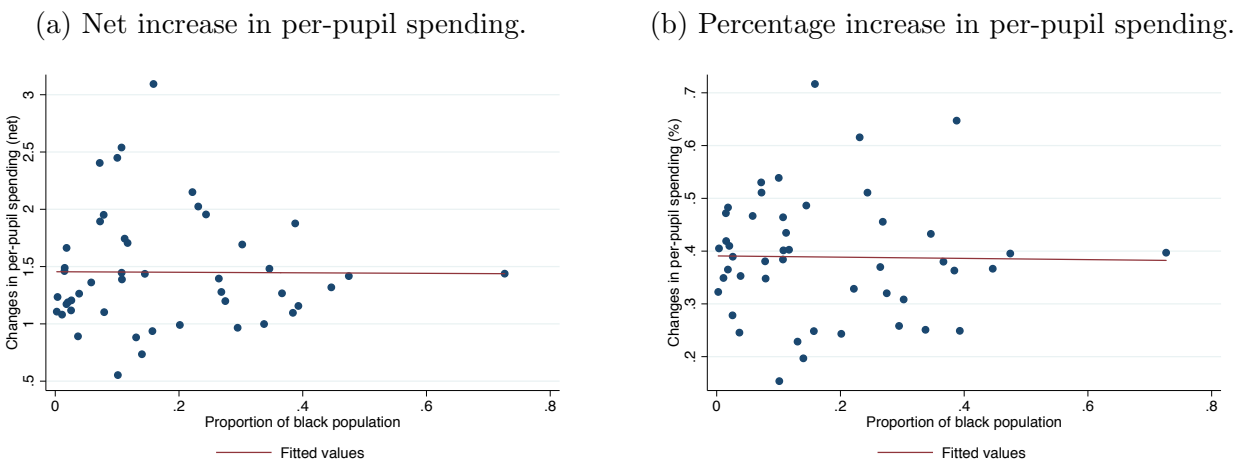
Dep. variable:	Current per-pupil spending		
	(1)	(2)	(3)
VA × Years 89-91	78.74 (917.03)	78.74 (114.95)	-20.92 (143.92)
VA × Years 90-91	99.23 (917.74)	99.23 (114.75)	61.02 (143.73)
VA × Year 91	67.54 (1126.88)	67.54 (141.00)	-32.88 (124.59)
Average spending pre-1989	2,683	2,683	2,683
Year dummies	No	Yes	Yes
State dummies	No	Yes	Yes
State time-trend	No	No	Yes
Observations	105	105	105

Source: Government finances report of the annual Census of Government, 1987-1991. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The amounts are in dollars adjusted for inflation, using the annual average of the CPI index for all urban consumers from the Bureau of Labor statistics. The sample includes Virginia and the 20 control states as illustrated in Figure A.1. Each coefficient comes from a different regression.

Could it be that counties with a higher share of black population get more money per-
before and after 1987 are not strictly comparable.

pupil after the reform? To evaluate this hypothesis, we use available data on per-pupil spending at the county level before and after the school funding reform, in 1987 and 1992, from the Census of governments.³² We estimate the correlation between county-level changes in per-pupil spending in absolute and percentage terms and the share of black population in the county in 1990 from the Census of 1990. Figures 6a and 6b show that there is no correlation between the change in per-pupil spending and the share of black population by county. The absence of correlation is robust to the exclusion of the furthest point on the right. Counties with more Blacks do not seem to benefit more from the school funding reform. The empirical evidence shown here does not support that this policy is one of the drivers of the increase in educational outcomes of Blacks after the election of Wilder.

Figure 6: Change in per-pupil spending between 1987 and 1992.



Source: Census of governments, 1987 and 1992 and Census of 1990. The graphs plot the changes in per-pupil spending between 1987 and 1992 in Virginia as a function of the share of Blacks by county, where each dot represents a county. The number of observations is 47 counties.

6.3.2 Compulsory school attendance age

The second educational reform that we study is a change in the compulsory school attendance age in Virginia. In July 1990, the Commonwealth of Virginia increased the compulsory school attendance age from 17 to 18 years old. While the new compulsory schooling law concerns everybody in Virginia, it may have a differential impact on Blacks relative to Whites given that Blacks have on average a lower attainment rate before the reform (see Table A.2 in the Appendix).

