Does Higher Education Cause Political Participation?: Evidence From a Regression Discontinuity Design*

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Abstract

Education has been considered by political economy and political science literature one of the most important factors explaining political participation: voter turnout, civic engagement, political knowledge, and democratic attitudes. However, only few papers have explored the causal link with contradictory findings. In this paper, I use the eligibility criteria for two loan programs in Chile, to perform a regression discontinuity designs that produce an exogenous variation on higher education enrollment, to test the causal effects on political participation. Using administrative individual data from the universe of voters, I find evidence that the relationship is statistically zero. Moreover, the relationship is zero when the data is analyzed by income, sex or by different background measures. Additionally, a survey from a representative sample of the population indicates that higher education do not cause changes in attitudes towards democracy, political knowledge, participation in demonstrations or in civic organizations, but causes overreporting on voting registration.

JEL Codes: D7, I21, I25.

Keywords: political participation, college, higher education, voting registration, overreporting.

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1 Introduction

Understanding the relationship between education and political participation is one of the most important questions on political economics and political science (Campante and Chor, 2012). One the most well documented findings is the strong and positive relationship between schooling and political participation: voter turnout, civic engagement, political knowledge, and democratic attitudes (Campbell, Converse, Miller and Stokes (1960); Wolfinger and Rosenstone (1980); Nie, Junn and Stehlik-Barry (1996); Schlozman (2002); Hillygus (2005); among others), which is sometimes considered one of the major contribution of political science to the general body of knowledge (Schlozman, 2002). The importance of this relationship has been used as argument to justify government intervention in the market of education (Hanushek, 2002), and has been considered fundamental to the preservation of democracy. However, only recently, few papers have explored the causal channel with contradictory findings. On the one hand, Dee (2004) and Milligan, Moretti and Oreopoulos (2004) using instrumental variables strategies,[1] and Sondheimer and Green (2010) analyzing 3 educational experiments, find a positive effect for the United States.[2] On the other hand, Tenn (2007), Kam and Palmer (2008), Berinsky and Lenz (2010), find no effect using different strategies with US data, while Borgonovi, d'Hombres, and Hoskins (2010), Pelkonen (2010), Siedler (2010) and Chevalier and Doyle (2012) provide more evidence of no effect using the same instrumental variables with data from European countries.

Despite the very well documented positive correlation, education may not cause political participation by at least two forms of endogeneity. First, third variables may induce individuals to self-select into higher education and into political activities simultaneously (i.e. personality traits, cognitive ability, family background characteristics, etc.). Because these variables are in general unobserved and positively correlated with education, education acts as a proxy (see Kam and Palmer, 2008). Secondly, it may be that high levels of political participation cause a high educational attainment (reverse causality). More politically active groups or communities have the tools to demand for their rights and to make their politicians accountable, therefore they demand for policies in favor of more and better education.

[1] Milligan et al (2004) analyzed the same instruments for the United States and the United Kingdom, but they find a non-statistically significant effect for the UK.

[2] In Sondheimer and Green (2010), the relationship is significant for 1 of the 3 experiments

In this paper, I use a regression discontinuity design, to deal with endogeneity. Students in Chile became eligible for higher education loans on any type of institution when they score more than a given threshold in the national college admission test. Those students below the cutoff are only eligible for loans in vocational and technical institutions. This rule causes, at the threshold, an exogenous change in the number of students that enroll into higher education (particularly in college) that is as good as randomly assigned (Lee, 2010). Therefore, enrollment into higher education or college can be used to estimate the causal effect of higher education or college on political participation.

Using data from the universe of students that take the college admission test[3] combined with the national registry of the electorate, allows me to deal with common problems such as sample biases, misreported political participation, and it allows examining the heterogeneity on the relationship and the different conditions mentioned in theory, through which education can affect political participation. Moreover, I was able to survey a representative sample of the students around the discontinuity, to elicit information on other types of political participation, political attitudes, political knowledge, and self-reported registration.

I find that despite the positive and strong correlation between higher education and voting registration, the causal relationship is statistically zero. The results are robust to functional specification, the inclusion of a rich set of covariates, and for sub-samples with different characteristics (income level, sex or family background characteristics.)

On the other hand, the survey data indicates that education does not cause changes in any measures of political participation, political knowledge, nor in attitudes towards democracy. However, I find that higher education causes overreporting on the registration status. Student that are barely eligible for loans are 2 percentage points more likely to say they were registered to vote in 2009 while the administrative record indicates the contrary. This implies that students enrolled in higher education are 10 percentage points more likely to overreport, while students enrolled in college are roughly 15 percentages more likely.[4]

The paper is organized as follow, in section 3, I describe the literature, the data used in the paper and the characteristics of the Chilean electoral system. Section 4 describes the econometric

[3]Approximately 90% of all high school graduates in the country take the PSU test.
[4]This outcomes are robust to functional specification and the inclusion of covariates

strategy. Section 5 presents the empirical results using administrative data to show the effect on registration to vote, while section 6, using a survey data, shows evidence of zero effects for other form of political participation, political attitudes, and political knowledge, except overreporting. Finally, section 7 concludes.

2 Literature review

The importance of education on citizenship and democracy has been discussed perhaps since Aristotle (Lipset, 1959) as a way to provide the tools to participate intelligently in the political system avoiding demagogy. More recently, the relationship has been examined from the macro and micro point of views. From a cross country perspective, education it is seen as a necessary condition for democracy because enables prosperity and increases wealth and growth (Lipset (1959), Barro (1999), Glaeser et al (2004), among others). Moreover, education, as main source of human capital accumulation, is the key determinant of the quality of institutions (Glaeser et al (2004)). Nevertheless, these conclusions have been highly controversial, Acemoglu et al (2005), argue that most of the evidence uses cross sectional data that potentially gives biased estimates due to the presence of omitted variables. They show that after including country fixed effects the relationship is statistically zero.[5]

On the microeconomic perspective, the link between education and political participation is considered the strongest relationship in political science (Campbell, Converse, Miller and Stokes (1960); Wolfinger and Rosenstone (1980); Nie, Junn and Stehlik-Barry (1996); Schlozman (2002)) and the best individual level predictor of political participation (Putnam, 1995). However, only recently some studies have explored the causal relationship between education and political participation.

Milligan, Moretti and Oreopoulos (2004) use compulsory schooling laws to instrument education attainment, finding that the relationship between graduating from high school and voting is strong and positive in the US, but not significantly different from zero in the UK. They conclude that education allows Americans go through the barriers of registration, while in the UK

[5]However, Bobba & Coviello (2007) and Catelló-Climent (2007) restates the causal relationship, re-estimating the effect using a "system" GMM that performs better than the "difference" GMM used in Acemoglu (2005) when the explanatory variables are highly persistent and measured with error.

registration is highly assisted by electoral officials, concluding that education is key to allow political participation where participation requires skills and knowledge. Moreover, they find in both countries that education affects citizens' interest on politics. Dee (2004) uses distance to college and exposure to child labor laws as an instrument for college education and years of education to explore the effects on voting, participation on groups, attitudes toward democracy and civic awareness. He finds that the relationship is positive and significant for both types of education measures: college and secondary on all the variables studied.

Nevertheless, the strategy in Milligan et al (2004) and Dee (2004) has not been free of critizism. Tenn (2007) suggests that the instruments used in both papers may still be correlated with omitted variables. He argues that instruments used on those papers vary only by age, year, or geographic location, and therefore is impossible to identify the effects after the inclusion of a complete set of interactions of these covariates, which are key explanatory variables of political participation.[6] Tenn (2007), instead, uses a different approach exploiting differences in years of education for some young students that, despite having the same age, are in different levels of the educational cycle. He finds that one more year of education have very little effect on voter turnout, but it does have an effect on voter registration. Kam and Palmer (2008) use a propensity score matching method to address the selection on education. They find that after including preadult outcomes the relationship between higher education and political participation disappears.[7,8]

Sondheimer and Green (2001) uses two randomized experiments and one quasi experiment that produces exogenous variation on high school graduation to test the effects in turn out. They find a positive effect in the experiment STAR, and positive but non-significant effects under the Perry preschool experiment and the "I have a dream" quasi experiment. They attribute the non-significance to the small sample size.

Finally, Friedman, Kremer, Miguel and Thorton (2011) use a randomly assigned scholarship program (for girls) in Kenya that increase secondary attainment to conclude that educated stu-

[6]Mazumder (2008) also criticizes the use of compulsory schooling laws and child labor laws as instruments for education (in the context of health), since the inclusion of the time-state fixed effects erase the coefficients.

[7]They define participation broadly as an additive index involving voting in 1972, attending campaigns meeting or rallies, displaying a campaign symbol, working on a campaign, donating to a campaign, contacting a public official, participating in a demonstration, or working with others to solve a local issue.

[8]However, this paper is highly criticized by Henderson and Chatfield (2011) who argue that it presents problems in the matching method. After applying a genetic matching approach the relationship becomes statistically significant while the balance among covariates improves.

dents are less likely to accept domestic violence, the legitimacy of political authorities, and they have higher political knowledge. Nevertheless, they show that this empowerment through education does not translate into more participation in politics and into perceived political efficacy. They conclude that their findings are consistent with the view that education increases autonomy and empowerment, on opposition to the modernization theory. They also argue that these findings are puzzling and consistent with reverse causality, because to receive more education, students need to be willing to accept authority in the first place, and after that, with the tools given by education, they are able to challenge authority.

Higher education may or not be a suitable place to look for this relationship. The two main hypotheses that link education and political participation can be related to higher education: 1) the cognitive ability hypothesis (or civic education hypothesis) and 2) the social network hypothesis

The cognitive hypothesis states that education prepares individuals to understand the political process. Education gives to individuals the necessary skills and knowledge to get involved (Rosenstone and Hansen, 1993) or to reduce the cost of participation (Wolfinger and Rosenstone, 1980). Moreover, college life is rich in activities that give individuals the opportunity to understand better the importance of politics and highlight the values of democracy, allowing the emergence of tastes for participation (Galston, 2001). However, This hypothesis contrast with the fact known as the "puzzle of participation" (Brody, 1978), indicating the contradiction between the large increase on education attainment over the last decades, relative to the steadily decrease on voting turnout over the world, on the same period .

To test if education produces an improvement on political skills, we need a measure of cognitive abilities a few years after students enrolled in higher education. Instead of measuring language skills directly, or the capacity to understand a political speach, I will perfrom a test on political knowledge. Students treated with higer education should show higher level of knowledge if this hipothesis is true.

Nevertheless, it may be that not all types of higher education produce improvements in the relevant skills. Programs that teach civic or social sciences directly are more likely to produce highly participative students (Hillygis, 2005). According to that idea an exogenous variation in higher education broadly defined may not be enough to allow the identification of the effect.

Therefore, in the following, I will present results for a more strict measure of higher education: college education. In summary, the label higher education include all program in the three types of higher education, i.e., vocational education which is taught in Centros de Formación Técnica and last in avearge 2.5 years; technical programs, taught in Institutos Profesionales that last 3.2 years on average; and colleges or universities which programs last 6 years in average. The second measure of higher education is college, that restict the analysis only to those studetns that enrolled in this type of instituttions. College in general are located in campuses where many different schools interact, and where the student body is organized through elections every year, and have been quite active since 2006 demanding educational policies relatve to higher education and in other dimensions of political life (more on the educational system in section 2.2.1). In CFTs and IPs in general student ody are not organized, and programs are taught in buiding that look more to a training center.

