

# Dictatorship, Higher Education, and Social Mobility

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## ABSTRACT

We study the effect of political regime change on higher education and its distributional and political consequences. We focus on the 1973 coup that brought Augusto Pinochet to power in Chile. The Pinochet dictatorship's aims of political control and fiscal

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conservatism led to a large reduction in the number of openings for new students across all universities. Individuals that reached college age shortly after the coup experienced a sharp decline in college enrollment, had worse labor market outcomes throughout the life cycle and struggled to climb up the socioeconomic ladder. This contraction of higher education disproportionately affected applicants from less affluent backgrounds and plausibly contributed to the increase in inequality observed under Pinochet. We further show that individuals exposed to reduced access to college registered to vote at higher rates for the 1988 plebiscite that triggered Chile's democratic transition and we provide suggestive evidence that they increasingly voted against Pinochet.

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*Keywords:* Dictatorship, college, technocracy, austerity, inequality

## Introduction

The relationship between political regimes and distributional outcomes has long attracted social scientists. Prominent theories posit that democratic governments favor redistribution (Acemoglu and Robinson, 2006; Boix, 2003). Accordingly, multiple empirical studies document a positive correlation between democracy and social spending, particularly on primary education (e.g., Avelino *et al.*, 2005; Brown and Hunter, 2004; Stasavage, 2005). Much less is known about political regimes and higher education (Gift and Wibbels, 2014). Some theoretical models suggest a null or even positive effect of autocracy at this level, given that universities mostly serve richer and more politically influential segments of society (Ansell, 2010; Stasavage, 2005). But other models highlight the link between education and political activism, which can give rise to a trade-off between human capital accumulation and regime stability (Bourguignon and Verdier, 2000; Glaeser *et al.*, 2007). These models generally assume a positive relationship between access to education and political engagement, but reduced educational opportunities can also fuel popular discontent (Bai and Jia, 2016; Passarelli and Tabellini, 2017). This broad theoretical ambiguity suggests that the effect of autocracy on higher education likely varies depending on the historical circumstances and defining characteristics of each regime (Connelly and Grüttner, 2005).

We study the impact of Chile's Pinochet dictatorship on higher education and its distributional consequences. This was a right-wing, military regime marked by the absence of democratic institutions, the widespread use of repression, and the delegation of economic policy to technical experts. This portrayal largely overlaps with the concept of *bureaucratic authoritarianism*

originally developed by O'Donnell (1973, 1979) to characterize the South American dictatorships from the 1970s, including Pinochet's. However, autocracies combining repression and technocracy can also be found in other settings, such as Turkey's military rule in the early 1980s or South Korea under Park Chung-hee (Kim, 2011). China's 'economic miracle' of recent decades was also the result of modernizing reforms implemented by a highly repressive regime (Zhu, 2012).

Our analysis is centered around the 1973 coup that overthrew the democratically elected president Salvador Allende and replaced him with a military junta led by Augusto Pinochet. We show that college enrollment grew rapidly in the democratic period before the coup, but steadily declined in the early years of the dictatorship. This was due to a decrease in public funding, which led to fewer openings for new students in all universities. Underlying this policy was the regime's effort to control political opposition and the growing influence of a group of technocrats known as the *Chicago Boys*. The cuts in openings affected almost all fields of study, but were larger in those fields considered to be more politically contentious. Marginal applicants with lower test scores, who predominantly came from less affluent backgrounds, were the ones most affected.

The main focus of our analysis is the distributional impact of this policy. We first show that the share of income accruing to the middle 60% of earners increased in the years before the coup, decreased during the dictatorship, and increased again after democratization in 1990. These changes came at the expense of the top quintile with no change for the bottom quintile, indicating that regime change mostly affects the middle class (Rosenfeld, 2021; Ross, 2006; Stigler, 1970).

We then study the contraction of higher education as a potential contributor to these changes in inequality. We show that the share of individuals with any college education drops sharply for birth cohorts that reached college age in the years immediately after the coup. Using both census and survey data, we document similar downward breaks in the cohort trend (i.e., kinks) for labor force participation, occupational status, and income. These affected cohorts are also less likely to be in the top quintile of wealth in 1992 and in the top quintile of income between 1990 and 2017, which suggests that the contraction of higher education hindered social mobility under Pinochet.

We provide additional evidence that lends support to a causal interpretation of our findings. First, the affected cohorts display no meaningful break from trend in secondary completion. Second, we rely on a small set of consecutive cohorts (which we can further tighten) with arguably homogeneous exposure to changes in other socioeconomic factors after the coup. Third, we are not aware of any other policy change that only affected individuals of college age and the time series of potential confounders, such as GDP growth, does not

display a monotonic pattern similar to our outcomes of interest. Fourth, a synthetic-control analysis using harmonized census data from other countries provides qualitatively similar results to our baseline findings (Abadie *et al.*, 2015).

In the final part of the paper, we explore the link between the contraction of higher education and political behaviors in the 1988 plebiscite that triggered Chile's return to democracy. Voters were asked to decide whether they wanted Pinochet to continue in power (SI option) or to have open presidential elections instead (NO option). We show that the affected cohorts exhibit an upward kink in voter registration for the plebiscite, which we interpret as evidence of greater political engagement. We then estimate a county-specific measure of the kink in college enrollment and we document a robust, positive correlation between this local impact measure and the NO vote share.

Our paper speaks to the literature on political regimes and redistribution. A large body of evidence shows a mostly positive correlation between democracy and social spending or educational outcomes (Avelino *et al.*, 2005; Baum and Lake, 2003; Brown, 1999; Brown and Hunter, 2004; Gallego, 2010; Harding and Stasavage, 2013; Huber *et al.*, 2008; Kaufman and Segura-Ubierno, 2001; Lake and Baum, 2001; Lindert, 2004; Mulligan *et al.*, 2004; Stasavage, 2005). These studies largely focus on primary education and have struggled to establish causality. Recent work with better causal identification shows a null impact of democracy on educational expansion, mostly because primary coverage was already quite high before democratization (Paglayan, 2021). Evidence on the impact of political regimes on higher education or broader measures of inequality mostly corresponds to comparisons across countries and also points to null effects (Acemoglu *et al.*, 2015; Gallego, 2010; Scheve and Stasavage, 2017; Stasavage, 2005).