To study the potential effect this policy may have on our results, we first get some insights from the literature studying the impact of compulsory attendance laws in the US. Two results found in this literature are relevant for our case. First, previous results do not

³²Data at the county level in the Census of Governments is only available every five years.

find any impact of these laws on the educational attainment of Blacks in the US (Lleras-Muney, 2002; Stephens and Yang, 2014). Second, the compliance rate with the law has been shown to be low (Oreopoulos, 2006). Therefore, previous studies do not support the change in school attendance age as the main driver of the increase in high school graduation that we observe.

We can get further insights from the data and timing of events to check whether this particular reform in Virginia is, as the literature seems to suggest, unlikely to significantly affect the school outcomes of Blacks. First, we study the timing and age group of Blacks concerned by the increase in educational attainment and compare it to the timing and age group of individuals concerned by the compulsory school age reform. The increase in educational attainment concerns 18-20 year-old Blacks and, as shown in Figure 4, it begins in 1990. In comparison, the compulsory schooling reform takes place in mid-1990 and only concerns those aged 17. More precisely, the timing of the reform implies that the new law is binding since the academic year 1990-1991, which means that any effect on high school graduation is to be expected only from end May or early June 1991 (after the end of the school year). In terms of age groups, the reform is only binding for those who were to dropout at age 17. Thus, those who are already aged 18 or more in 1990 can not be affected by this change.³³

Therefore, the timing of events as well as the age group affected by them suggest that while the increase in high school graduation rates from 1991 onward could be (partly) related to the compulsory school age reform, it is highly unlikely that the increase that we observe in 1990 is driven by this reform. Those for which we observe an increase, the 18-20 year-old Blacks, are too old to be affected by this change in law.

However, those aged 18-20 from 1991 onward, who reach 18 after July 1990, could be affected by the compulsory attendance law. In particular, the reform would lead the compliers within that age group to stay in school for longer (at least until they reach 18). This extra time in school, in turn, decreases their cost of getting their high school diploma. For this channel to explain our results, we should observe a decrease in dropout among Blacks aged 17 in Virginia when compared to the control groups. In other words, we should observe that a larger fraction of Blacks relative to the control groups are kept in school by the law. To explore this, we look at the evolution of dropout by age. The CPS has information about dropout for individuals who are more than 15 years old. We can therefore study the dropout rates of those who are (potentially) directly affected by the compulsory schooling reform (the

³³Those individuals aged 18 that we observe in the second half of 1990 in the CPS might turn 18 after July, when the new law becomes effective. Thus, the new schooling law could force them to stay in school for some months. However, it is unlikely that these extra months would lead them to graduate from high school in the first semester of the 1990-1991 school year.

Table 8: Dropout for 16-17 and 18-20. Triple difference.

Dep. variable:	Dropout				
	(1)	(2)	(3)	(4)	(5)
Age: 16-17					
Black \times VA \times Post	-0.010 (0.014)	-0.011 (0.012)	-0.012 (0.012)	0.019 (0.019)	-0.011 (0.012)
Observations	199,017	199,017	199,017	199,017	199,017
R^2	0.008	0.017	0.020	0.020	0.020
Age: 18-20					
Black \times VA \times Post	-0.084*** (0.032)	-0.087** (0.034)	-0.090*** (0.034)	-0.071 (0.078)	-0.090*** (0.034)
Observations	282,351	282,351	282,351	282,351	282,351
R^2	0.008	0.018	0.021	0.021	0.021
State dummies	No	Yes	No	No	No
Year dummies	No	Yes	No	No	No
Black-state dummies	No	Yes	Yes	Yes	Yes
Black-year dummies	No	Yes	Yes	Yes	Yes
State-year dummies	No	No	Yes	Yes	Yes
Time trends	No	No	No	Yes	No
Extra control	No	No	No	No	Yes

Source: NBER-CPS, 1984-1988 and IPUMS-CPS, 1989-1993. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The standard errors are clustered at the state-year level. Every specification include age, gender and month of survey as controls, as well as a dummy variable indicating whether the individual has the legal age to dropout from school. The extra control in Column 5 is household size.

16-17 year-old group)³⁴, as well as those who are too old to be affected (the 18-20 year-old group). Following equation (3), we check whether dropout among Blacks in these two age groups relative to Whites and other states decrease after the reform. Table 8 shows that there is no decrease in dropout for Blacks aged 16-17 in Virginia compared to the control groups after 1990.³⁵ Instead, there is a significant decrease in dropout for Blacks aged 18 to 20 years old. This population, however, is too old to be affected by the policy for each year after treatment. These results provide additional evidence that the observed improvement in school outcomes for Blacks after 1990 is unlikely to be mainly driven by the compulsory school age reform.