Finding no effect between higher education an political participation, does not mean that education does not cause higher participation, but the action it may happen at lower level of education

On the other hand, the social network hypothesis states that education is a good predictor of the social position of an individual, and as a consequence more educated individuals would be closer to decision spheres were they can benefit directly (Nie et al, 1996). Moreover, peers in social networks provide individuals with political information, therefore more informed and more educated peers may reduce the cost of participation and boost the interest and taste for politics (Lochner, 2011). Social networks can also impute social pressure to engage political behavior (Funk, 2010) and may be the target of politicians who try to maximize the outcome of their information campaigns (Hillygus, 2005).

3 Background

This section explains some details about background and institutions involved in education and political participation. I start describing the political context and how citizens participate. Following I will describe what type of higher education is involved in the paper and how loans produce exogenous variation on higher education.

3.1 Electoral System

After the end of the military dictatorship of Pinochet, Chile has been governed by a representative democracy with elections in some levels of the executive power. Until the presidential election of 2009, all entitled citizens and permanent residents was need to voluntarily register in the closest electoral office, and after registration, voting was mandatory.[9,10]

As in many countries individuals need to be 18 or older to be entitled to register. This is an important point here, because since the age range in the sample of students is about 19 to 23 years (for most cases) in the presidential election of 2009 and between 22 and 26 years old at the time of the survey. After being registered, individuals no casting their votes receive significant fines (roughly $200 USD of 2009), unless the individual is 200 kilometers away from her poll station, sick, or has lost her national id card, in which case the individual needs to hereby certify at a police station to avoid the penalty. Nevertheless, certifying the inability to vote could imply a similar problem in terms of time and transportation since a few police stations were available to certify the problem.

Citizens were entitled to vote in the presidential election, in the election for senators and the chamber of deputies (senadores and diputados in the Spanish terminology), and the elections for municipality majors and its council.[11] All elections are held on Sundays (a holyday) and the poll stations are located in school and stadiums well known by the electorate. Elections for president, half of the senate and the chamber of deputies are held at the same day every 4 years, and one year before, (every 4 years) municipality elections to elect mayor and its council.

In the presidential election of 2009, 71% of the voting-age population was registered to vote, with turnout of 88% among individuals registered which implies that 63% of the population in age to vote turned out.[12] Figure 1 shows that Chile is a country with average turnout, very similar

[9]Permanent residency was given to any person that has lived for more than 5 years in the country. Any person with a jail sentence cannot vote.

[10]Since the municipal election of 2012, the next election, the system changed to voluntary vote for all eligible citizen and permanent residents.

[11]The political division of the country considers four levels: national level, regions, provinces and municipalities. The only politician elected at the national level is the president. Regions and provinces are governed by intendants and governors respectively, appointed by the president, and municipalities are governed by majors and its council (alcaldes and concejales) both elected. There is 15 regions, 54 provinces, and 349 municipalities. There are 19 Senators constituencies, 1 per small regions, and 2 for the most populated, the only exception is the first constituency which cover the 2 most northern regions. Each constituency elects 2 senators. There are 60 electoral districts, which are combinations of different municipalities, that elect 2 deputies.

[12]Using projected population from Census 2002 and actual registration data from electoral commission.

to the US, and very similar in terms of population in higher education with European countries like France and Austria.[13]

3.2 Higher Education in Chile

Higher education in Chile is offered in three types of institutions Centros de Formación Técnica (CFTs), Institutos Profesionales (IPs), and universities (which include pure pedagogical universities and research universities). In 2007, there were 59 CFTs or vocational institutions and serve 83,575 students (12% of the total higher education enrollment). There were 45 IPs serving 20% of the students in higher education, and 58 universities or colleges serving 68% of the tertiary education population. (Rolando et al, 2010)

CFTs can only offer technical programs which have nominal length of 2 years and lead mainly to the preparation to become assistants in their jobs, specifically they grant certificates of technical higher education (Títulos técnicos de nivel superior). IPs offer programs that grant professional titles (títulos profesionales) that allow students to perform specific jobs, but they cannot offer academic grades. Universities are the only ones able to grant grades, and the majority of the professional titles can be obtained only after receiving the academic grade of bachelor (licenciatura), which limits the type of programs than IPs can offer. Graduation time varies among these three types of institutions, for CFTs the average graduation time is 3.5 years, for IPs is 4.5 years and colleges is 6 years, despite the mode length is 2, 3 and 5 years respectively. To simplify concepts I will call hereafter CFTs and IP vocational and technical institutions.

To enroll in one program in these institutions students need to graduate from high school, and in general, 90% of all high school graduates students take the university admission test (Prueba de Selección Univeristaria, PSU hereafter). Barely all students who enroll in higher education have taken the PSU in the year they graduate from high school.[14]

The PSU score is necessary to apply to the most important universities in the country, which are organized in the council of rectors of Chilean universities (Consejo de rectores de la universidades chilenas, CRUCH). This group consists in 25 universities that were founded before the

[13]Turnout data comes from the International Institute for Democracy and Electoral Assistance (IDEA) and population on tertiary education from UNESCO Institute of Statistic Data Centre.

[14]The PSU test is written once a year, a few weeks after the end of the school year by about 250 thousand students per year (in this paper 2007, 2008 and 2009).

reform of 1981, and therefore are called traditional universities. All the other universities that have been founded since 1981 are called private universities. For them, PSU test is also important since some rank applying students according to PSU scores and high school GPA to select better students, and all universities receive funding according to the PSU score of their students (Aporte fiscal indirecto) that incentivize these group of universities to select students based on PSU scores as well.

The selection process based on PSU scores and high school GPA implies that better students will have better chances to get accepted in higher education, and will be accepted to better or more preferred programs. Since the effect of education may be confounded with ability I will use the requirements of two loan programs that will enable the use of a regression discontinuity.

More importantly, PSU scores are necessary to obtain financial benefits from the ministry of education. All loans and grants provided with public funds determine student eligibility based on PSU score cutoff (there is only one exception). These cutoff provide a exogenous variation in higher education that is explained in the next section

3.2.1 Loans as natural experiment

The two most important financing programs in the country are two loan programs that share some of the requirements and which will be the base for the identification.[15] The two loan programs are the State Guaranteed Loan (Crédito con Aval del Estado or SGL) and the traditional universities loan (Crédito Solidario para Universidades Tradicionales, TUL). To be eligible for both loans students need to:

1. apply for benefits completing the socioeconomic verification form (Formulario Único de Acreditación Socioeconómica, FUAS)

2. be classified by the tax authority in one of the four poorest income quintiles,

Moreover, to receive the TUL, a student needs to score more than 475 and enroll in a traditional university.

To receive the SGL loan will depend on the type of institution the student wants to enroll. To enroll in any accredited university students need to score more than 475 point in the PSU test,

[15]Of all beneficiaries receiving any loan or grant provided by the ministry of education, 75% receive one or both of these loans.

while to enroll in any accredited vocational or technical institutions, students needs a high school GPA above 5.2 (GPA scale is from 1 to 7).

AS a consequence, scoring above 475 point in the PSU test allow students to get loans for university programs, while those who obtain less than that cutoff could obtain loans only for vocational and technical institutions.

At this eligibility cutoff, we observe an important variation in university, and also in vocational and technical enrollment. Figure 2 shows that students scoring at least 475 points (that are eligible for college loans) enrolled twice as much as barely ineligible students, i.e., the enrollment rate goes from 18% below the cutoff to 36% above. Students that are barely below the cutoff are also eligible for loans, but only in vocational and technical institutions. These students substitute their choices for programs in these institutions but still the substitution is not perfect and, as shown on the right figure, students above the cutoff are 10 percentage points more likely to enroll in any program of higher education.

3.3 DATA

In this paper I use two different types of data. First, to investigate the relationship between higher education and registration to vote, I use official administrative records on higher education enrollment and registration to vote, on the universe of the students that participate in the admission process for three years 2007, 2008 and 2009. Moreover, to explore different types of participation, to test for behavioral biases, to test for difference in knowledge and attitudes, I perform a survey to a representative sample of students around the loan cutoff.

The administrative records on higher education enrollment consider three sources of information. First, the PSU data set includes PSU scores and a rich set of demographics characteristics.[16] Second, higher education enrollment from the Ministry of Education, which contains enrollment information for all programs and institutions for all students that are enrolled. Third, the FUAS data set, which contains information on application to grants and loans: whether students applied, are eligible, and the income quintile reported by the national tax authority. These 3 sets of data sets are merged using national ID numbers (RUN) allowing to observe to whole process of higher

[16]Self-reported family income, parent education, household size, place of residency, which is combined with administrative records such as sex, birth date, graduating high school, high school GPA, high school graduating year, application to traditional university programs, etc.

education enrollment, including about 90% of all graduates from high school and all the relevant institutions.

Finally, the information is matched (through national ID) with the official records on registration to vote from the Electoral Commission (Servicio Electoral de Chile). The electoral data corresponds to the registry immediately before the presidential election of December 2009 and the ballotage of January of 2010. The combination of administrative data allows estimating the effect free of self-reporting bias or measuring error.

The second source data correspond to self-reported information, from a representative sample of the previous population, on questions related to participation (on voting, demonstrations, and engagement with civic organizations), political knowledge (about the electoral system, elected politicians, people from the government, authorities at the national level and at in their own districts), and democracy attitudes or preferences. This information is combined with the previous one to use the same regression discontinuity strategy.

Students were requested to answer a web survey performed in October of 2012. The survey was administered by the Universidad Católica de Concepción, a traditional university that is part of CRUCH, which sent the emails and merged the responses with the previously described administrative data from the PSU process, enrollment in higher education, etc.

4 Identification Strategy

The correlation between education and political participation may not indicate causality by a number of factors: the first, and more argued one, is the existence of third variables that explain both variables simultaneously. Kam and Palmer (2008) argued that education is simply a proxy of preadult experiences and dispositions most of the time related to family background, such as values and personality, or even cognitive ability, that determine a high interest in politics and high preferences for education. Therefore the high correlation found in the literature is capturing the fact that education is simply a proxy for such characteristics. Even if education is truly causing participation, these non-observed characteristics would upwardly bias the estimations since they are correlated with both.

Secondly, it may be that high levels of political participation are causing a higher level of

education attainment (reverse causality). More politically active groups or communities have the power to demand for policies in favor of more and better education. People from nations with strong democracies may have the power to implement an educational system that preserves democracy allowing social mobility and economic equity.

I address these problems, using a natural experiment that produces exogenous variation in education. Students who score above a certain threshold on the PSU admission test have access to tuition loans for any program on accredited institutions, while the group of students below the cutoff has access to loans for vocational institution only. As shown in Solis (2012), being above the cutoff implies an increase in the probability of going to college but also implies an increase in the probability of enrolling in higher education in general (any college program or tertiary vocational schools). Under the assumption that every individual score density is continuous, the probability of being a either side of the threshold is the same, and therefore around the eligibility cutoff access to higher education is as good as randomly assigned (Lee and Lemieux, 2010). This element enables a regression discontinuity design that addresses the endogeneity problems, and allows for an unbiased estimate of the causal effect of higher education on political participation.

Loans are given by two different financial programs with barely the same requirements, the State Guaranteed Loan program (Crédito con Aval del Estado) and the traditional universities loan program (Crédito Solidario para Universidades Tradicionales). To have access to the first loan to enroll in any accredited higher education institution (College and technical or vocational institutions) students need to satisfy 3 requirements: have filled the economic status verification form (Formulario Único de Acreditación Socioeconómica, FUAS) before taking the PSU test, being classified in the 4 poorest income quintile by the tax authority and scoring more than 475 points on average in language and mathematics of the PSU admission tests. The second loan program asks the same requirements but is only valid for students enrolling in traditional universities.[17] Nonetheless, eligible students (that filled the verification form and were classified in one of the poorest 4 income quintiles) who scored less than the cutoff could get the State guaranteed loan if and only if they enroll in a program from tertiary vocational institution.