We contribute to this literature by providing within-country evidence on the negative impact of a right-wing, technocratic dictatorship on access to higher education and social mobility.<sup>1</sup> Our setting is ideal for this study because it allows for a sharp contrast between political regimes over a short time horizon. Our setting is also of particular interest given that the reforms implemented under Pinochet are typically credited for Chile's subsequent economic success (Becker, 1997). In this regard, our paper speaks to the debate on the economic impact of political regimes and highlights a specific channel that plausibly hinders economic growth in autocracies, namely reduced access to higher education (Acemoglu *et al.*, 2019; Barro, 1996; Luo and Przeworski, 2019; Przeworski *et al.*, 2000). Our findings also add nuance to the claim that dictatorship can be economically beneficial at early stages of development by

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<sup>1</sup>Roland and Yang (2017) and Li and Meng (2022) use cross-cohort comparisons similar to ours to study the impact of reduced access to higher education amid China's cultural revolution.

highlighting the distributional impact of non-consensual policies (Easterly, 2013; Glaeser *et al.*, 2004).

We also contribute to the literature on education and political behaviors. This literature has largely relied on cross-country comparisons or focused on established democracies (Milligan *et al.*, 2004; Murtin and Wacziarg, 2014; Sondheimer and Green, 2010). Existing work on weak and non-democracies is mostly survey based and finds that educational expansion at lower levels increases political participation or leads to disengagement if elections are not credible (Croke *et al.*, 2016; Larreguy and Marshall, 2017). We use administrative data on voter registration and real electoral outcomes to show that reduced access to higher education is associated with political backlash when a democratic window of opportunity arises. Our findings relate to work by Bai and Jia (2016) on the link between reduced social mobility and revolutionary activity in Imperial China.

The remainder of the paper is organized as follows. The next section presents a conceptual framework on political regimes and higher education. We provide a historical overview of higher education in Chile and the changes introduced by Pinochet in the section “Higher Education under Pinochet: Historical Evidence”. The section “Data and Empirical Strategy” presents our research design and main data sources. The section “Distributional Impact of the Contraction of Higher Education” shows our results on educational attainment and socioeconomic outcomes, while the section “Political Behaviors” provides results on political behaviors. The last section concludes the paper.

## Conceptual Framework

In this section, we develop a theoretical framework to understand the impact of political regimes on higher education. Several factors shape this relationship, including political representation and regime stability. We argue that the relative importance of these factors varies across settings and determines the sign and magnitude of the effect of regime change on higher education.

In seminal work by Boix (2003) and Acemoglu and Robinson (2006), democratization entails the acquisition of political power by the poor majority in detriment of the rich elite, which leads to redistribution. Education is often considered a prominent tool for this purpose, i.e., *the great equalizer*. But his characterization mostly concerns lower levels of education, the lack of which affects the poor, while tertiary education largely benefits the rich. Furthermore, autocrats can use education to co-opt segments of society that represent a threat to their hold on power (Gandhi and Przeworski, 2006; Svolik, 2012; Wintrobe, 1998). In this spirit, Stasavage (2005) develops a

model in which rich urban dwellers always pose a political threat, while poor rural dwellers are only politically relevant under democracy. Higher education — valued by the rich — is provided under either regime and democracy only affects primary education. Ansell (2010) reaches a similar result in a different framework with a richer microfoundation for preferences over education.

The hypothesized link between democracy and educational expansion can fail to materialize for several additional reasons. Enfranchisement may not lead to greater *de facto* political power for the poor due to elite influence over institutional design and electoral politics (Albertus and Menaldo, 2018; Elkjaer and Klitgaard, 2021; Londregan, 2007). Moreover, not all autocracies are pro-elite and many implement redistributive policies (Albertus, 2015; Kosack, 2014). But even if the poor gain power under democracy, they may prefer redistribution through means other than education, such as targeted transfers (Bursztyn, 2016). Once we move away from the simplifying dichotomy between rich and poor, the pivotal group affecting regime change becomes the middle class, which plausibly demands access to higher education under either system (Rosenfeld, 2021).

Another important factor is regime stability. Bourguignon and Verdier (2000) develop a model in which education has positive economic returns, but also increases political participation. Educational expansion thus poses a trade-off for the autocrat between economic growth and political opposition (López-Cariboni and Cao, 2019). This trade-off is particularly salient for higher education, given its curricular focus on critical thinking around economic and political issues (Delbanco, 2012; Gutmann, 1999).<sup>2</sup> Universities can reduce coordination costs and facilitate collective action (Hollyer *et al.*, 2015; Shadmehr and Bernhardt, 2011). History abounds with evidence of universities serving as focal points for political activism, including the May 1968 uprising in France and the student strike of 1970 in the United States (Dahlum and Wig, 2021; Maurin and McNally, 2008). Weak and non-democracies usually respond with repression, as in the student massacres of Tlatelolco (Mexico) in 1968 and Tiananmen (China) in 1989. The shutdown of Central European University by Hungarian strongman Viktor Orban in 2018 and the police siege of a college campus in Hong Kong in 2019 are more recent examples. Hence, authoritarian regimes at early stages of consolidation or facing acute threats to their survival are likely to restrict access to higher education.

This prediction assumes that education is a threat to the status quo, but education is also a powerful tool through which governments can shape

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<sup>2</sup>A large literature dating back to Dewey (2018) posits that education is fundamental for the correct functioning of democracy (Almond and Verba, 1963; Dahl, 1971; Lipset, 1959).

citizens' attitudes and behaviors. Several studies document the contribution of education toward forging a national identity or fostering obedience (Alesina *et al.*, 2021; Cantoni *et al.*, 2017; Darden and Grzymala-Busse, 2006; Darden and Mylonas, 2016; Paglayan, 2022). Autocracies may want to expand access to education for this purpose, but probably not at the tertiary level because older individuals are less malleable. They may instead tighten oversight over degree offerings and content.

Another relevant factor relates to the identity of the *inner sanctum* that holds power within an autocracy. Widely used classifications of authoritarian regimes award a distinct role to military dictatorships, which are more repressive and less reliant on political institutions such as parties or a legislature (Cheibub *et al.*, 2010; Gandhi, 2008; Geddes *et al.*, 2014). The concept of *bureaucratic authoritarianism* developed by O'Donnell (1973, 1979) draws a connection between the curtailment of civil liberties, the dismantling of democratic institutions, and the delegation of economic policy to technical experts in many military regimes.<sup>3</sup> However, the impact of technocracy on education is theoretically ambiguous and is likely to vary across levels due to the trade-off between human capital accumulation and fiscal cost.

Ultimately, the relationship between political regimes and educational policy is theoretically indeterminate. Accordingly, Ansell and Lindvall (2013) show that the centralization of primary education historically took place under radically different regimes (liberal democracies and fascist autocracies). Theoretical work that allows for a complex political landscape with multiple social classes and types of regime also suggests that the impact of regime change on education depends on pre-existing conditions (Manzano, 2017). For instance, democratization may have opposite effects depending on whether the previous regime was a right-wing or left-wing dictatorship.