³⁴Although they are not directly affected by the reform, we include the 16 year-old group to get a sufficiently large sample size.

³⁵Table A.11 in the Appendix shows the results with both DD strategies. The results are very similar when Whites in Virginia are used as the control group. When Blacks in other states are used as the control group, we observe a significant decrease in the dropout rates of Blacks in Virginia for most specifications. This decrease is, however, much smaller than for the 18-20 year-old group.

7 Concluding remarks

This paper studies the effect of the election of the first black governor in the US on educational outcomes of young Blacks from the same state. This election was a major event for the black community in Virginia, where the governor was elected, and thus we can expect the election to have had important effects among Blacks. We focus our analysis on young Blacks and study the evolution of high school graduation after the election relative to Whites and other states as controls. Our results point out a sizeable increase in high school graduation rates among 18 to 20 year-old Blacks. Interestingly, the increase does not seem to be fully explained by the main changes in educational policies at that time. It can also not be explained by an increase in returns to schooling for Blacks. Instead, our results provide support to the existence of an effect channeled through an increase in the aspirations of black students. These results suggest that the first elected black governor in the US may have acted as a role model for young Blacks in Virginia. It indicates that increasing the exposure of disadvantaged groups to successful individuals belonging to the same group can foster their educational attainment.

References

- Abadie, Alberto, Alexis Diamond, and Jens Hainmueller**, “Synthetic Control Methods for Comparative Case Studies: Estimating the Effect of California’s Tobacco Control Program,” *Journal of the American Statistical Association*, June 2010, *105* (490), 493–505.
- **and Javier Gardeazabal**, “The Economic Costs of Conflict: A Case Study of the Basque Country,” *American Economic Review*, 2003, *93* (1), 113–132.
- Akerlof, George A. and Rachel E. Kranton**, “Economics and Identity*,” *Quarterly Journal of Economics*, August 2000, *115* (3), 715–753.
- Beaman, Lori, Esther Duflo, Rohini Pande, and Petia Topalova**, “Female Leadership Raises Aspirations and Educational Attainment for Girls: A Policy Experiment in India,” *Science*, 2012, *335* (6068), 582–586.
- Bertrand, Marianne, Esther Duflo, and Sendhil Mullainathan**, “How Much Should We Trust Differences-in-Differences Estimates?,” *The Quarterly Journal of Economics*, 2004, *119* (1), 249–275.
- Bettinger, Eric P. and Bridget Terry Long**, “Do Faculty Serve as Role Models? The Impact of Instructor Gender on Female Students,” *The American Economic Review*, 2005, *95* (2), 152–157.
- Chattopadhyay, Raghavendra and Esther Duflo**, “Women as Policy Makers: Evidence from a Randomized Policy Experiment in India,” *Econometrica*, September 2004, *72* (5), 1409–1443.
- Clots-Figueras, Irma**, “Women in Politics,” *Journal of Public Economics*, August 2011, *95* (7-8), 664–690.
- , “Are Female Leaders Good for Education? Evidence from India,” *American Economic Journal: Applied Economics*, 2012, *4* (1), 212–244.
- Cohen, Geoffrey L., Julio Garcia, Valerie Purdie-Vaughns, Nancy Apfel, and Patricia Brzustoski**, “Recursive Processes in Self-Affirmation: Intervening to Close the Minority Achievement Gap,” *Science*, 2009, *324* (5925), 400–403.
- Conley, Timothy G. and Christopher R. Taber**, “Inference with Difference in Differences with a Small Number of Policy Changes,” *The Review of Economics and Statistics*, 2011, *93* (1), 113–125.