[17]Traditional university is the term used to indicate one of the 25 oldest universities in the country that existed before the educational reform of 1981. Among the 25 traditional universities there are private and publicly funded universities. The universities that are not part of this group are called "private" universities, and are mainly for profit universities. Students in private universities did not have access to loans funded by the government before the inclusion on the State Guaranteed Loan in 2006.

Because some students below the cutoff enrolled in college despite the fact of not receiving financial support, the rate of enrollment is not zero below the cutoff, but jumps discontinuously on it. Students below the cutoff substitute college for vocational programs where they have access to loans, but also there is more students enrolling in higher education above the cutoff than below. I use the cutoff as an instrument for both measures of higher education, in a fuzzy regression discontinuity design. In the first stage, I estimated the relationship between education (higher education or college) with respect to the cutoff, controlling for the influence of the running variable using a flexible function for both sides of the eligibility threshold

$$Education_i = \alpha_1 + \beta_1 \cdot 1(T_i \geqslant \tau) + f(T_i) + X_i \cdot \delta_1 + \nu_i \tag{1}$$

and in the second stage I estimate the relationship of interest

$$PolPart_i = \alpha_2 + \beta_2 \cdot Education_i + f(T_i) + X_i \cdot \delta_2 + \eta_i \tag{2}$$

These loan schemes produce a significant discontinuity in the enrollment rate for higher education and for college. Panel A on Table 1 shows the RD estimation for college enrollment. The different columns show different specifications from linear regression using a bandwidth of 44 points to polynomials splines of 2nd, 3rd and 4th order using the full sample. The results are stable and robust to specification and to the inclusion of a rich set of covariates.

The probability of going to college jumps 18 percentage points for those who barely score 475 or more. This represents an increase of 82 percent with respect to the baseline enrollment rate of those who barely score below the cutoff (enrollment of 22 percent). On Panel B I show the RD estimation for higher education, which included enrollment in college, but also in any vocational institution. The enrollment rate is also robust to specification and the inclusion of covariates and it shows that students above the cutoff enrolled 11 percentage points more often in higher education than those who did not achieve the cutoff. The increment in the probability of enrolling in higher education represents an increase of 21% with respect to the baseline enrollment rate of those that score below 475.

4.1 Conditions for a Valid RD

To test the requirements for a valid regression discontinuity design, that ensure that students below and above the eligibility threshold are comparable in observables and unobservables, I perform 2 common tests: first, I show that students are not able to manipulate their score, and second, that there is no other baseline characteristic that changes at the cutoff.

Figure 3 shows the estimate of the density function of PSU scores using fourth order splines for the assignment variable at each side of the cutoff, plus 95% confidence intervals. Dots in Figure 3 correspond to the empirical density. The test shows that the density function is statistically continuous at the cutoff, which confirms that PSU scores are not subject to manipulation around the cutoff.

Table 2 shows the balance of baseline characteristics. The first 2 columns indicate the differences in each observable characteristic using 2 different approaches. The first column uses all the data and control with 4th order polynomials splines for the running variable (PSU score) on both sides of the cutoff. The second column reproduces the method used in Solis (2012) using a linear specification restricting the sample to all students within 44 PSU points of the cutoff, where 44 correspond to the optimal bandwidth calculated using the method of Imbens and Kalyanaraman (2012). Column (1) shows that only age and income quintile appear significantly different at 5% and 10% level of significance respectively, while in column (2) with the linear specification the balance appear for all variables. Columns (3) through (6) repeat this calculations for the individuals enrolled in higher education and college. In the last 2 columns is evident that students that do not have access to these loans, enrolled only when they come from higher income families, with more educated parents, and therefore the change in enrollment come from the fact that these loans are key to finance their higher education.

4.2 The Correlation for This Age Group

One concern with the data used in this paper is that it considers individuals from 3 young cohorts: students graduating from high school between 2006 and 2008. These students may have been "too" young to reflect the influence of higher education. The information on voting registration come from the end of 2009, therefore these students have only been in higher education between 1 and

3 years. [18] If education affects political participation in the long run, these students may not reflect the effects of education. Nevertheless, analyzing these students come with an advantage, since they are still in school there is no effect attributable to income increases that confounds the effects of education. Oreopoulus and Salvanes (2011) indicates that one of the challenges of the estimation of the effects of education is the necessity of separate the effects from those derived by higher income associated to education

To show if the sample of student is relevant for the study of this problem, Table 3 shows OLS estimation for the correlation between higher education and registration to vote for these group of students. This table presents three different measures of higher education. The first labeled "higher education" is simply an indicator whether individual i has enrolled in any technical, vocational or college programs. The second measure "college" indicates whether a student enrolled in a university program. Finally, this table also includes the correlation between years of education and registration to vote. Column (1) to (3) show the true correlations, using administrative data from the universe of students in the ages between 18 and 26 year old (see section 2.2 for details about the data used). Columns (4) to (6) show the self-reported correlation, using data from the survey Encuesta Nacional de Opinión Pública from Diego Portales University. Surveys from 2007 to 2011 are pooled together and restricted to individuals between 18 and 26 years of age.[19] Table 3 shows the correlation between higher education and registration to vote is positive and highly significant. It shows that the "true" average participation rate increases in 4.6 percentage points for individuals with higher education (Column (1)), increases 10.2 percentage points for individuals with college education and increases about 2 percentage points for each year of education.

Interestingly, when survey data is analyzed the correlation is much higher, at least 2 times the true value. Higher education appears to increase the registration rate in 15 percentage points (more than 3 times the true value), and college education increases registration in 21 percentage points (more than 2 times the true value). This is prima facie evidence that individual with higher

[18] Of the 235,801 students in the three cohorts, 96,89% of the students graduated from high school when they were between 17 and 19 years old. Only 0.02% before that age, from which only 16 students were not entitled to register for the election of 2009. Those students were dropped from the analysis.

[19] Years of education for registry data (Columns (3)) is 12 (years up to high school) plus the number of years where the students show up as enrolled in the enrollment data from the ministry of Education. For survey data (column (6)) is imputed as 12 if the highest educational level is high school, and 13.5, 15, 14.5, 17 and 19 if the highest level of education is incomplete technical higher education, complete technical higher education, incomplete college higher education, complete college higher education, and graduate school respectively.

education are tempted to overreport their true level of participation in surveys, which may bias results using this type of data source. Later in the paper, I will show evidence that this is the case for higher education students in Chile, comparing the true registration to vote and the registration reported in a survey. Using the regression discontinuity design I will show that higher education is causing an overreport of registration to vote.

5 Results

5.1 Effects on Registration to Vote

The estimated relationship between education and registration to vote can be summarized with the reduced form. Figure 4 shows it in its graphical form. The figure on the left shows registration to vote for the whole support of PSU scores, and on the right for a restricted window of 100 PSU points (1 standard deviation). Both figures show that the relationship is precisely zero.

Table 4 confirms this result. It shows the reduced form of registration to vote with respect to PSU scores and a dummy that takes the value of 1 if a student score at least the cutoff, and become eligible for college loans. The different columns show different specification for the control function, f, that control for the running variable and include covariates to show robustness. Columns (1) and (2) f is linear and the estimation is restricted to students that are not more than 44 point away if the cutoff. In columns (3) to (6) f is polynomial (3rd order for (3) and (4) and 4th order for (5) and (6)) and the sample is unrestricted. Even numbered columns add pre-determined covariates.

All columns show that crossing the threshold doesn't imply any change in political participation. The relation between voting registration is actually negative. This leads to the conclusion that college and higher education in generaldoes not imply a higher political participation in this context.

Table 5 confirms the latter. It shows the 2SLS regressions on the effects of the two measures of higher education on registration to vote. Both measures of higher education are instrumented using an indicator variable whether student i score at least the loan eligibility cutoff.

5.2 Heterogeneity

The literature often indicates that the second most important characteristics influencing political participation (the first being education) are individual's income and gender. In this section I will explore if there is any group where the effects are different from zero. In this case, students have not yet graduated from higher education, therefore is not possible to gather information on wages or income, instead I will explore heterogeneous effects by family income, specifically by the classification in income quintiles done by the tax authority.

5.2.1 Family Income

Table 6 shows the first stage of our fuzzy regression discontinuity design by income quintile. Scoring more than the loan eligibility cutoff implies, for eligible income quintiles, an important and significant increase in the probability of college enrollment or enrollment in any vocational, technical or college programs (which I call enrollment in higher education). As a placebo test, the only income quintile that is not eligible for loans (the richest quintile) shows no increase in college or higher education enrollment. As explained in Solis (2012) the group that benefits the most from the financial programs is the poorest income quintile, i.e., the probability of college enrollment went from 14.5% (not shown) to 34.5% (a 20 percentage points increase, or in relative term a 138% increase). When any program in higher education is considered, scoring at least the cutoff implied an increment of 13.5 percentage points in the enrollment rate (a relative increase of 27%, baseline enrollment is 49,5%, not shown), which are still significant and important increments.

For the second quintile, the increments are still very important and significant as well, scoring at least the eligibility cutoff implies a 17 percentage points increase in the probability of college enrollment and a 10 percentage point increase in the probability of enrolling in any higher education program. For college enrollment these students went from an average enrollment of 19.5% (not shown) to 36.51%, which in relative terms corresponds to a 87% increase, while for any higher education programs implies a relative increment of 20.1%. These patterns continues for the other income quintiles until the increment is not significant for the richest quintile.

Despite this important exogenous changes in college enrollment and in any program in higher education, table 7 shows that there is no effect on registration to vote in neither income quintile.

Table 7 shows 2SLS estimation, instrumenting college (the first three columns) and higher education (the last three) with the indicator whether the student scores at least the loan cutoff. Each cell corresponds to the estimation for one income quintile separately. Only the coefficient of the education measure is shown, and its standard deviation and the number of observation in each regression. Each column shows different specification of the function that control for the running variable, in columns (1) and (4) f is linear, in columns (2) and (4) is a 3rd order polynomial, and finally in (3) and (6) is a fourth order polynomial. In most of the cases the relationship is negative, but never significantly different than zero.

5.2.2 Gender

The second more important feature explaining political participation is gender. Panel A in Table 8 shows the first stage by gender, i.e., the relationship between higher education and the instrument (eligibility for loans). As before, first column linear, second column 3rd order polynomial and 3rd column 4th order polynomial. There is a very strong variation in both measures of higher education: First, college. Around the loan cutoff, (barely) not eligible for loans women have college enrollment rate of 20%, while (barely) eligible female students increase their enrollment rate in 15 percentage points (a 75% relative increase). For men baseline college enrollment rate is 25%, and for (barely) eligible increase by 17.1 percentage points. Second, any higher education program. The same happen for students that enroll in any higher education program. Increase of 9 and 11 percentage points for males and females respectively.

Panel B shows that the instrument has no effect on registration to vote. Finally, Panel C shows the fuzzy RD, i.e., 2SLS estimation of registration on higher education measures, instrumenting these measures of higher education with the loan eligibility cutoff. This panel shows that the effect cannot be statistically distinguish from zero. The statistical zero is better estimated for the group of females, perhaps, because the larger sample size.