Figure 1 documents a strong negative correlation between autocracy and tertiary enrollment across countries for the period 1970–2019.<sup>4</sup> However, the previous discussion suggests that this correlation masks substantial heterogeneity and is by no means causal. To make progress in our understanding of the impact of autocracy on higher education, we next carry out a within-country analysis that takes into consideration both historical circumstances and regime characteristics.

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<sup>3</sup>Under bureaucratic authoritarianism, “specialists in coercion have decisive weight, as well as... the civilian technocrats in charge of the economic apparatus” (O'Donnell, 1979, p. 292). For discussions of the broader theoretical framework surrounding bureaucratic authoritarianism see Collier (1979), Remmer and Merckx (1982), and Ames (1986).

<sup>4</sup>Table A.1 shows individual correlations per decade and verifies that these are robust to controlling for income.

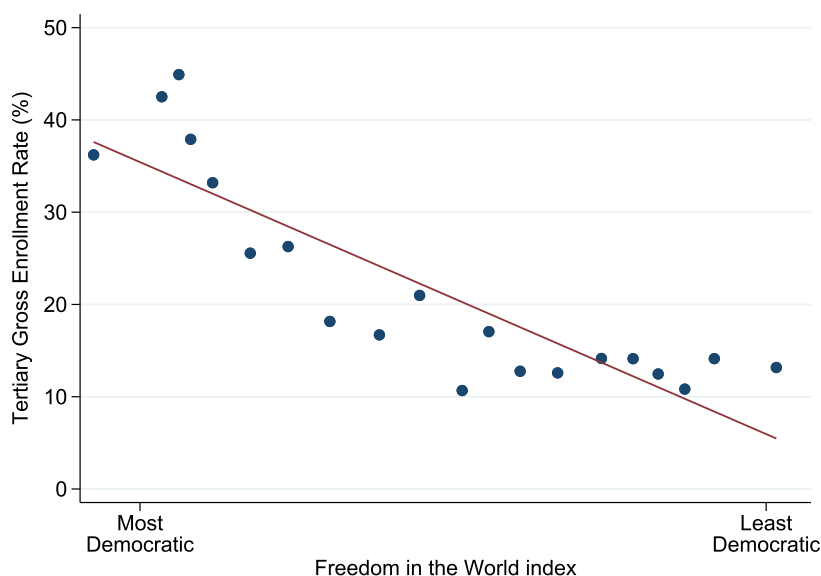


Figure 1: Tertiary enrollment and democracy, 1970–2019.

*Notes:* Figure shows a binned scatter plot of the gross tertiary enrollment rate from the World Bank's World Development Indicators against the Freedom in the World index produced by Freedom House. The unit of observation is country-decade (averaging across years). Additional controls include decade fixed effects. Sample period: 1970–2019.

## Higher Education under Pinochet: Historical Evidence

There were eight universities in Chile when Socialist candidate Salvador Allende won the 1970 presidential election. The oldest (Universidad de Chile) was founded in 1842, while the newest (Universidad del Norte) opened in 1956. Two universities were public, representing 67% of enrollment, but all relied heavily on government funding. Universities were mostly based in the larger cities of Santiago, Concepción, and Valparaíso, but several had smaller campuses throughout the country. About 40% of students were female. Admissions were done through a centralized process in which applicants ranked programs and universities ranked applicants based on their score in an admissions test called *Prueba de Aptitud Académica* (PAA). A deferred-acceptance algorithm then determined the admitted students based on the number of openings offered by the universities.

College enrollment grew from 25,000 students in 1960 to 77,000 by the end of the center-left government of Eduardo Frei in 1970. The Allende government oversaw an even larger increase, reaching 146,000 students by 1973. Panel (a) in Figure 2 shows that higher education grew faster than the lower levels



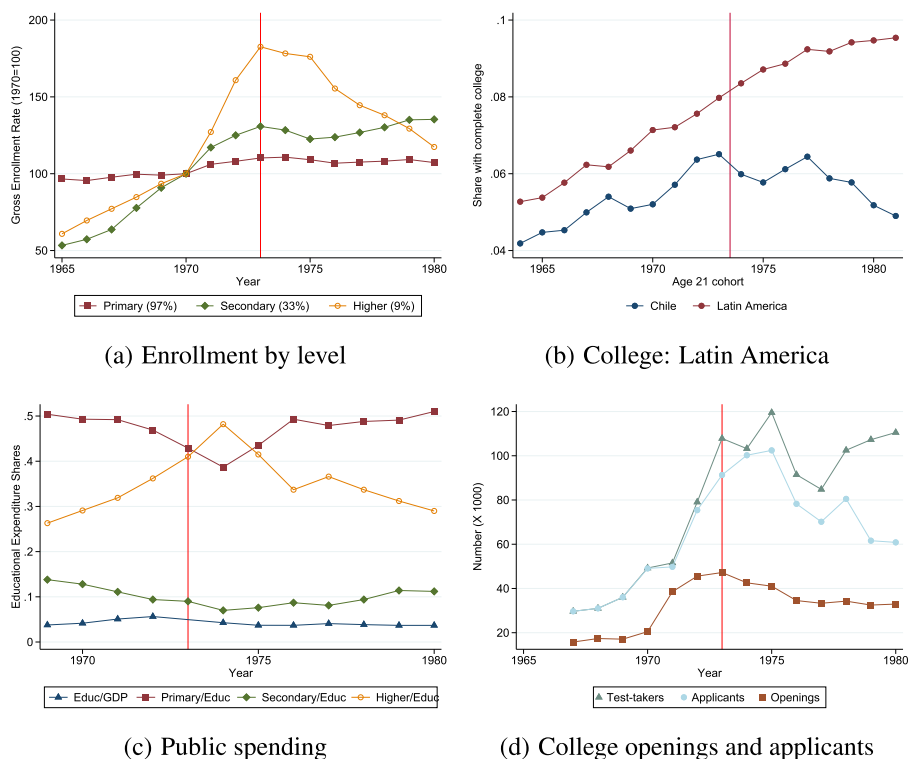


Figure 2: Enrollment and funding across education levels.

*Notes:* Panel (a) shows indices for the gross enrollment rate per education level. The respective denominators are population in the 6–14, 15–19, and 20–24 age groups. Enrollment rate in 1970 (=100) shown in parenthesis in the legend. Panel (b) shows the share of people per birth cohort (normalized to age 21) with complete college education in Chile and other countries in Latin America. Data for Chile corresponds to 1992 census. For other countries, we use censuses between 1987 and 1997. Panel (c) shows the percentage of public spending on education devoted to each level, as well as total education spending as percentage of GDP. Panel (d) shows the yearly number of people that took the PAA test, college applicants, and college openings for incoming students.

*Sources:* PIIE (1984); Universidad de Chile (2011); IPUMS International.

in the early 1970s. This was a period of mass expansion of higher education throughout Latin America, aimed at fostering social mobility for the growing urban middle class (Brunner, 1984). Panel (b) shows that tertiary education grew at a similar rate in Chile and other Latin American countries during this time.