- DellaVigna, Stefano**, “The Obama Effect on Economic Outcomes: Evidence from Event Studies,” *Unpublished manuscript*, 2010.
- Fairlie, Robert W., Florian Hoffmann, and Philip Oreopoulos**, “A Community College Instructor Like Me: Race and Ethnicity Interactions in the Classroom,” *American Economic Review*, 2014, *104* (8), 2567–2591.
- Ferreira, Fernando and Joseph Gyourko**, “Does Gender Matter for Political Leadership? The Case of U.S. Mayors,” *Journal of Public Economics*, April 2014, *112*, 24–39.
- Franck, Raphaël and Ilia Rainer**, “Does the Leader’s Ethnicity Matter? Ethnic Favoritism, Education, and Health in Sub-Saharan Africa,” *American Political Science Review*, May 2012, *106* (2), 294–325.
- Iyer, Lakshmi, Anandi Mani, Prachi Mishra, Petia Topalova, Source American, Economic Journal, Applied Economics, and No October**, “The Power of Political Voice: Women’s Political Representation and Crime in India,” *American Economic Journal: Applied Economics*, 2012, *4* (4), 165–193.
- Jeffries, Judson L.**, *Virginia’s Native Son: The Election and Administration of Governor L. Douglas Wilder*, Purdue University Press, 2000.
- Jencks, Christopher and Meredith Phillips**, *The Black-White Test Score Gap*, Brookings Institution Press, 2011.
- King, Miriam, Steven Ruggles, J. Trent Alexander, Sarah Flood, Katie Genadek, Matthew B. Schroeder, Brandon Trampe, and Rebecca Vick**, *Integrated Public Use Microdata Series, Current Population Survey: Version 3.0. [Machine-Readable Database]*, Minneapolis: University of Minnesota., 2010.
- Kofoed, Michael S.**, “The Effect of Same-Gender or Same-Race Role Models on Occupation Choice Evidence from Randomly Assigned Mentors at West Point,” *Journal of Human Resources*, 2019, *54* (2), 430–467.
- Lleras-Muney, Adriana**, “Were Compulsory Attendance and Child Labor Laws Effective? An Analysis from 1915 to 1939,” *The Journal of Law and Economics*, 2002, *45* (2), 401–435.
- Neal, Derek**, “Why Has Black–White Skill Convergence Stopped?,” in “Handbook of the Economics of Education,” Vol. 1, Elsevier, 2006, pp. 511–576.

- Oreopoulos, Philip**, “Estimating Average and Local Average Treatment Effects of Education When Compulsory Schooling Laws Really Matter,” *American Economic Review*, 2006, *96* (1), 152–175.
- Pajares, Frank and Timothy C. Urdan**, *Self-Efficacy Beliefs of Adolescents*, IAP, 2006.
- Pande, Rohini**, “Can Mandated Political Representation Increase Policy Influence for Disadvantaged Minorities? Theory and Evidence from India,” *American Economic Review*, 2003, *93* (4), 1132–1151.
- Ruggles, Steven, Sarah Flood, Ronald Goeken, Josiah Grover, Erin Meyer, Jose Pacas, and Matthew Sobek**, *IPUMS USA: Version 9.0 [Dataset]*. Minneapolis, MN: IPUMS, 2019. <https://doi.org/10.18128/D010.V9.0>, Minneapolis: University of Minnesota., 2019.
- Stephens, Melvin and Dou-Yan Yang**, “Compulsory Education and the Benefits of Schooling,” *American Economic Review*, June 2014, *104* (6), 1777–1792.
- Traugott, Michael W. and Vincent Price**, “A Review: Exit Polls in the 1989 Virginia Gubernatorial Race: Where Did They Go Wrong?,” *The Public Opinion Quarterly*, 1992, *56* (2), 245–253.
- Vogl, Tom S.**, “Race and the Politics of Close Elections,” *Journal of Public Economics*, January 2014, *109*, 101–113.
- Wolfers, Justin**, “Did Unilateral Divorce Laws Raise Divorce Rates? A Reconciliation and New Results,” *American Economic Review*, December 2006, *96* (5), 1802–1820.
- Zimmerman, Barry J.**, “Self-Efficacy: An Essential Motive to Learn,” *Contemporary Educational Psychology*, January 2000, *25* (1), 82–91.