6 Evidence from a Survey

To explore other forms of political participation and to explain the differences between the administrative and survey data (reported between tables 3 and **??**) I performed in October of 2012

a web survey. Students that participated in the admission process between 2007 and 2009 were invited by email to answer a web survey. The invitation was sent to the email addresses self-reported by the students when they registered to write the PSU test, when they were in the last year of high school. The survey was designed for this purpose and it was administered by the Universidad Católica de Concepción, who sent the emails and later merged the information with to administrative data from the PSU process, to enrollment in higher education and to the electoral data.[20,21]

The rate of response was about 5%, lower that the average response rate for online surveys (30%) (Nulty, 2008). There is many reasons that potentially can explain this rate of response. The first, these emails addresses were self-reported by students between 2007 and 2009, and they may have not been kept by the students after they entered to study or work. A second reason, it may be that the invitation email went directly to spam folders, because the email address used to send the invitation was not previously known by the students, and contained words such as "invitation", "survey", "questionnaire", "raffle", "Ipad", and "tablet", all of which are considered to raise red flags from email servers.[22] Third, students may follow common recommendation from IT technicians that suggests not to open emails from unknown senders. Students registered their emails and agreed to be contacted for anything related to the PSU process when they registered to take the PSU, but they do not know us before the invitation email.

To increase the response rate I offered a raffle of 3 tablets (2 Ipads and 1 HP tablet) and 5 gift cards ($20 each). Preliminary inspection of the data indicates that less than 8% of the students actually opened the invitation email, and 0.1% requested to be unsubscribed.

The main concern is that the respondents may not be a representative sample. To show what type of selection is faced by the survey, I perform a RD t-test comparing respondents with the population at the cutoff, i.e. I perform RD regressions of the type of equation (1) to a set of observable characteristics. Table 9 shows this exercise. Column (1) indicates the population levels for the base line characteristics (for students ϵ below the cutoff). Column (2) indicates the difference for students that are (barely) above the cutoff. Column (4) shows the levels of survey

[20]This University is part of the Council of Rectors of the Chilean Universities, who managed the PSU test every year and owns the data.

[21]The survey can be found in the appendix

[22]A translation of the invitation appears in the appendix

respondents (below the cutoff). Column (5) shows the difference in levels between the survey respondents above the cutoff. Finally Columns (7) compares levels between the population and the survey.

This table shows two things, first, that surveyed students above and below the threshold are comparable in observables, suggesting that both groups can be considered as good counterfactual. Secondly it shows that, around the threshold, survey respondents are almost identical to the population, except for 2 characteristics that are significantly different at the 10% level: Sex and type of high school. The survey is answered by more women and presents more students that graduated from public high schools (and as a consequence less students graduated from voucher high schools). This evidence shows that the surveyed sample is a representative sample of the population of interest.

Table 10 shows that the exogenous change in the college and higher education enrollment is also present in the survey and is almost identical to the changes from the population. Therefore all the evidence from the survey can be associated to an exogenous change in college and higher education.

One potential problem is that the survey is performed in 2012, and asked to recall if someone was register to vote at the end of 2009.[23] However, the 2009 election was the last one when individuals had to be registered before being able to vote, for the following election in 2012, registration was universal and voting voluntary. Therefore the problem of recollection may not be as important. If students registered to vote they did it between 2007 and 2009, and in that period only 2 elections were held: The presidential one of 2009 (that also elected senators and house representatives) and the municipal election of 2008. Therefore they did not have the chance to registered after the election of 2009 and get confused as a consequence.

[Need edition]

Finally, I present in Table 11 and Table 12 OLS regressions for different forms of political participation and political knowledge elicited in the survey to compare them with the results using a exogenous source of higher education. The first 3 columns show the regression of the dependent variable on a dummy for college in Table 11 , and a dummy for higher education in

[23]This is not a problem for political party affiliation, since the information about party affiliation was collected during 2012, and the survey asked current affiliation status.

Table **??**. Columns (4) to (6) add to this regression a set of baseline characteristics.[24] The sample is restricted to 80 points around the cutoff to focus in what happen around the cutoff.[25] This table shows that college and higher education is highly correlated with self-reported form of political participation, but also with the official registration and political knowledge that do not suffer from overreporting bias.

College appears to increase 6 percentage points the official registration to vote (about a 25% relative increase) and is not distinguishable from the self-reported registration. Interestingly overreporting appears to be balanced across educational levels.

Additionally, college appear to increase knowledge about politics (for example, college students are able to name a senator - in the student's own district - 7 percentage points more frequently); appear to induce better attitudes towards democracy (college students agreed that democracy is the best political system 4 percentage points more often); appear to increase the amount of information held by students (they agree on knowing candidates proposals, 4 percentage points higher); increase the likelihood of participation in political demonstrations (11 percentage points more often) and in civic organizations (4 percentage points more often or 35% relatively more likely that non-college students). In conclusion, college education appears to induce all form of political participation and also increase the information set, changing also the attitudes toward a democratic system and to more redistribution.

The same happened in Table 12 for higher education, but less pronounced.

6.1 Estimates Using the Survey Results

Table **??** shows the main outcomes of the survey with respect to the cutoff, the reduced form regression. Columns (1) and (2) indicate that among surveyed there is no change in political participation when the administrative data is used, confirming the results shown previously. In this case both specifications show a positive but not statistically significant relationship. Columns (3) and (4) show the self-reported change in registration to vote. The self-reported registration to vote is positive for both specifications and is statistically different from zero for the linear

[24]The covariates are PSU score, Income quintile, self-reported income category, sex, dummies for type of school (public, voucher and private), high school GPA, household size, if worked previously to take the PSU, and father and mother education.

[25]The tables with the whole sample are shown in the appendix, and show an even greater correlation.

regression. This relationship is about 3% higher than the actual one which indicates that some individuals misreport their participation.

In this case we can compare the self-reported with the true registration to vote. Columns (5) and (6) show that students crossing the threshold overreport their registration to vote significantly. Students that barely became eligible for loans overreport their registration 2 percentage points more frequently than those barely below the cutoff. While students that are barely below the cutoff do not overreport, they have an average rate of overreporting of zero, represented by the constant term).

Whereas, the last two columns show that under-reporting is also present in the survey, and there is no difference between the students around the threshold, both groups misreport about 3% of the cases.

These results may benefit from the fact that the 2009 election was a presidential one. Górecki (2011), and Karp and Brokington (2005) suggest that overreporting depends on the importance of the election, and individuals tend to increase their overreporting in presidential ones. Unfortunately, I cannot test if overreporting is lower in a non-presidential election, as mentioned before this election was the last that requires registration to vote, and therefore the chance to use the same strategy was eliminated.

Table **??** shows the effects on these variables using the cutoff as instrument for college enrollment. Again columns (1) and (2) show that college education does not imply a higher registration to vote, and columns (3) and (4) show that self-reported registration is higher than the official record (and positive and significant for the linear case). Columns (5) and (6) shows that the probability of overreporting increases between 10 and 12 percentage points for students enrolled in college, but there is no misreporting related to college education (columns (7) and (8)).

Table **??** shows the results when the cutoff is used as an instrument for any type of higher education. The results have the same pattern shown in the previous table. Now self-reported registration is not significantly different for students that enrolled in higher education for both specification, and receiving higher education increases the probability of overreporting between 15 and 19 percentage points.

These findings confirm the causal relationship suggested by Silver, Anderson and Abramson (1986) that indicates that the most inclined to overreport are the highly educated. Additionally,

this evidence is consistent with the literature that indicates that overreporting does not affect the conclusions of political participation. Overreporting is very low and therefore does not affect the conclusions relative to voting registration. However the low rate of overreporting may be a consequence of the type of survey, as in web surveys there is no person acting as surveyor, which reduces the embarrassment of answering a social undesirable behavior (Silver, Abramson and Anderson, 1986). Nevertheless, it shows that overreporting is not randomly distributed in the population, consistent with the findings of Bernstein, Chadha, and Montjoy (2001), indicating that using reported vote, potentially distorts the relative effects of some variables on voting, inducing to mistakenly support some hypothesis.

Finally table **??** shows that there is no effect of education on political knowledge (the score in 14 question about the electoral system and people in government and congress, see appendix), and attitudes (How much do you agree in the statement "*I like politics*", and "*democracy is the best political system*"), on information about candidates proposals and others forms of political participation, (demonstrations, such as protests, occupation of buildings, political meetings, etc., and participation on civic organizations, such as sport clubs, unions, religious groups, etc.). The upper panel of Table **??** uses a linear specification in a windows of 80 points and the lower panel a 3rd order polynomial spline for the whole sample. I don't show that 2SLS regressions since the reduced form is zero.

7 Conclusion

The relationship between education and political participation has been broadly explored in the literature, but only few papers have examined the causal channels. To deal with endogeneity I used a regressions discontinuity design induced by the eligibility criteria of two higher education loans in Chile. The two programs require that students score above a cutoff in the national admission test for college, PSU, which is taken by the majority of high school graduates each year. Students that do not meet this requirement can only access to loans in technical institutions.

The eligibility criteria induce a jump in the enrollment rate of college and higher education in general (Solis, 2012). This exogenous source of higher education was merged with administrative records of voting registration and political party affiliation to have measures of participation that

do not suffers from overreporting and response bias.

The estimation indicates that there is not causal effect of the two exogenous measures of higher education on the two political participation measures. Moreover, I find that this results is persistent to any sub-sample, grouped by income level (using tax authority classification), by sex, or other background characteristic.

To explore more forms of political participation, political knowledge, attitudes, and difference in the information sets, I collected survey data for a representative sample from the population mentioned before. Using the same exogenous variation on higher education, I found that the two measures of higher education do not cause any of the measure elicited in the survey: higher political participation (measured as participation on demonstrations and civic organizations), higher political knowledge, better attitudes towards democracy, and self-reported measures of information.

However, I found that college and higher education do cause overreporting on registration to vote confirming previous hypothesis that indicate that educated individuals feel higher pressure to participate and to engage in social desirable behavior (Silver, Anderson, and Abramson (1986), and Bernstein, Chadha and Montjoy (2001), and Funk (2010)). This result shows that using self-reported vote data, potentially distorts the relative effects of some variables on voting, inducing to mistakenly support some hypothesis.

The conclusion is that political participation measured as registration to vote and affiliation to political party is not caused by education.

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9 Tables

Table 1: First Stages for College and Any Post-secondary Education.

	𝟙(College)				𝟙(Vocat., Techn. or College)			
	Linear		4th Poly		Linear		4th Poly	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\mathbb{1}(T_i \geqslant \tau)$	.175	.175	.170	.169	.114	.114	.114	.114
	(.006)***	(.006)***	(.006)***	(.006)***	(.007)***	(.007)***	(.007)***	(.007)***
Const.	.224	-.015	.243	.074	.521	.409	.526	.414
	(.007)***	(.014)	(.014)***	(.015)***	(.010)***	(.017)***	(.021)***	(.022)***
Obs.	79348	79254	235801	235552	79348	79254	235801	235552
R^2	.107	.117	.337	.342	.026	.03	.101	.105
Covariates	No	Yes	No	Yes	No	Yes	No	Yes

Note: This table shows estimates of the relationship between the loan cutoff and enrollment in 2 measures of higher education (Enrollment in college, the first 4 columns, and enrollment in vocational, technical or college programs, the last 4 columns). It shows that the change in higher education at the cutoff is not sensitive to specification of f or the inclusion of covariates. Different columns show different combinations of these two elements. Odd columns show estimates without covariates and even columns include them. The covariates are: income quintile reported by the tax authority, self-reported income categories (from 1 to 3), female indicator, father and mother education in years, indicator for type of school (voucher, and private - public is the reference), age, work status, married status, and high school GPA. For each education measure, the first two columns use a linear control function for the running variable, and the next two column a 4th order polynomial. As before, the linear specification restricts the sample to students 44 PSU points around the loan eligibility cutoff (Imbens and Kalyanaraman (2012) optimal bandwidth).