Allende's redistributive agenda aggravated political polarization and “aroused the fears of the elites, particularly the business class” (Arriagada, 1989). Amid worsening economic conditions, Allende was overthrown by a

military coup on September 11, 1973. A junta presided by General Augusto Pinochet assumed all executive and legislative powers and would go on to govern the country until 1990. The military coup enjoyed support from the upper class: “the conservative elite gladly ceded control to military authorities” (Constable and Valenzuela, 1991, p. 144).

The junta quickly targeted universities as part of its goal to neutralize political opposition. Two weeks after the coup, the junta appointed military officers to lead all universities, claiming that these had become “centers for Marxist indoctrination” (Brunner, 2008, p. 137). Over the following months, hundreds of students, faculty, and staff were expelled for their political views (Brunner, 1984; Castro, 1977). Some were detained, tortured, or killed as part of a broad wave of repression (Bautista *et al.*, 2023; Esberg, 2021).<sup>5</sup> Several academic units and most student organizations were shut down, political activity was forbidden, and teaching materials were censored. However, all eight existing universities remained open between 1973 and 1981.

The dictatorship’s initial handling of universities, focused exclusively on political control, soon incorporated a technocratic concern about the size and efficiency of public spending (Echeverría, 1980; PIIE, 1984; Velasco, 1994).<sup>6</sup> This was the result of the growing influence over policy of a group of market-friendly economists known as the *Chicago Boys*, most of whom had studied at the University of Chicago under the likes of Milton Friedman and Arnold Harberger (Edwards, 2023; Valdés, 1995). These technocrats advocated for reduced subsidies for higher education, arguing that an assured stream of public funds failed to provide incentives for thrift or effort (CEP, 1992).<sup>7</sup> They also argued that higher education was excessively costly and should be considered a privilege rather than a right, with government funds being better spent elsewhere in the education system. The fact that the Chicago Boys’ policy proposals aligned both with the regime’s animosity towards expansive government and with its aim to defuse the political threat posed by universities facilitated their implementation. “The regime’s penchant for political control meshed conveniently with its penchant for economic conservatism” (Levy, 1986, p. 105).

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<sup>5</sup>There are 24 professors and 252 students among the 3,200 deaths or disappearances attributed to the Pinochet regime by Comisión Rettig (1996). These correspond to 0.2% of the respective numbers of faculty and students in 1975. Comisión Valech (2004) estimates that about 10% of the 38,000 victims of detention or torture were students.

<sup>6</sup>As early as 1974, the Ministry of Finance began pushing for a reduction in subsidies to universities and increased self-financing. In 1975, the Ministry of Education called for a more efficient use of resources and set enrollment goals for universities that put an end to the rapid growth seen in previous years (Levy, 1986; PIIE, 1984).

<sup>7</sup>Friedman also argued that college subsidies distort the education decision and attract individuals for whom “college is a pleasant interlude between high school and going to work” (Friedman and Friedman, 1980, p. 176).

Under the influence of the Chicago Boys, the Pinochet regime embraced a more traditional view of universities as centers of academic excellence and elite training. The dictatorship pursued its goals of political control and technocratic efficiency by reducing government funding for universities. Panel (c) in Figure 2 shows that the share of the education budget devoted to higher education, which had risen to almost 50% under Allende, dropped to 30% by 1980. This was a large financial blow to universities, as government subsidies were their main source of funding, equivalent to 77% of total revenue in 1972 (PIIE, 1984). A push for higher tuition met with strong resistance and was abandoned, thus forcing universities to downscale.

Panel (a) in Figure 2 shows a 38% drop in college enrollment between 1973 and 1981.<sup>8</sup> This contraction was largely driven by fewer incoming students, as “most previously enrolled students remained enrolled despite purges” (Levy, 1986, p. 101). Panel (a) also shows that primary and secondary enrollment remained roughly constant after 1973. Hence, the contraction in higher education was not offset by large gains elsewhere in the education system.<sup>9</sup> Panel (d) shows that college openings rose under Allende and reached a maximum of 47,000 in 1973, but repeatedly fell after the coup, reaching 33,000 by 1980 (30% drop).<sup>10</sup> The figure also shows that the number of applicants exceeded the available openings throughout this period, meaning that the supply of openings was the binding constraint on admissions and the determinant factor in enrollment.

University downsizing did not affect all fields of study equally, but hardly any was left untouched. Panel (a) in Figure 3 shows the aggregate change in openings per field between 1973 and 1980. More politically charged fields like law or the social sciences experienced larger reductions, while the politically neutral natural sciences were the only to grow. However, most fields saw aggregate decreases of 20–40% in openings, including the two largest ones (education and engineering). This highlights the prominent role of the Chicago Boys’ broader fiscal concerns. Panel (b) shows that the distribution of students across fields did not change very much.

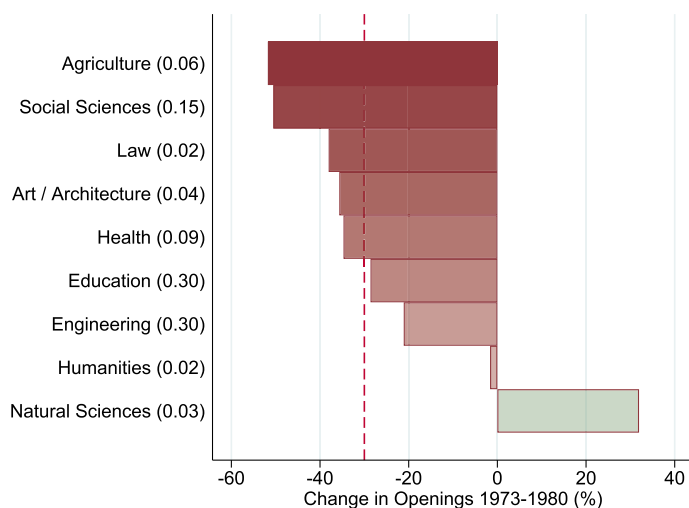
The dictatorship left the centralized matching mechanism used for admissions unchanged. As fewer college openings became available, applicants with lower PAA test scores were the ones that mechanically failed to gain admission. Figure 4 suggests that the excluded applicants predominantly came

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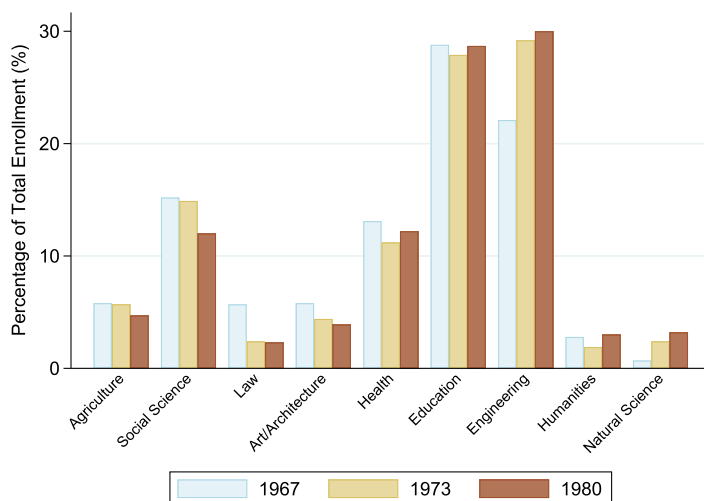
<sup>8</sup>The unanticipated nature of this reduction is evidenced by the fact that UNESCO projections placed aggregate enrollment at around 200,000 students for 1975, while the actual figure fell short of 150,000 (Levy, 1986).