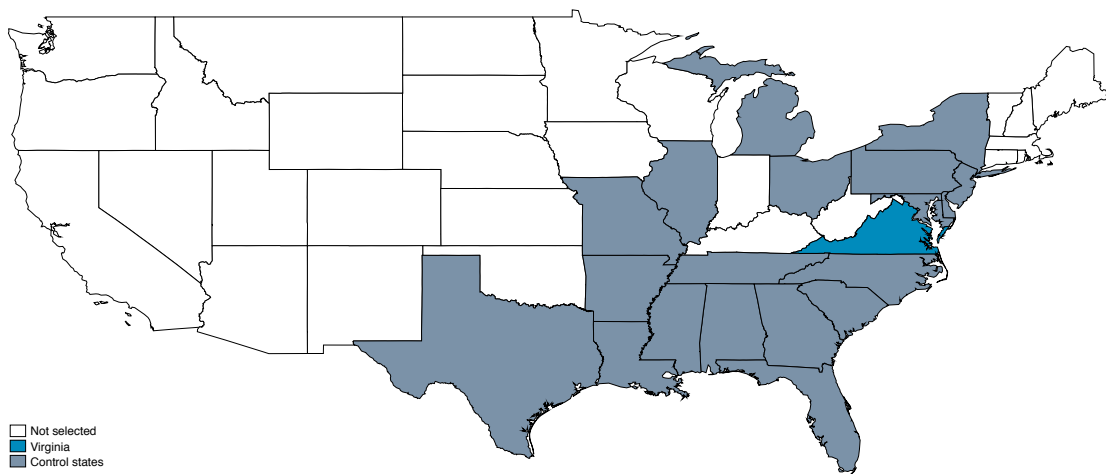
A Appendix

A.1 Definition of variables and identification strategy

Table A.1: Definition of variables.

Variable	Dataset	Definition
Educational outcomes:		
High school diploma	Census data & CPS	Dummy 1 if individual has graduated from high school
High school graduation rate	CCD	Graduation rates at the school district level: ratio of the number of high school graduates to the number of students enrolled in grade 12
Dropout	CPS	Dummy 1 if individual aged 16-20 is not attending school
Aspirations:		
Academic ability	Freshman survey	Self-rated academic ability (values 1 to 5 - higher values represent a higher self-rate)
Drive to achieve	Freshman survey	Self-rated drive to achieve (values 1 to 5 - higher values represent a higher self-rate)
Labor market outcomes:		
Wages	CPS ASEC	Average wages for individuals aged 25-35
Unemployment	CPS	Unemployment rate for individuals aged 25-35
School finances:		
Per-pupil spending	Government finances report	Current per-pupil spending adjusted for inflation (1982-84=100)
Predictors of high school graduation - synthetic control method:		
Share of Blacks	CPS	Averaged over 1977-1989
GDP per capita (in log)	Bureau of Economic Analysis	Measured in 1997 dollars and averaged over 1977-1989
Unemployment	CPS	Unemployment rate among Blacks averaged over 1977-1989
Employment	CPS	Employment rate among Blacks averaged over 1977-1989
Per-pupil spending	Government finances report	Current per-pupil spending corrected for inflation (1982-1984=100) and averaged over 1987-1989
Student-teacher ratio	CCD	Total number of students over total number of teachers averaged over 1986-1989
Lagged high school graduation	Census data	High school graduation rate among Blacks averaged over three sub-groups of pre-treatment cohorts: 1955-1961, 1962-1966 and 1967-1969