Robust standard error in parenthesis. ***: p-value$\leqslant$1%, **: p-value$\leqslant$5, *: p-value$\leqslant$10%.

Table 2: Balance of covariates for three groups of students: 1) All students, 2) Only students enrolled in any post-secondary education, and 3) Only college students.

	All			Higher Education		College	
	Level	Linear	4th poly	Linear	4th poly	Linear	4th poly
Dependent Var.:	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Income quintile	2.096	0.016	0.025	-0.027	-0.013	-0.221	-0.210
		(0.015)	(0.016)	(0.02)	(0.022)	(0.034)***	(0.038)***
Self reported Income	1.409	-0.003	0.001	-0.022	-0.017	-0.114	-0.105
		(0.007)	(0.007)	(0.009)**	(0.01)*	(0.016)***	(0.018)***
$\mathbb{1}$(Female)	0.602	0.001	0.006	0.011	0.020	0.016	0.023
		(0.007)	(0.008)	(0.009)	(0.01)*	(0.015)	(0.017)
Mother Education	11.370	-0.005	0.041	-0.008	0.032	-0.455	-0.427
		(0.051)	(0.055)	(0.068)	(0.074)	(0.104)***	(0.118)***
Father Education	11.486	-0.011	0.034	-0.110	-0.077	-0.657	-0.526
		(0.056)	(0.06)	(0.075)	(0.081)	(0.113)***	(0.128)***
Household size	4.458	-0.019	-0.003	-0.010	0.001	0.075	0.088
		(0.026)	(0.028)	(0.035)	(0.038)	(0.054)	(0.061)
Age	17.926	0.043	0.021	0.031	0.014	-0.017	-0.006
		(0.019)**	(0.024)	(0.027)	(0.032)	(0.036)	(0.042)
$\mathbb{1}$(married)	0.005	0.000	-0.001	0.002	0.002	0.006	0.006
		(0.002)	(0.002)	(0.002)	(0.002)	(0.003)**	(0.003)*
$\mathbb{1}$(work)	0.067	-0.003	-0.004	0.000	-0.003	0.004	0.003
		(0.004)	(0.004)	(0.005)	(0.006)	(0.008)	(0.009)
$\mathbb{1}$(Public high school)	0.412	0.011	0.009	0.021	0.009	0.079	0.064
		(0.007)	(0.008)	(0.01)**	(0.01)	(0.015)***	(0.017)***
$\mathbb{1}$(Voucher high school)	0.558	-0.010	-0.010	-0.021	-0.011	-0.066	-0.055
		(0.007)	(0.008)	(0.01)**	(0.01)	(0.015)***	(0.017)***
$\mathbb{1}$(Private high school)	0.024	-0.002	0.000	-0.002	0.000	-0.013	-0.010
		(0.002)	(0.002)	(0.002)	(0.003)	(0.004)***	(0.005)*
High School GPA	5.579	0.003	0.010	0.010	0.014	0.071	0.067
		(0.006)	(0.006)	(0.008)	(0.009)	(0.013)***	(0.015)***
Observations		77,574	230,758	44,944	147,938	23,699	100,624

Note: Estimates for differences on baseline characteristics among students above and below the loan cutoff. Specifically each row corresponds to the estimation of $y_i = \beta_0 + \beta_1 \cdot \mathbb{1}(T_i \geqslant \tau) + f(T_i) + \epsilon_i$. Where y_i is the covariate in the first column, $\mathbb{1}(T_i \geqslant \tau)$ is an indicator whether student i's score (T_i) is at least equal to the loan cutoff (τ), and $f(T_i)$ is a function controlling for the running variable (flexibly at each size of the cutoff) not shown. f is linear in columns (2), (4) and (6) and a 4th order polynomial in columns (3), (5) and (7). Moreover, the linear specification is restricted to students 44 points around the cutoff (the bandwidth based on Imbens and Kalyanaraman (2012) optimal bandwidth calculation). Column (1) shows the level of each covariate for the linear specification. For the following specifications the level is not shown, but they are quite similar to those presented in column (1). Columns (2) and (3) show the estimation using the population of students that took the PSU test. Columns (4) and (5) show estimations when the sample is restricted to students that enrolled in vocational, technical or college programs in the first year. Columns (6) and (7) restrict the sample to students enrolled in college programs. These four last columns show the sorting process of students matriculating in higher education.

Robust standard error in parenthesis. ***: p-value<1%, **: p-value<5, *: p-value<10%.

Table 3: Correlation between registration to vote and education. OLS estimation

	Official records			Self-reported in Survey		
	Higher Educ.	College Educ.	Years of Educ.	Higher Educ.	College Educ.	Years of Educ.
	(1)	(2)	(3)	(4)	(5)	(6)
Const.	.199	.184	.181	.139	.149	-.270
	(.001)***	(.001)***	(.001)***	(.014)***	(.012)***	(.062)***
Education	.046	.102	.018	.150	.210	.038
	(.002)***	(.002)***	(.0004)***	(.024)***	(.030)***	(.005)***
Obs.	235801	235801	235801	1130	1130	1128
R^2	.003	.014	.009	.034	.054	.047
Source	Registry	Registry	Registry	UDP	UDP	UDP

Note: Each column shows the OLS estimation of the relationship between registration to vote and education, $Regis_i = \beta_0 + \beta_1 \cdot Education_i + \epsilon_i$, where $Education_i$ is an indicator whether individual i have enrolled in any program from post-secondary education labeled "higher education" (columns (1) and (4)), that have enrolled in college programs ((2) and (5)) or number of years of education ((3) and (6)). The first three columns show the relationship using administrative data, while the last three columns use one of the most important political surveys in the country: Encuesta Nacional de Opinión Pública from the Diego Portales University. Surveys from 2007 to 2011 have been pooled together, and the sample is restricted to individuals between 18 and 26 years old. Higher education is an indicator whether a student has enrolled in any vocational, technical or colprogram (when using registry data) and an indicator for the categories complete/incomplete technical education or college and also graduate school. College is an indicator for students that have enrolled in college programs in the period 2007-2011 (when using registry data), and an indicator for individual that report educational level as complete or incomplete college or graduate school.

Robust standard errors in parenthesis. ***: p-value<1%.

Table 4: Reduced form. Effects of becoming eligible for loans on political participation.

	Lineal		Poly 3rd		Poly 4th	
	Dependent Variable: Registration to Vote					
	(1)	(2)	(3)	(4)	(5)	(6)
$\mathbb{1}(T \geqslant \tau)$	-.005	-.007	-.005	-.007	-.003	-.005
	(.006)	(.006)	(.005)	(.005)	(.006)	(.006)
Const.	.209	-.416	.214	-.402	.211	-.406
	(.008)***	(.028)***	(.009)***	(.017)***	(.016)***	(.022)***
Obs.	79888	79791	235801	235552	235801	235552
R^2	.002	.014	.029	.042	.029	.042
Covariates	No	Yes	No	Yes	No	Yes

Note: Reduced form estimation of the effect of scoring at least the cutoff on registration to vote. Specifically $Registration_i = \beta_0 + \beta_1 \cdot \mathbb{1}(T_i \geqslant \tau) + f(T_i) + X_i \cdot \delta_1 + \nu_i$. To show that the outcome does not relies in the functional form or on the score window used in the estimation, the first two columns uses a linear f (not shown), i.e. $f(T_i) = \gamma_0 \cdot T_i + \gamma_1 \cdot T_i \cdot \mathbb{1}(T_i \geqslant \tau)$ and a window of 44 points around the cutoff. Whereas, f in columns (3) and (4) is a third order, and in columns (5) and (6) a fourth order polynomial. In the last 4 columns the estimation uses the whole sample of students. The outcome is also robust to the inclusion of predetermined covariates. The covariates included are indicators for income quintiles, and self-reported income, age, mother education (in years), father education, indicators for high school of graduation (public, voucher of private), sex, married status, type of health insurance, household size, all variables measured when students took the PSU test for the first time.

Robust standard error in parenthesis. ***: p-value$\leqslant$1%.

Table 5: The Effect of Education on Voting Registration. 2SLS estimation.

	Lineal		Poly 3rd		Poly 4th	
	Dependent Variable: Registration to Vote					
	Panel A: College					
	(1)	(2)	(3)	(4)	(5)	(6)
1(College)	-.031	-.040	-.032	-.041	-.020	-.030
	(.032)	(.032)	(.029)	(.029)	(.035)	(.035)
Const.	.216	-.420	.222	-.401	.216	-.405
	(.014)***	(.028)***	(.015)***	(.018)***	(.023)***	(.022)***
Obs.	79888	79791	235801	235552	235801	235552
R^2	-.002	.008	.026	.039	.028	.04
	Panel A: Vocational, Technical and college					
1(Higher Educ)	-.048	-.061	-.046	-.058	-.029	-.045
	(.049)	(.048)	(.042)	(.041)	(.053)	(.053)
Const.	.234	-.390	.238	-.376	.227	-.385
	(.031)***	(.038)***	(.029)***	(.030)***	(.041)***	(.040)***
Obs.	79888	79791	235801	235552	235801	235552
R^2	-.0009	.009	.027	.038	.028	.04
Covariates	No	Yes	No	Yes	No	Yes

Note: Two stage least square estimation of the effect of higher education and college on registration to vote, specifically equations (1) and (2). Panel A uses as a measure of education an indicator whether student i enrolled in a college program. Panel B, uses an indicator whether i has enrolled in any type of post-secondary program, i.e., vocational, technical or college. Both measure of higher education are instrumented using the loan eligibility cutoff. To show that the outcome does not depend on the functional form or score window used in the estimation, different columns uses different specifications of the control function f, different windows around the cutoff, and differ in the inclusion of pre-determined covariates. In the first two columns f (not shown) is linear, and the sample is restricted to a window of 44 points around the cutoff. In columns (3) to (6) f is a polynomial (third order in (3) and (4), and forth in (5) and (6)) using the whole sample of students. The outcome is also robust to the inclusion of predetermined covariates. The covariates included are: an indicator for income quintile, self-reported income, age, mother education (in years), father education, indicators for high school of graduation (public, voucher of private), sex, married status, type of health insurance, household size. All predetermined variables were measured when students took the PSU test for the first time

Robust standard error in parenthesis. ***: p-value$\leqslant$1%.

Table 6: First stages by income quintile. The effect of scoring at least the cutoff on College Enrollment and Enrollment in any post-secondary programs.