<sup>9</sup>Online Appendix Figure A.1 shows that the number of schools remained unchanged and that the share of primary students receiving subsidized meals (a proxy for pro-poor policies) decreased. Early education was the only level with growing enrollment under Pinochet, though from a very low base (4% in 1970) and in line with the pre-coup trend.

<sup>10</sup>Online Appendix Figure A.2 shows that the drop in openings was mostly driven by the two public universities.



(a) Change in openings by field (1973-1980)

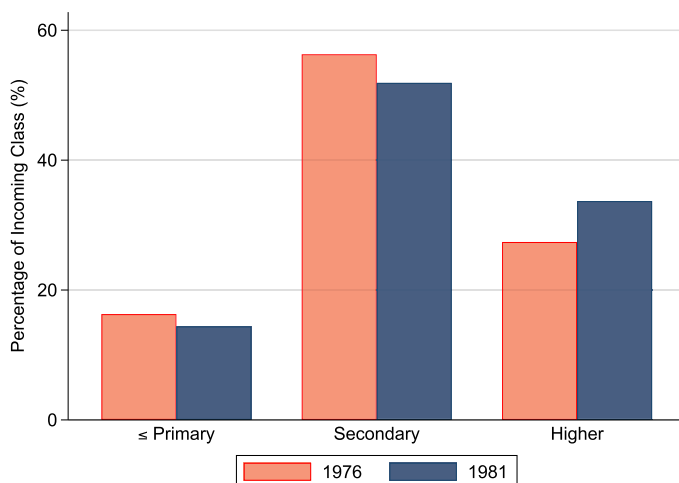


(b) Enrollment by field

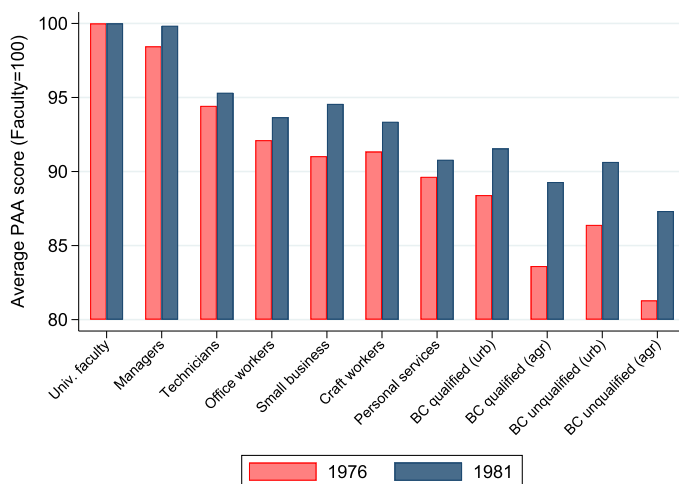
Figure 3: College openings and enrollment by field.

*Notes:* Panel (a) shows the change in openings by field between 1973 and 1980. The number in parenthesis corresponds to the field's share of openings in 1973, while the dashed line indicates the aggregate reduction in openings. Panel (b) shows enrollment shares per field in 1967, 1973 and 1980. Field classification based on UNESCO categories.

*Source:* PIIE (1984) and Brunner (1984).



(a) Enrollment by father's education



(b) Average PAA score by father's occupation

Figure 4: Characterization of incoming class by family background.

*Notes:* Panel (a) shows the share of the incoming class in 1976 and 1981 corresponding to each level of father's education. Panel (b) shows the average score in the PAA test of the incoming class for the same years, disaggregated by father's occupation. In both years, the highest average corresponds to university faculty, which we have separately normalized to 100 for each year. BC = Blue collar. The sample in panel (a) is restricted to the 11 largest majors, while in panel (b) it includes all students.

*Source:* PIIE (1984).

from less affluent backgrounds. Panel (a) shows that the share of the incoming class whose father had attended college grew as admissions tightened between 1976 and 1981.<sup>11</sup> Panel (b) shows the average PAA score of the incoming class in these same years, disaggregated by father's occupation and expressed relative to the top scorers (children of university faculty in both years). These relative scores are systematically higher in 1981, which is consistent with a higher threshold for admissions and a more compressed distribution. Admitted students with blue-collar fathers also exhibit much larger increases, which suggests that this group disproportionately contributed the marginal applicants who were excluded by the reduction in openings.

The Pinochet regime's approach to higher education plausibly reflects the Chicago Boys' general disregard for distributional consequences: "For the Chicago Boys, reducing inequality was not a priority" (Edwards, 2023, p. 225). However, a CIA report describes the early handling of universities by the dictatorship as "an apparent plan to modify the class composition of university student bodies" (CIA, 1985). Individuals from less privileged backgrounds were also those most affected by repression under Pinochet: "the vast majority of affluent and comfortable families were never touched" (Constable and Valenzuela, 1991, p. 144). This suggests that repression and education played complementary roles in a strategic effort at undermining political opposition from below while ensuring the political support of the elite. In this regard, Online Appendix Figure A.3 documents increases in the college graduation rate and the college premium on earnings after the coup.<sup>12</sup>

The regime introduced a large education reform in 1981 that turned the satellite campuses of the public universities into independent institutions, further reduced funding for existing universities, and allowed the entry of new universities ineligible for government funding. College enrollment stabilized after the reform, but only grew again after Chile's return to democracy in 1990.

## Data and Empirical Strategy

Our main data sources are the individual records from Chile's population census of 1992 and the 13 waves of the biennial CASEN household survey between 1990 and 2017. The census data is provided by Chile's national

<sup>11</sup>Unfortunately, information on family background is only available for 1976 and 1981, both of which are post-coup years. However, Figure 2 shows that the contraction of higher education was more intense in the latter.