Figure A.1: Control states



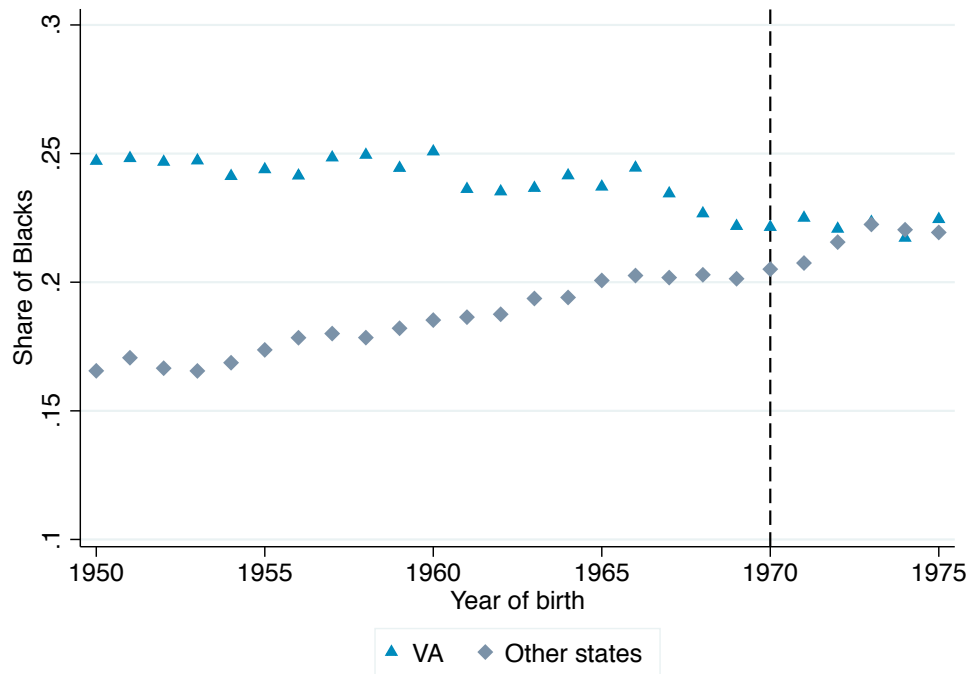
A.2 Data

Table A.2: Descriptive statistics. Cohorts born between 1955 and 1975. Census data sample.

	Virginia		Control States		DD	p-value DD
	Post=0	Post=1	Post=0	Post=1		
High school diploma						
All	0.87	0.91	0.90	0.91		
White	0.89	0.92	0.92	0.92		
Black	0.81	0.86	0.83	0.85	0.03	0.00
Gap (Blacks-Whites)	-0.08	-0.05	-0.08	-0.06	0.01	0.09
Gender (1=Women)						
All	0.51	0.51	0.51	0.50		
White	0.50	0.50	0.50	0.50		
Black	0.53	0.53	0.54	0.53	0.00	0.70
Race (1=Black)	0.24	0.22	0.19	0.21	-0.04	0.00
Age						
All	44.41	33.95	44.49	33.93		
White	44.40	33.95	44.54	33.94		
Black	44.47	33.95	44.26	33.89	-0.16	0.02
Language spoken at home (1=Not English)						
All	0.02	0.02	0.03	0.03		
White	0.02	0.02	0.03	0.03		
Black	0.02	0.02	0.02	0.03	-0.01	0.00
Observations	175,375	56,806	4,741,040	1,463,793		

Source: Census 2000 & ACS 2009-2014. The Column labelled DD estimates the pre- to post-treatment change in Virginia relative to the control states using an equation similar to (2) but without control variables and without clustering the standard errors.

Figure A.2: Evolution of the share of Blacks in Virginia and control states. Raw data.



Source: Census 2000 & ACS 2009-2014. The graph plots the share of Blacks by year of birth and state (Virginia vs. control states).

Table A.3: Descriptive statistics. Freshman survey sample.

	Virginia		Control States	
	Post=0	Post=1	Post=0	Post=1
Gender (1=Women)				
All	0.50	0.55	0.53	0.54
White	0.48	0.54	0.52	0.53
Black	0.56	0.57	0.60	0.60
Race (1=Black)				
All	0.23	0.19	0.13	0.15
Age				
All	18.23	18.15	18.20	18.24
White	18.19	18.13	18.19	18.24
Black	18.36	18.24	18.23	18.26
Mother's education = high school diploma				
All	0.27	0.24	0.34	0.31
White	0.25	0.23	0.34	0.31
Black	0.35	0.31	0.31	0.29
Mother's education = college degree				
All	0.24	0.27	0.20	0.22
White	0.27	0.29	0.21	0.23
Black	0.11	0.16	0.14	0.18
Observations	32,911	23,655	597,437	426,926

Source: CIRP Freshman survey, 1984-1993.

A.3 Results

Table A.4: Governor from minority and educational outcomes. Difference-in-differences and Triple difference. Aggregated data (pre and post election). Census data.

Dep. variable:	High school diploma	
	(1)	(2)
	DD: Blacks in VA	DDD
	vs in other states	
Black \times VA \times Post		0.011 (0.012)
Black \times VA		-0.011 (0.009)
Black \times Post		0.013 (0.012)
VA \times Post	0.032*** (0.007)	0.021** (0.009)
Black		-0.068*** (0.009)
VA	-0.024*** (0.005)	-0.013* (0.007)
Post	0.022*** (0.007)	0.009 (0.009)
Constant	-0.069*** (0.005)	-0.001 (0.007)
Observations	42	84
R^2	0.272	0.646

Source: Census 2000 & ACS 2009-2014. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors.

Table A.5: Synthetic control method. High school diploma predictor means.