	Lineal	Pol3	Pol4	Lineal	Pol3	Pol4
	(1)	(2)	(3)	(4)	(5)	(6)
	First Stage					
	College			Higher Education		
$\mathbb{1}(T \geqslant \tau) \times q_1$	.200	.192	.198	.135	.136	.135
	(.008)***	(.007)***	(.008)***	(.010)***	(.008)***	(.010)***
$\mathbb{1}(T \geqslant \tau) \times q_2$	.170	.173	.166	.103	.110	.101
	(.013)***	(.011)***	(.014)***	(.015)***	(.013)***	(.016)***
$\mathbb{1}(T \geqslant \tau) \times q_3$	.165	.154	.162	.099	.114	.120
	(.017)***	(.014)***	(.017)***	(.018)***	(.016)***	(.020)***
$\mathbb{1}(T \geqslant \tau) \times q_4$	.070	.072	.066	.051	.064	.045
	(.019)***	(.016)***	(.020)***	(.021)**	(.018)***	(.022)**
$\mathbb{1}(T \geqslant \tau) \times q_5$	.033	.005	.024	.020	-.004	-.002
	(.022)	(.018)	(.022)	(.024)	(.020)	(.025)
Obs.	87050	265606	265606	87050	265606	265606
R^2	.379	.622	.622	.583	.672	.672

Note: First stage estimation for the two measures of higher education: College is an indicator whether i enrolled in any college program (the 3 first columns). Higher education is an indicator whether student i enrolled in a vocational, technical or college program (the last three columns). The estimation correspond to equation (2) fully interacted with indicator variables for each income quintile. Only the interaction between the instrument and the income quintile are shown. The first column in each higher education measure corresponds to a linear specification of the control function, f, the second uses a third order polynomial, and the third column a polynomial of fourth order to show robustness. The linear specification is also restricted to the sample of students scoring at most 44 points away of the cutoff. The polynomial specifications use the whole sample of students.

Robust standard error in parenthesis. ***: p-value$\leqslant$1%, **: p-value$\leqslant$5%.

Table 7: 2SLS estimation of the effect of education on registration to vote by income quintile.

	Lineal (1)	Polyn. 3rd order (2)	Polyn. 4th order (3)	Lineal (4)	Polyn. 3rd order (5)	Polyn. 4th order (6)
	2SLS Estimation					
	$Education = \mathbb{1}(College_i)$			$Education =$ $\mathbb{1}$(Vocat. or Technic. or College)		
$Education_i \times q_1$	-0.042	-0.044	-0.032	-0.062	-0.062	-0.046
se	(0.038)	(0.036)	(0.042)	(0.056)	(0.051)	(0.061)
Obs	[41,540]	[110,896]	[110,896]	[41,540]	[110,896]	[110,896]
$Education_i \times q_2$	-0.015	-0.006	0.059	-0.024	-0.009	0.097
se	(0.071)	(0.063)	(0.079)	(0.117)	(0.099)	(0.131)
Obs	[17,379]	[50,873]	[50,873]	[17,379]	[50,873]	[50,873]
$Education_i \times q_3$	0.096	0.079	0.016	0.16	0.106	0.022
se	(0.09)	(0.088)	(0.101)	(0.154)	(0.12)	(0.136)
Obs	[11,584]	[37,794]	[37,794]	[11,584]	[37,794]	[37,794]
$Education_i \times q_4$	-0.362	-0.302	-0.314	-0.495	-0.34	-0.462
se	(0.266)	(0.227)	(0.297)	(0.383)	(0.258)	(0.465)
Obs	[9,385]	[36,238]	[36,238]	[9,385]	[36,238]	[36,238]
$Education_i \times q_5$	-0.032	3.805	1.198	-0.053	-5.22	-16.414
se	(0.584)	(14.517)	(1.369)	(0.95)	(30.54)	(235.212)
Obs	[7,162]	[29,805]	[29,805]	[7,162]	[29,805]	[29,805]

Note: 2SLS estimation for the relationship between register to vote and higher education ($Education_i$). College and any post-secondary program (Vocational, technical or college) are instrumented with an indicator whether student i scores more than the loan eligibility cutoff. For college as measure of higher education in the 3 first columns, and any post-secondary program in the last three columns. Specifically, the estimation corresponds to equations (1) and (2) for each income quintile estimated separately. Only the estimation of the variable $Education_i$ is shown, plus its standard deviation, and the number observations in each regression (in brackets). The first column in each measure of higher education corresponds to a linear specification for the control function, f, the second and third columns uses a third and fourth order polynomials respectively to show robustness. The linear specification is restricted to the sample of students scoring at most 44 points away of the cutoff. The polynomial specifications use the whole sample.

Robust standard error in parenthesis.

Table 8: First stages, reduced forms and 2SLS estimation for registration to vote by gender.

	Lineal	Polyn. 3rd order	Polyn. 4th order	Lineal	Polyn. 3rd order	Polyn. 4th order
	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A: First Stage					
	$\mathbb{1}(College)$			$\mathbb{1}(Higher\ Education)$		
$\mathbb{1}(T_i \geqslant \tau) \times \mathbb{1}(male)$	.151	.147	.145	.097	.093	.092
	(.009)***	(.006)***	(.009)***	(.010)***	(.009)***	(.011)***
$\mathbb{1}(T_i \geqslant \tau) \times \mathbb{1}(female)$	.171	.166	.166	.112	.119	.114
	(.008)***	(.007)***	(.008)***	(.009)***	(.008)***	(.009)***
Obs.	87,050	265,606	265,606	87,050	265,606	265,606
R^2	.374	.617	.617	.582	.669	.669
	Panel B: Reduced Form					
	$\mathbb{1}(male)$			$\mathbb{1}(female)$		
$\mathbb{1}(T_i \geqslant \tau) \times \mathbb{1}(\cdot)$	-.009	-.007	-.010	-.003	-.0001	.006
	(.008)	(.007)	(.009)	(.007)	(.006)	(.008)
Obs.	35,779	115,955	115,955	51,271	149,651	149,651
R^2	.345	.640	.641	.370	.596	.597
	Panel C: 2SLS estimation					
	$Education = \mathbb{1}(College_i)$			$Education =$ $\mathbb{1}$(Vocat. or Technic. or College)		
$Education_i \times \mathbb{1}(male)$	-0.069	-0.074	-0.097	-0.107	-0.111	-0.149
se	(0.054)	(0.052)	(0.061)	(0.084)	(0.078)	(0.095)
Obs	[32,815]	[102,288]	[102,288]	[32,815]	[102,288]	[102,288]
$Education_i \times \mathbb{1}(female)$	-0.009	-0.004	0.028	-0.014	-0.006	0.041
se	(0.039)	(0.036)	(0.044)	(0.06)	(0.05)	(0.065)
Obs	[47,073]	[133,513]	[133,513]	[47,073]	[133,513]	[133,513]

Note: Panel A shows the first stage by gender, the first three columns for college and the following three for higher education. Panel B shows the reduced form by gender, the three first columns for males and the next three for females. Panel C shows the 2SLS estimation by gender. In this case, for clarity purposes each regression is run separately to show the number of observations involved. Each column corresponds to a different specification for the control function f. In columns (1) and (4) the control function is linear in a window of 44 PSU points. In columns (2) and (5) f is a third order polynomial, and in columns (3) and (6) a fourth order polynomial using the whole range of PSU scores.

Robust standard error in parenthesis. ***: p-value$\leqslant$1%.

Table 9: Balance of Covariates for Surveyed students.

	β_0	$\mathbb{1}(T_i \geqslant \tau)$	se	$\mathbb{1}(Survey_i)$	se	$\mathbb{1}(Survey_i)$ $\times\mathbb{1}(T_i \geqslant \tau)$	se
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Income Quintile	1.83	0.017	(0.015)	0.064	(0.08)	-0.029	(0.104)
Self-reported income	1.28	-0.002	(0.007)	0.051	(0.038)	-0.039	(0.049)
1(female)	0.59	0.003	(0.007)	0.048	(0.036)	-0.062	(0.048)
Mother Education (years)	10.66	-0.002	(0.051)	0.175	(0.275)	0.028	(0.345)
Father Education (years)	10.64	-0.008	(0.056)	0.136	(0.325)	-0.071	(0.404)
Household size	4.49	-0.019	(0.026)	0.278	(0.143)*	-0.095	(0.176)
Age at survey	22.77	0.055	(0.022)**	-0.160	(0.106)	-0.041	(0.153)
1(married)	0.01	0.000	(0.002)	-0.012	(0.005)	0.016	(0.008)*
1(work)	0.08	-0.003	(0.004)	-0.017	(0.019)	0.019	(0.025)
1(Public high school)	0.47	0.013	(0.007)*	0.084	(0.038)**	-0.085	(0.049)
1(Voucher high school)	0.51	-0.012	(0.007)	-0.100	(0.038)	0.106	(0.049)**
1(Private high school)	0.01	-0.002	(0.002)	0.012	(0.01)	-0.018	(0.011)
High School GPA	5.60	0.002	(0.006)	-0.010	(0.031)	0.029	(0.041)

Note: Each row show the difference in baseline characteristics among surveyed students, above and below the cutoff, and relative to the whole population. Specifically each row shows the estimation of $y_i = \beta_0 + \beta_1 \cdot \mathbb{1}(T_i \geqslant \tau) + \beta_2 \cdot \mathbb{1}(Survey_i) + \beta_3 \cdot \mathbb{1}(Survey_i) \times \mathbb{1}(T_i \geqslant \tau) + f(T_i) + \vartheta_i$. Where y_i is the covariate in the first column, $\mathbb{1}(T_i \geqslant \tau)$ is an indicator whether student i scored at least the cutoff τ, $\mathbb{1}(Survey_i)$ is an indicator whether student i answered the survey, and f a linear function controlling for the running variable interacted with $\mathbb{1}(T_i \geqslant \tau)$ and $\mathbb{1}(Survey_i)$. The sample is restricted to students 44 around the loan eligibility cutoff. The coefficients on f are not shown.

Robust standard error in parenthesis. ***: p-value$\leqslant$1%, **: p-value$\leqslant$5%, and *: p-value$\leqslant$10%.

Table 10: First Stages on Surveyed Students for College and Higher Education.

	$\mathbb{1}$(College)				$\mathbb{1}$(Vocat., Techn. or College)			
	Lineal		4th Poly		Lineal		4th Poly	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\mathbb{1}(T \geqslant \tau)$	.182	.180	.184	.186	.118	.121	.141	.144
	(.035)***	(.037)***	(.040)***	(.042)***	(.039)***	(.041)***	(.046)***	(.049)***
Const.	.212	-.055	.210	-.038	.549	.501	.524	.402
	(.025)***	(.095)	(.031)***	(.059)	(.031)***	(.093)***	(.040)***	(.063)***
Obs.	2657	2335	8450	7441	2657	2335	8450	7441
R^2	.121	.137	.298	.302	.036	.045	.109	.117
Covariates	No	Yes	No	Yes	No	Yes	No	Yes

Note: Estimates of the relationship between loan cutoff and enrollment in 2 measures of higher education (Enrollment in college, the first 4 columns, and enrollment in vocational, technical or college programs, the last 4 columns) for the students that answered the survey. To show that the change in higher education is not sensitive to specification of f or the inclusion of covariates different columns show different combinations of these two elements. Odd columns show estimates without covariates and even columns include them. The covariates are income quintile reported by the tax authority, self-reported income categories (from 1 to 3), female indicator, father and mother education in years, indicator for type of school (public, voucher, and private), age, work status, married status, and high school GPA. For each education measure, the first two columns use a linear control function for the running variable, and the next two columns a 4th order polynomial. As before, the linear specification restricts the sample to students 44 PSU points around the loan eligibility cutoff (Imbens and Kalyanaraman (2012) optimal bandwidth). Robust standard error in parenthesis. ***: p-value$\leqslant$1%, **: p-value$\leqslant$5%, and *: p-value$\leqslant$10%.