<sup>12</sup>These results plausibly reflect a combination of more selective admissions, a stronger academic focus, and a lower supply of professionals (i.e., less competition in the labor market).

statistical agency (INE), while CASEN comes from the Ministry of Planning. CASEN is a repeated cross-section that includes information on more than 200,000 individuals in recent waves and is representative at the regional level.<sup>13</sup> We also use harmonized census files from IPUMS International for a synthetic control analysis and income data from Universidad de Chile's EOD survey to provide descriptive evidence on inequality. To study political behaviors, we use administrative data on the outcome of the 1988 plebiscite at the county level, as well as individual-level registration data for all voters in 2017 from Chile's electoral agency (SERVEL). Online Appendix A provides further information on our data sources.

Our empirical strategy is based on the premise that the timing of major educational decisions cannot be easily altered. College enrollment is no exception, as younger individuals cannot usually forgo secondary education and older ones find it increasingly difficult to enroll once they exit secondary. We expect individuals that reached 'college age' shortly after the coup to be affected by the contraction of higher education more than those who reached the same age a few years before. We use age 21 as our proxy for the age of college entry because this was the average age of first-year college students shortly before and after the coup (Echeverría, 1982; INE, 1965; and Schiefelbein, 1976; see Online Appendix Figure A.4). Our baseline sample includes individuals who reached age 21 between 1964 and 1981 (born between 1943 and 1960). We verify below that our results are robust to using alternative ages for first-year students or using tighter windows of cohorts.<sup>14</sup> We further restrict the sample to individuals who report at least 4 years of secondary education to ensure a relevant counterfactual for college enrollment, but we verify that our results are also robust to dropping this restriction.

Our research design specifically exploits the growing tightness of college admissions during the early years of the dictatorship, such that each new cohort reaching college age after the coup was more affected than the previous one. We thus focus on changes in cohort-level trends for our outcomes of interest. We work with the following reduced-form model:

$$Y_{i,c} = \alpha + \beta X_i + \pi_0 f(c) + \pi_1 (\text{Dictatorship} \times g(c)) + u_{i,c} \quad (1)$$

where  $Y_{i,c}$  is an outcome for individual  $i$  belonging to cohort  $c$  (denoted by the year in which it reached age 21).  $X_i$  is a set of observable characteristics, including gender-specific county-of-birth fixed effects. "Dictatorship" is a dummy equal to one for individuals who reached age 21 in 1973 or later, while  $f(c)$  and  $g(c)$  are smooth functions capturing the cohort profile of the

<sup>13</sup>Chile is administratively divided into 16 regions, subdivided into 56 provinces and 346 counties.

<sup>14</sup>We stop with the 1981 cohort to mitigate the impact of the university reform implemented after that year.

outcome  $Y_{i,c}$ . We focus on a linear polynomial (i.e.,  $f(c) = g(c) = c$ ) to avoid over-fitting and we provide visual evidence showing that this parsimonious model fits the data well. We normalize the running variable (i.e., cohort) in these functions to zero for 1972, the last year before the coup. Our parameter of interest is  $\pi_1$ , which captures the change in trend (i.e., *kink*) for cohorts reaching college age after 1973. Finally,  $u_{i,c}$  is an error term clustered either at the county-of-birth level or at the cohort level. For the latter, we use the wild cluster procedure following Cameron *et al.* (2008).

Our analysis first documents a sharp downward kink in college enrollment for the cohorts that reached college age after the coup, despite no change in the trend for secondary completion. We then study downstream effects by looking for similar changes in the cohort-level trends of several socioeconomic outcomes, in the spirit of a regression kink design (Card *et al.*, 2015). Our identifying assumption is that in the absence of the contraction of higher education there is no reason to expect kinks in these outcomes for cohorts reaching age 21 after 1973. As supporting evidence for this assumption, we verify that the time series of potential confounders, such as GDP growth, does not follow a similar pattern to college enrollment. We also check that our results are robust to the inclusion of additional controls in the vector  $X_i$ . Moreover, even if the time series of an omitted variable were to exhibit a linear kink after 1973, for it to confound our analysis it must have only affected individuals at the age of college entry. We are not aware of any such variable.

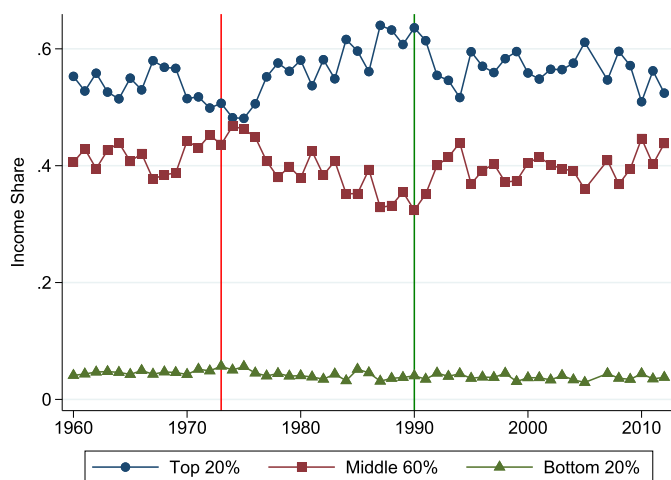
## Distributional Impact of the Contraction of Higher Education

### *Income inequality*

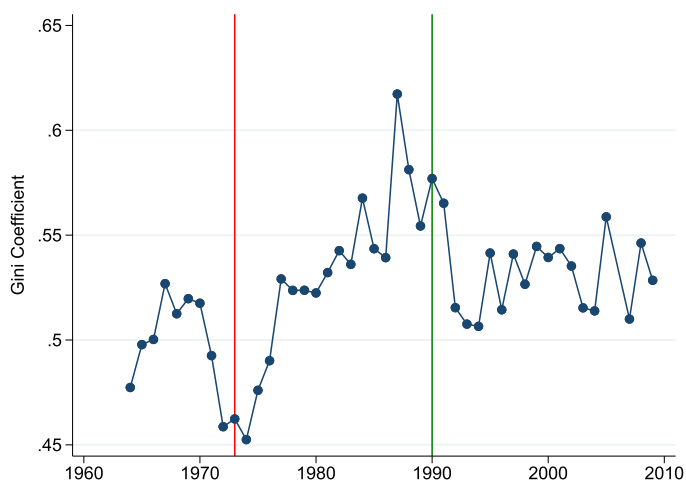
We begin our analysis by documenting a positive correlation between dictatorship and income inequality in Chile during our sample period. We focus our attention on the political transitions that took place in 1973 (military coup) and 1990 (democratization). We use data on reported income among respondents of the EOD survey between 1960 and 2012 to estimate the yearly share of income accruing to the top and bottom quintiles, as well as to the middle 60%, which is our proxy for the middle class. We also estimate the Gini coefficient for each year.