Variables	Virginia	Synthetic	Average of 20 control states
Share of blacks	0.21	0.23	0.24
GDP per capita (log)	10.06	9.93	10.03
Unemployment	0.13	0.15	0.18
Employment	0.65	0.62	0.57
Student-teacher ratio	16.28	17.50	17.09
Per-pupil spending	3,316.51	3,345.40	3,368.53
High school diploma (average 1955-1961)	0.80	0.80	0.82
High school diploma (average 1962-1966)	0.81	0.82	0.84
High school diploma (average 1967-1969)	0.83	0.83	0.85

Source: Census 2000 & ACS 2009-2014 (main source). Predictors come from various sources (see Notes in Table A.1)

Table A.6: Synthetic control method. State weights for synthetic control.

Donor pool	Weight
Alabama	0.00
Arkansas	0.00
Delaware	0.00
District of Columbia	0.00
Florida	0.81
Georgia	0.19
Illinois	0.00
Louisiana	0.00
Maryland	0.00
Michigan	0.00
Mississippi	0.00
Missouri	0.00
New Jersey	0.00
New York	0.00
North Carolina	0.00
Ohio	0.00
Pennsylvania	0.00
South Carolina	0.00
Tennessee	0.00
Texas	0.00

Source: Census 2000 & ACS 2009-2014 (main source). Predictors come from various sources (see Notes in Table A.1).

Figure A.3: Synthetic control method. Additional results.



Source: Census 2000 & ACS 2009-2014 (main source). Predictors come from various sources (see Notes in Table A.1). Panel (a) plots the gap in high school graduation rates between the 21 states of the sample and their corresponding synthetic control. Virginia is in black and the control states are in grey. Panel (b) reports the frequency of the post to pre treatment MPSE ratio for the 21 states of the sample.

Table A.7: Test for parallel trend before treatment. Aspirations.

Dependent variable:	Drive to achieve			Academic ability		
	(1)	(2)	(3)	(4)	(5)	(6)
	DD Virginia	DD Blacks	DDD	DD Virginia	DD Blacks	DDD
Black \times VA \times Year trend			0.003 (0.106)			0.009 (0.052)
VA \times Year trend		-0.121 (0.089)	-0.123*** (0.031)		-0.039 (0.055)	-0.050** (0.020)
VA		0.058 (0.471)	0.539*** (0.127)		-0.119 (0.280)	0.136 (0.094)
Black \times Year trend	0.048 (0.092)		0.046 (0.028)	0.030 (0.059)		0.021 (0.018)
Black	-1.543*** (0.488)		-1.067*** (0.116)	-0.134 (0.307)		0.125* (0.071)
Year trend	-0.134*** (0.026)	0.034 (0.028)	-0.012 (0.016)	-0.023 (0.017)	0.046*** (0.017)	0.027** (0.012)
Black \times VA			-0.482 (0.552)			-0.259 (0.267)
Observations	27,653	48,215	511,814	27,607	48,071	511,092
Pseudo R^2	0.035	0.002	0.012	0.000	0.001	0.001

Source: CIRP Freshman survey, 1985-1989. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The standard errors are clustered at the race-year level in Column 1 (4) and at the state-year level in Columns 2 and 3 (5 and 6).

Table A.8: Governor from minority and aspirations. Difference-in-differences. Ordered logit.

Dep. variable:			Self Rating: Academic ability			
	(1)	(2)	(3)	(4)	(5)	(6)
	DD: Blacks vs Whites in Virginia			DD: Blacks in VA vs in other states		
	Treated: Black \times Post			Treated: VA \times Post		
Treated	0.461*** (0.084)	0.409*** (0.081)	0.118 (0.103)	0.214*** (0.074)	0.170*** (0.051)	0.231** (0.107)
Black	-0.219*** (0.073)	-0.197*** (0.056)	-147.323*** (39.275)			
Post				-0.025 (0.049)		
VA				-0.085 (0.055)		
Observations	50,462	50,462	50,462	92,466	92,466	92,466
Pseudo R^2	0.220	0.221	0.221	0.147	0.152	0.153
Year dummies	No	Yes	Yes	No	Yes	Yes
State dummies	No	No	No	No	Yes	Yes
Race time trends	No	No	Yes	No	No	No
State time trends	No	No	No	No	No	Yes

Source: CIRP Freshman survey, 1985-1993. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The reported coefficients are in log-odd units. The standard errors, clustered at the race-year level in Columns 1-3 and at the state-year level in Columns 4-6, are reported in parenthesis. All specifications include individual gender, age, average grade in high school and mother's and father's education as control variables.

Table A.9: Governor from minority and aspirations. Difference-in-differences. Ordered logit.