Table 11: OLS, Reduced Form and 2SLS Regressions for Political Participation, and Knowledge and College

		OLS			Reduced Form			2SLS		
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent Variable	Scale	Level	$\mathbb{1}(College)$	$t-stat$	Level	$\mathbb{1}(T_i \geqslant \tau)$	$t-stat$	Level	$\mathbb{1}(College)$	$t-stat$
Registration										
Officially Registered to vote	1/0	0.248	0.061	(4.47)***	0.251	0.019	(0.66)	0.231	0.090	(0.66)
Self-reported registration to vote	1/0	0.258	0.060	(4.32)***	0.245	0.047	(1.66)*	0.196	0.227	(1.65)*
Overreporting	1/0	0.018	0.000	(0.03)	0.008	0.024	(2.92)***	-0.018	0.116	(2.76)***
Affiliated to a political party	1/0	0.018	0.006	(1.31)	0.026	0.004	(0.4)	0.022	0.019	(0.41)
Poltical Knowledge										
Political Knowledge test	0-14 to 0-1	0.530	0.027	(4.9)***	0.522	0.013	(1.13)	0.508	0.063	(1.13)
Knows ministers and congress	0-9 to 0-1	0.635	0.023	(3.37)***	0.621	0.013	(0.87)	0.608	0.061	(0.87)
Knows about electoral system	0-5 to 0-1	0.342	0.032	(5.8)***	0.342	0.010	(0.86)	0.332	0.048	(0.86)
Able to name elected politicians	0-3 to 0-1	1.440	0.176	(6.04)***	1.417	0.095	(1.53)	1.318	0.459	(1.51)
Attitudes towards Democracy										
Likes politics	1-9 to 0-1	0.280	0.042	(5.04)***	0.262	0.016	(0.94)	0.245	0.079	(0.94)
Democracy is the best	1-9 to 0-1	0.605	0.040	(4.92)***	0.612	0.008	(0.46)	0.603	0.040	(0.46)
Knows candidates proposals	1-9 to 0-1	0.409	0.055	(6.07)***	0.409	0.022	(1.15)	0.386	0.108	(1.16)
Reads politics on newspapers	1-9 to 0-1	0.269	0.043	(5.2)***	0.247	0.025	(1.47)	0.221	0.121	(1.46)
Watch politics on TV	1-9 to 0-1	0.385	0.042	(4.85)***	0.375	0.034	(1.81)*	0.339	0.164	(1.79)*
Educated are better rulers	1-9 to 0-1	0.438	0.030	(3.52)***	0.443	-0.002	(0.1)	0.445	-0.009	(0.1)
Other Forms of Political Participation										
Participate in demonstrations	1/0	0.454	0.107	(7.07)***	0.458	0.031	(0.96)	0.426	0.148	(0.96)
Part. demonstration intensity	0-6	1.152	0.406	(7.87)***	1.191	0.051	(0.49)	1.137	0.248	(0.49)
Participate in civic organization	1/0	0.135	0.040	(3.64)***	0.174	-0.032	(1.37)	0.207	-0.153	(1.34)
Part. organization intensity	0-6	0.200	0.068	(3.63)***	0.251	-0.048	(1.25)	0.302	-0.234	(1.22)

Note: Estimates from OLS (columns (1) to (3)), reduced form (columns (4) to (6)), and 2SLS regressions (columns (7) to (9)) for the relation between college enrollement and different measures of political participation, political knowledge, and political attitudes. "Political knowledge" corresponds to the number of correct answers (e.g., 0 to 14) transformed to 0-1 scale. For attitudes 1 mean completely disagree and 9 completely agree, and it was transformed to the scale 0-1. Scale 1/0 means 1 for yes and 0 for no. "Part. demonstration intensity" corresponds to the intensity in participation, correspond to the sum of 6 different forms of political demonstrations (street marches, occupying institutions, cacerolazo, street protests, political meetings, and other demonstrations). The variable "Part. organization intensity" corresponds to the number of organizations students participate (the intensity of her participation), defined as to the sum of 6 different types or organizations (board of neighbors, sports club, student unions, worker union, religious group, and others organization).

$t-stats$ in parenthesis. ***: p-value$\leqslant$1%, **: p-value$\leqslant$5, *: p-value$\leqslant$10%.

Table 12: OLS, Reduced Form and 2SLS Regressions for Political Participation, and Knowledge and Higher Education

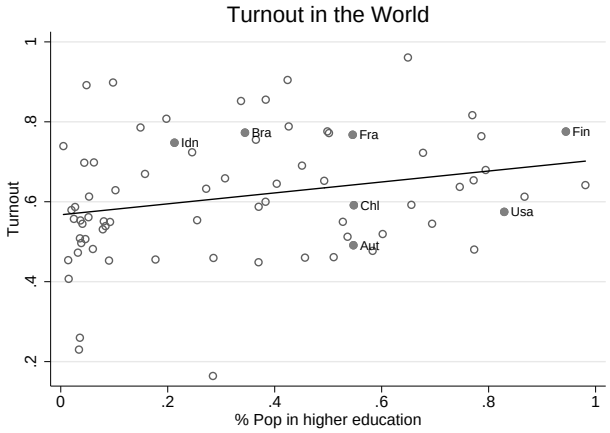
		OLS			Reduced Form			2SLS		
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent Variable	Scale	Level	𝟙(Vocat. Technical or College)	$t-stat$	Level	$\mathbb{1}(T_i \geqslant \tau)$	$t-stat$	Level	𝟙(Vocat. or Technical or College)	$t-stat$
Registration										
Officially Registered to vote	1/0	0.258	0.029	(1.98)**	0.251	0.019	(0.66)	0.168	0.149	(0.65)
Self-reported registration to vote	1/0	0.270	0.022	(1.52)	0.245	0.047	(1.66)*	0.034	0.381	(1.53)
Overreporting	1/0	0.020	-0.003	(0.65)	0.008	0.024	(2.92)***	-0.101	0.196	(2.34)**
Affiliated to a political party	1/0	0.018	0.004	(0.86)	0.026	0.004	(0.4)	0.008	0.032	(0.4)
Poltical Knowledge										
Political Knowledge test	0-14 to 0-1	0.536	0.010	(1.75)*	0.522	0.013	(1.13)	0.464	0.104	(1.09)
Knows ministers and congress	0-9 to 0-1	0.642	0.005	(0.67)	0.621	0.013	(0.87)	0.565	0.102	(0.85)
Knows about electoral system	0-5 to 0-1	0.345	0.019	(3.22)***	0.342	0.010	(0.86)	0.298	0.080	(0.85)
Able to name elected politicians	0-3 to 0-1	1.463	0.088	(2.78)***	1.417	0.095	(1.53)	0.996	0.762	(1.43)
Attitudes towards Democracy										
Likes politics	1-9 to 0-1	0.287	0.019	(2.11)**	0.262	0.016	(0.94)	0.189	0.132	(0.92)
Democracy is the best	1-9 to 0-1	0.608	0.022	(2.41)**	0.612	0.008	(0.46)	0.575	0.067	(0.46)
Knows candidates proposals	1-9 to 0-1	0.413	0.032	(3.25)***	0.409	0.022	(1.15)	0.310	0.179	(1.13)
Reads politics on newspapers	1-9 to 0-1	0.269	0.029	(3.2)***	0.247	0.025	(1.47)	0.136	0.199	(1.4)
Watch politics on TV	1-9 to 0-1	0.389	0.024	(2.47)**	0.375	0.034	(1.81)*	0.226	0.269	(1.66)*
Educated are better rulers	1-9 to 0-1	0.440	0.018	(1.96)*	0.443	-0.002	(0.1)	0.451	-0.014	(0.1)
Other Forms of Political Participation										
Participate in demonstrations	1/0	0.481	0.034	(2.07)**	0.458	0.031	(0.96)	0.321	0.248	(0.94)
Part. demonstration intensity	0-6	1.256	0.129	(2.32)**	1.191	0.051	(0.49)	0.963	0.411	(0.49)
Participate in civic organization	1/0	0.142	0.018	(1.54)	0.174	-0.032	(1.37)	0.317	-0.259	(1.29)
Part. organization intensity	0-6	0.206	0.038	(1.96)*	0.251	-0.048	(1.25)	0.466	-0.388	(1.18)

Note: Estimates from OLS (columns (1) to (3)), reduced form (columns (4) to (6)), and 2SLS regressions (columns (7) to (9)) for the relation between enrollment in any program from vocational, technical or college institutions and different measures of political participation, political knowledge, and political attitudes. "Political knowledge" corresponds to the number of correct answers (e.g., 0 to 14) transformed to 0-1 scale. For attitudes 1 mean completely disagree and 9 completely agree, and it was transformed to the scale 0-1. Scale 1/0 means 1 for yes and 0 for no. "Part. demonstration intensity" corresponds to the intensity in participation, correspond to the sum of 6 different forms of political demonstrations (street marches, occupying institutions, cacerolazo, street protests, political meetings, and other demonstrations). The variable "Part. organization intensity" corresponds to the number of organizations students participate (the intensity of her participation), defined as to the sum of 6 different types or organizations (board of neighbors, sports club, student unions, worker union, religious group, and others organization).

$t-stats$ in parenthesis. ***: p-value⩽1%, **: p-value⩽5, *: p-value⩽10%.