Panel (a) in Figure 5 shows the yearly income shares accruing to these groups, while panel (b) shows the Gini coefficient. Both graphs suggest a strong positive correlation between autocracy and inequality in Chile (Ffrench-Davis, 2018). The years before the 1973 coup show convergence in the shares of income going to the top 20% and the middle 60%, particularly during the Allende government. After the coup, there is a steady increase in inequality, with top earners' share of income growing at the expense of the middle class.





(a) Income shares



(b) Gini coefficient

Figure 5: Income inequality.

*Notes:* Panel (a) shows the yearly share of income going to the top 20% of earners, middle 60%, and bottom 20%. Panel (b) shows the Gini coefficient.

*Source:* EOD survey for Santiago metropolitan area. Vertical lines indicate the year of the military coup (1973) and the return to democracy (1990).

The Gini coefficient increases from 0.46 in 1973 to 0.57 in 1990. This increase in inequality stands out from a comparative perspective, even among nations experiencing rapid economic development during this period (Stiglitz, 1996).

These patterns suggest that economic progress under Pinochet disproportionately benefited top earners: “The world of the winners was small and powerful: that of the moneyed elite” (Constable and Valenzuela, 1991, p. 142). After democratization in 1990, we see again some redistribution from the top quintile to the middle class. Importantly, the share of income accruing to the bottom 20% does not vary much and never rises above 6% during this period. Redistribution under democracy concerns mostly the middle class (Rosenfeld, 2021; Ross, 2006; Stigler, 1970).

### ***Educational Attainment***

Having established that inequality increased under Pinochet, we now focus on the contraction of higher education as one potential mechanism. We start by documenting a smooth trend in secondary completion among cohorts that reached college age around the military coup, combined with a sharp reduction in college enrollment for those that reached college age *after* the coup.

Panel (a) in Figure 6 shows the share of people per cohort that report four or more years of secondary in the 1992 census. We use this as a proxy for secondary completion given that this information is not directly available from our main sources. The  $x$ -axis corresponds to the year in which cohorts reached age 21. The red vertical line marks the year of the coup. We use solid lines to capture the actual trends before and after the coup, while the dashed line is the counterfactual trend for the post-coup period. The plot shows a smooth increase in the share of people per cohort with full secondary education. The linear trends fit the data quite accurately and the post-coup trend overlaps almost perfectly with the counterfactual. This result lends support to our identification strategy insofar as changes in other factors would likely also affect secondary completion.

Panel (b) shows the share of people per cohort that report any college education in the 1992 census. College entry steadily increases for the cohorts reaching age 21 before the coup, especially during the Allende government between 1970 and 1973. In contrast, cohorts reaching the same age after the coup experience a steady decrease in college enrollment. Panel (c) replicates the analysis for the restricted sample of individuals with complete secondary. Having shown a smooth trend in secondary completion, we introduce this sample restriction to ensure a relevant counterfactual to college enrollment, particularly when we consider downstream outcomes below. In this sample, the college enrollment rate increased by 12 percentage points (pp) between the 1964 and 1972 cohorts (44% increase) and *decreased* by 18 pp between the 1973 and 1981 cohorts (46% decrease).

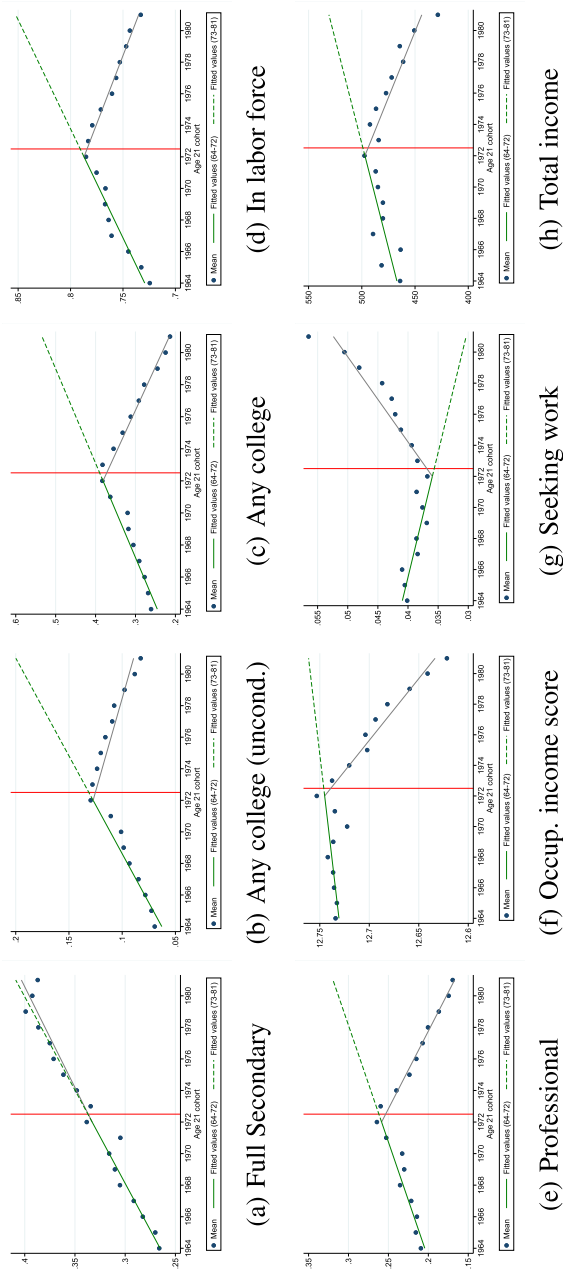


Figure 6: Visualization of kink in college enrollment and labor market outcomes.

Notes: Panels show averages by cohort for the variable in the caption. Solid green line corresponds to line of best fit for cohorts reaching college age before 1973. Dashed green line shows extrapolation for later cohorts. Solid grey line corresponds to line of best fit for cohorts reaching college age in 1973 or afterwards. Panels (a)–(g) use data from 1992 population census, while panel (h) uses pooled data from the CASEN survey between 1990 and 2017. Panels (a) and (b) are based on unrestricted samples. In panels (c)–(h) we restrict the sample to individuals with full secondary education, while in panel (g) we impose the additional restriction of labor force participation. Total income in panel (h) is reported in 1000s of constant 2015 Chilean pesos and is winsorized at the 1% and 99% levels.