Dep. variable:	Self Rating: Drive to achieve					
	(1)	(2)	(3)	(4)	(5)	(6)
	DD: Blacks vs Whites in Virginia Treated: Black \times Post			DD: Blacks in VA vs in other states Treated: VA \times Post		
Treated	0.218** (0.103)	0.200*** (0.075)	0.216 (0.132)	0.072 (0.080)	0.044 (0.053)	0.176** (0.075)
Black		0.629*** (0.085)	0.624*** (0.038)			
Post			8.857 (57.114)	0.246*** (0.037)		
VA				-0.046 (0.048)		
Observations	50,409	50,409	50,409	92,241	92,241	92,241
Pseudo R^2	0.052	0.052	0.052	0.040	0.043	0.043
Year dummies	No	Yes	Yes	No	Yes	Yes
State dummies	No	No	No	No	Yes	Yes
Race time trends	No	No	Yes	No	No	No
State time trends	No	No	No	No	No	Yes

Source: CIRP Freshman survey, 1985-1993. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The reported coefficients are in log-odd units. The standard errors, clustered at the race-year level in Columns 1-3 and at the state-year level in Columns 4-6, are reported in parenthesis. All specifications include individual gender, age, average grade in high school and mother's and father's education as control variables.

Table A.10: Governor from minority and labor market outcomes for young adults (25-35 years old). Difference-in-differences.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	DD: Blacks vs Whites in Virginia				DD: Blacks in VA vs in other states			
	Treated: Black \times Post				Treated: VA \times Post			
Wages								
Treated	-0.064 (0.073)	-0.066 (0.058)	0.111 (0.083)	-0.068 (0.060)	0.010 (0.068)	0.016 (0.058)	0.119 (0.076)	0.021 (0.058)
Observations	3,405	3,405	3,405	3,405	17,580	17,580	17,580	17,580
R^2	0.052	0.055	0.055	0.079	0.016	0.040	0.043	0.055
Unemployment								
Treated	-0.009 (0.009)	-0.009** (0.004)	-0.010 (0.007)	-0.009** (0.004)	0.005 (0.010)	0.003 (0.006)	-0.005 (0.012)	0.003 (0.006)
Observations	39,516	39,516	39,516	39,516	220,265	220,265	220,265	220,265
R^2	0.020	0.021	0.021	0.024	0.003	0.015	0.017	0.021
Year dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
State dummies	No	No	No	No	No	Yes	Yes	Yes
Race time trends	No	No	Yes	No	No	No	No	No
State time trends	No	No	No	No	No	No	Yes	No
Extra control	No	No	No	Yes	No	No	No	Yes

Source: CPS basic and ASEC, 1984-1993. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The standard errors are clustered at the race-year level in Columns 1-4 and at the state-year level in Columns 5-8. Control variables are defined as in Table 6.

Table A.11: Dropout for 16-17 and 18-20. Difference-in-differences.

Dep. variable:	Dropout							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	DD: Blacks vs Whites in Virginia Treated: Black \times Post				DD: Blacks in VA vs in other states Treated: VA \times Post			
Age: 16-17								
Treated	0.009 (0.012)	0.009 (0.010)	0.022 (0.017)	0.008 (0.011)	-0.031*** (0.009)	-0.036*** (0.009)	-0.014 (0.014)	-0.036*** (0.008)
Observations	5,746	5,746	5,746	5,746	44,883	44,883	44,883	44,883
R^2	0.020 (1)	0.022 (2)	0.022 (3)	0.023 (4)	0.007 (5)	0.012 (6)	0.013 (7)	0.014 (8)
Age: 18-20								
Treated	-0.084** (0.034)	-0.083*** (0.025)	-0.073 (0.056)	-0.081*** (0.025)	-0.072** (0.032)	-0.073** (0.033)	-0.011 (0.079)	-0.076** (0.033)
Observations	7,695	7,695	7,695	7,695	59,709	59,709	59,709	59,709
R^2	0.011	0.017	0.017	0.019	0.005	0.010	0.012	0.017
Year dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
State dummies	No	No	No	No	No	Yes	Yes	Yes
Race time trends	No	No	Yes	No	No	No	No	No
State time trends	No	No	No	No	No	No	Yes	No
Extra control	No	No	No	Yes	No	No	No	Yes

Source: NBER-CPS, 1984-1988 and IPUMS-CPS, 1989-1993. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The standard errors are clustered at the race-year level in Columns 1-4 and at the state-year level in Columns 5-8. Control variables are defined as in Table 8.