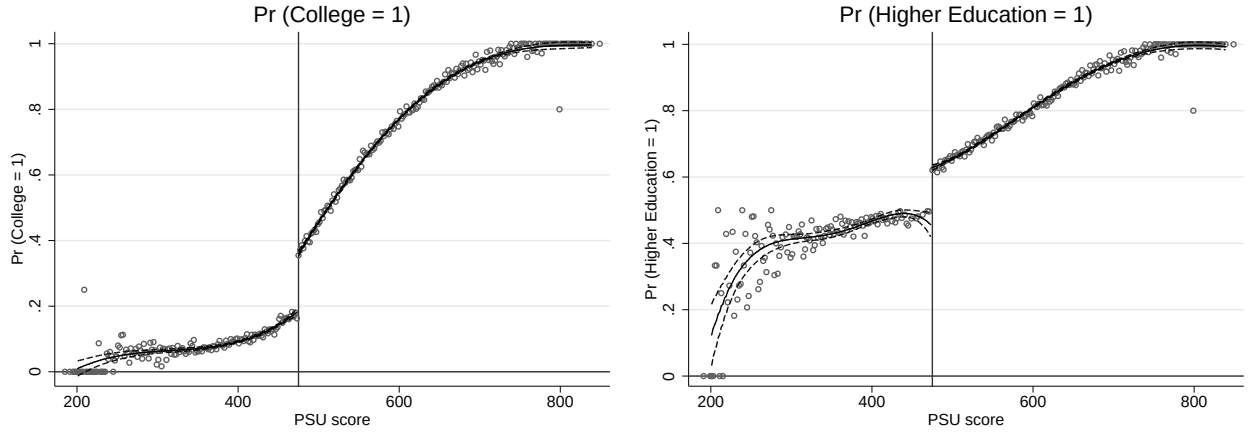
10 Figures

Figure 1: Turnout around the world



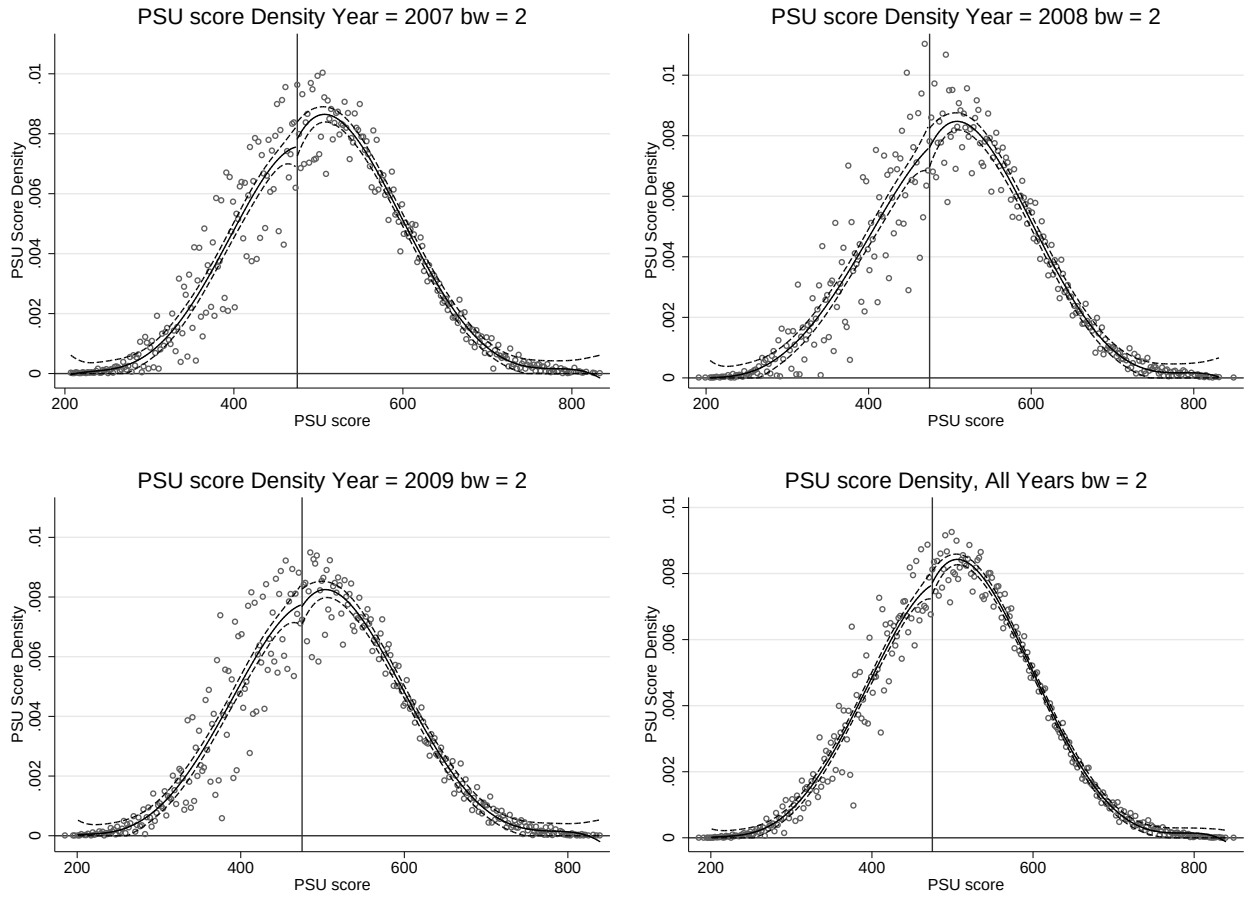
Note: Y-axis shows turnout for 52 countries relatively to the share of the population enrolled in higher education. Data from the International Institute for Democracy and Electoral Assistance (IDEA) and population on tertiary education from UNESCO Institute of Statistic Data Centre.

Figure 2: Reduced forms of the higher education measures.



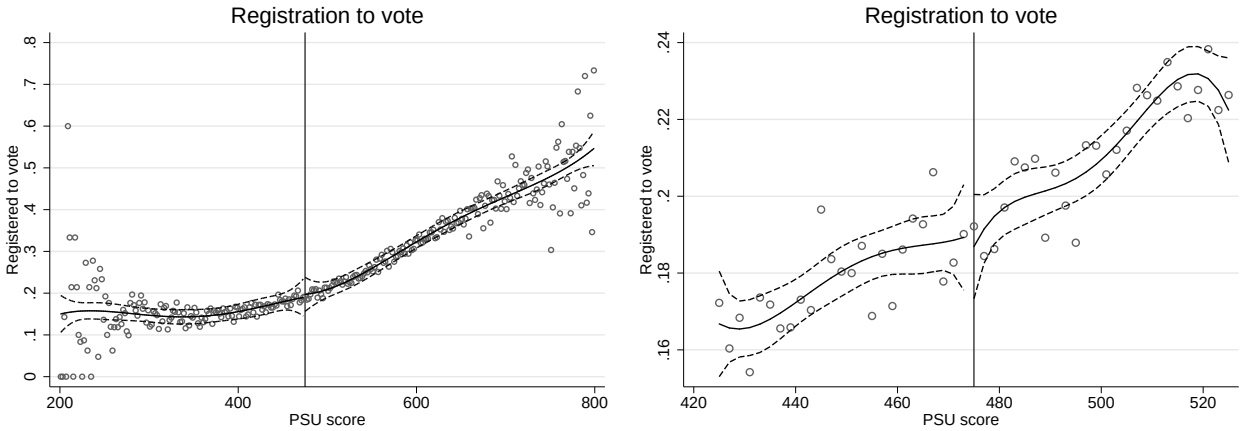
Note: Figures depicts first stages. The figure on the right shows the effect of scoring at least the loan cutoff in college enrollment, while the figure on the left shows the effect in any post-secondary program enrollment (vocational, technical and college). Each dot represents average enrollment within bins of 2 PSU points. The figures consider PSU first time takers that applied to benefits and were classified as eligible-for-loans by the tax authority (pre-selected). The vertical line (at 475) corresponds to the loan cutoff. Dashed lines represent fitted values from the estimation of eq. (1) where $f(\cdot)$ is a 4th order polynomial spline, and 95% confidence intervals for each side.

Figure 3: RD for PSU scores frequency distribution.



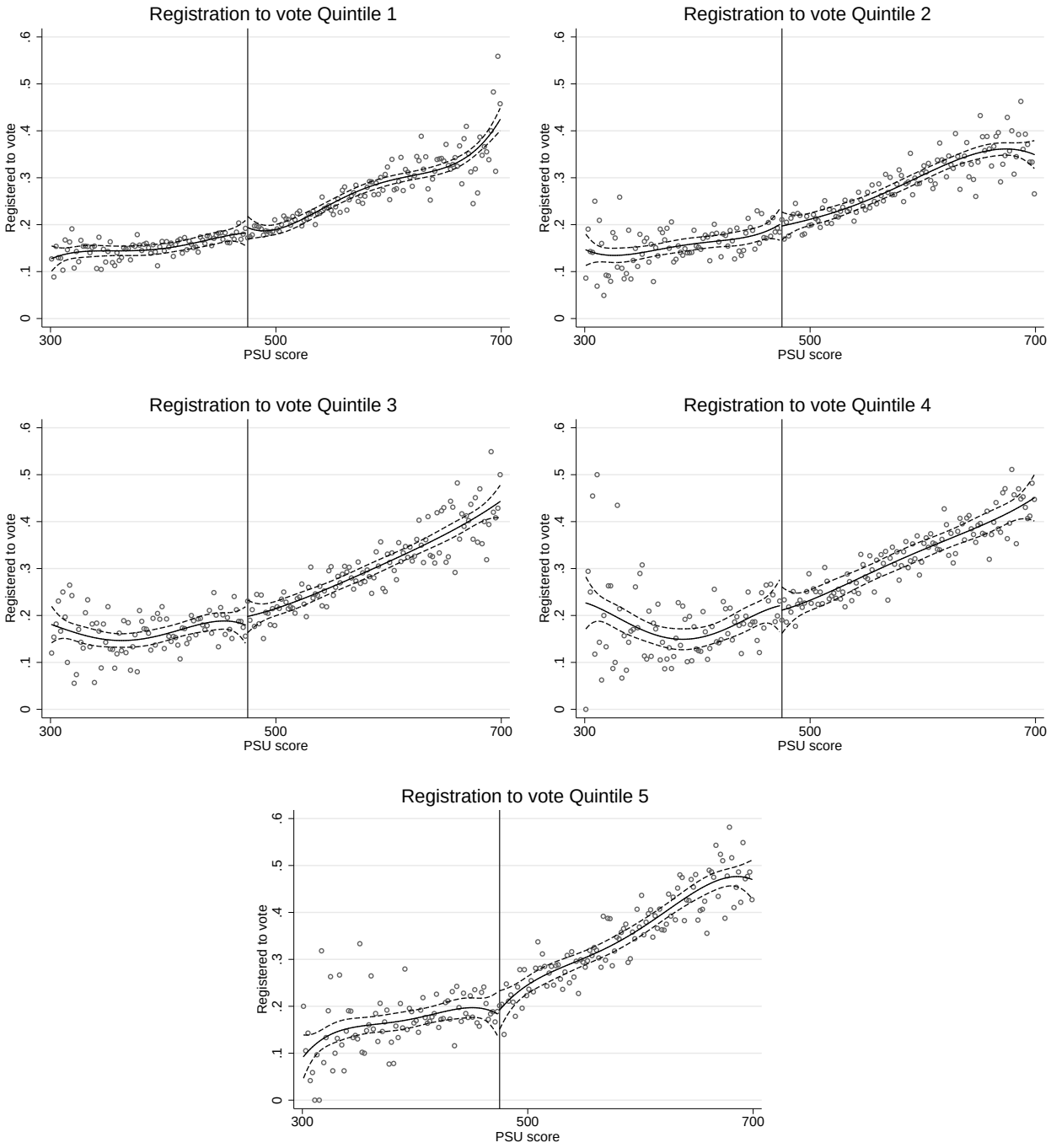
Note: Each dot represents the density of PSU scores in an interval of 2 points. The sample considers only students who satisfy all requirements to be eligible for college loans and take the PSU immediately after graduating from high school. The vertical line indicates the loan cutoff (475). The three cohorts (2007, 2008 and 2009) of first time takers pooled together. Dashed lines represent fitted values from the estimation of eq. (1) where $f(\cdot)$ is a 4th order polynomial spline, and 95% confidence intervals for each side.

Figure 4: Reduced Form. Registration to vote and in political party on scoring more than the cutoff ($1(PSU_i > 475)$)



Note: Each dot represents average registration to vote within bins of 2 PSU points. The figures consider PSU first time takers that applied to benefits and were classified as eligible-for-loans by the tax authority (pre-selected). The left figure shows the whole range of PSU scores, and the one on the right for a smaller window of 100 points around the eligibility cutoff. The vertical line (at 475) corresponds to the loan cutoff. Dashed lines represent fitted values from the estimation of $PolPart_i = \beta_0 + \beta_1 \cdot \mathbb{1}(T_i \geqslant \tau) + f(T_i) + \nu_i$ where $PolPart_i$ is an indicator whether i is registered to vote, and $\mathbb{1}(T_i \geqslant \tau)$ an indicator whether the student scored at least the cutoff. $f(\cdot)$ is a 4th order polynomial spline controlling for the running variable, and 95% confidence intervals for each side.

Figure 5: Reduced Form by income quintile. Registration to vote.



Note: Each figure shows a different income quintile (income quintile 1 being the poorest). For all figures, each dot represents average registration to vote within bins of 2 PSU points. The figures consider PSU first time takers classified as eligible-for-loans by the tax authority (pre-selected). The vertical line (at 475) corresponds to the loan cutoff. Dashed lines represent fitted values from the estimation of the reduced form equation where $f(\cdot)$ is a 4th order polynomial spline, and 95% confidence intervals for each side.