Columns 1–3 in Table 1 present the corresponding estimates of Equation (1) for these outcomes. In all tables, we show standard errors clustered by county in parentheses and *p*-values from the wild cluster bootstrap at the cohort level in brackets. Column 1 shows that the share of people with full secondary education grew at a rate of 0.8 pp per cohort before the coup, a trend that remains unchanged after the coup. Column 2 shows that college enrollment increased on average 0.8 pp per cohort before the coup. This trend changes by –1.2 pp per cohort after the coup. The difference between the two coefficients indicates a net enrollment trend of –0.4 pp per cohort after the coup. Once we condition on complete secondary, column 3 shows that college enrollment increased by 1.8 pp per cohort before the coup but *decreased* at a net rate of –1.8 pp afterwards.<sup>15</sup>

### **Labor Market and Distributional Outcomes**

We now examine the effects of the educational contraction on socioeconomic outcomes. Panels (d)–(h) in Figure 6 plot cohort-level averages of the outcome in the caption, as well as the pre- and post-coup trends. These averages are calculated among individuals with full secondary using census data from 1992, except for panel (h) which uses data from CASEN. Panels (e)–(h) further restrict the sample to individuals in the labor force. Panel (d) shows a sharp downward kink in labor force participation for the cohorts that reached college age after the coup. Panel (e) shows a similar downward kink in the probability of having a professional occupation (e.g., doctor, lawyer, engineer).<sup>16</sup> Panel (f) likewise shows a downward kink for an occupational income score that we construct following Abramitzky *et al.* (2014).<sup>17</sup> Panel (g) shows an upward kink in the unemployment rate, while panel (h) shows a downward kink in average income between 1990 and 2017.

In sum, cohorts exposed to the contraction of higher education under Pinochet were worse off according to all the labor market outcomes considered. Among the cohorts that reached college age under the dictatorship, this negative impact was larger for younger ones, in line with the growing tightness of admissions. Columns 4–8 in Table 1 quantify these kinks. For instance, column 8 shows a positive trend in average income of \$5,500 per cohort (in

<sup>15</sup>Online Appendix Table A.2 and Figure A.5 show similar results using data from other sources. In Online Appendix Table A.3, we show that the downward kink in college enrollment remains even if we restrict the sample to siblings (96% drop in sample size) and include family fixed effects. This is consistent with a broad-based reduction in college openings.

<sup>16</sup>Online Appendix Figure A.6 and Table A.4 show offsetting increases in clerical, blue-collar, and basic occupations.

<sup>17</sup>The index is based on the log median wage for the three-digit occupation code in CASEN from 1992 to 2000. Online Appendix Figure A.7 shows similar results using different years to construct the score.

Table 1: Educational attainment and labor market outcomes.

	Occupational							
	Full secondary	Any college		In labor force	Professional occupation	Occupational income score	Seeking work	Total income
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Yr Age 21	0.008*** (0.0003) [0.001]	0.008*** (0.0004) [0.000]	0.018*** (0.0004) [0.000]	0.008*** (0.0003) [0.000]	0.007*** (0.0006) [0.001]	0.004*** (0.0004) [0.005]	-0.001*** (0.0001) [0.005]	5.462*** (0.6796) [0.000]
Yr Age 21 × Dictatorship	-0.001 (0.0005) [0.742]	-0.012*** (0.0007) [0.000]	-0.036*** (0.0007) [0.000]	-0.012*** (0.0006) [0.000]	-0.016*** (0.0009) [0.000]	-0.016*** (0.0006) [0.000]	0.003*** (0.0002) [0.003]	-9.866*** (0.9611) [0.001]
Sample restrictions	None	None	Full secondary	Full secondary	Full secondary + In labor force			
County of birth × gender FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Survey year FE	No	No	No	No	No	No	No	Yes
Observations	2,982,951	2,982,951	1,024,570	1,024,570	770,652	684,995	776,304	163,693
R-squared	0.088	0.046	0.040	0.200	0.038	0.061	0.004	0.197
Mean of dependent variable	0.343	0.101	0.295	0.758	0.215	12.70	0.043	471.8

Notes: Dependent variable in the header. Sample includes census respondents born between 1943 and 1960. “Yr Age 21” is a continuous variable indicating the year when the cohort reached age 21, normalized to zero in 1972. “Dictatorship” is a dummy for cohorts that reached age 21 on or after 1973. Columns 1–7 use data from the 1992 census, while column 8 uses pooled data from the CASEN survey between 1990 and 2017. Total income in column 8 is reported in 1000s of constant 2015 Chilean pesos and is winsorized at the 1% and 99% levels. Standard errors clustered by county (columns 1–7; birth; column 8: residence) in parentheses. *p*-values from wild cluster bootstrap at the cohort level in brackets. Significance level: \*\*\* *p* < 0.01, \*\* *p* < 0.05, \* *p* < 0.1.

constant 2015 Chilean pesos), which reverts to  $-\$4,400$  per cohort in the post-coup period. This is equivalent to a 1% reduction per cohort relative to the sample mean (i.e., 8% reduction between 1973 and 1981).

These negative labor market effects for the affected cohorts presumably hindered their social mobility. We next study the impact of the contraction of higher education on the respective distributions of wealth and income, in an attempt to connect the previous results to the broader increase in inequality recorded under Pinochet. For this purpose, we leverage household-level information on quintiles of wealth from the 1992 population census and quintiles of income from 13 waves of CASEN between 1990 and 2017.<sup>18</sup>

Panels (a)–(c) in Figure 7 plot the cohort shares in the top 20%, middle 60%, and bottom 20% of the wealth distribution. Panels (d)–(f) show similar patterns for the income distribution. The share of people in the top 20% drops sharply for the cohorts that reached college age after the military coup. This downward kink at the top of the distributions is compensated by a higher share in the middle 60%, but also to a smaller extent by a higher share in the bottom 20%. Table 2 provides the corresponding regression estimates. Column 1 shows that the share in the top wealth quintile drops at a net rate of  $-1.5$  pp per cohort after the coup. This trend is more than seven times larger than the one observed among pre-coup cohorts and is equivalent to a 3% reduction per cohort relative to the sample mean. In the case of income, column 4 shows a  $-0.8$  pp net reduction per cohort in the share in the top 20%, four times larger than the pre-coup trend and corresponding to a 2% reduction per cohort relative to the sample mean. Overall, the results in Table 2 suggest that individuals affected by the contraction of higher education struggled to reach the top of the socioeconomic ladder.

### ***Synthetic Control Method***

The previous results rely on an extrapolated linear trend to provide a counterfactual for our outcomes of interest after the 1973 coup. Such extrapolation may provide an unrealistic counterfactual, especially because college enrollment grew at a very rapid and perhaps unsustainable rate under Allende immediately before the coup. As a way to address this concern, we use the synthetic control method (SCM) to provide an alternative and more flexible counterfactual (Abadie *et al.*, 2015). This method uses data from other countries to construct a weighted average that best predicts a data time series for Chile before 1973,

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<sup>18</sup>Wealth quintiles correspond to housing wealth and are calculated by INE based on observable characteristics of the dwelling and ownership of assets. The census does not record information on income. To the extent that there is resource pooling between individuals from different cohorts within households, the household-level calculation of these measures will attenuate the individual impact of reduced educational attainment.

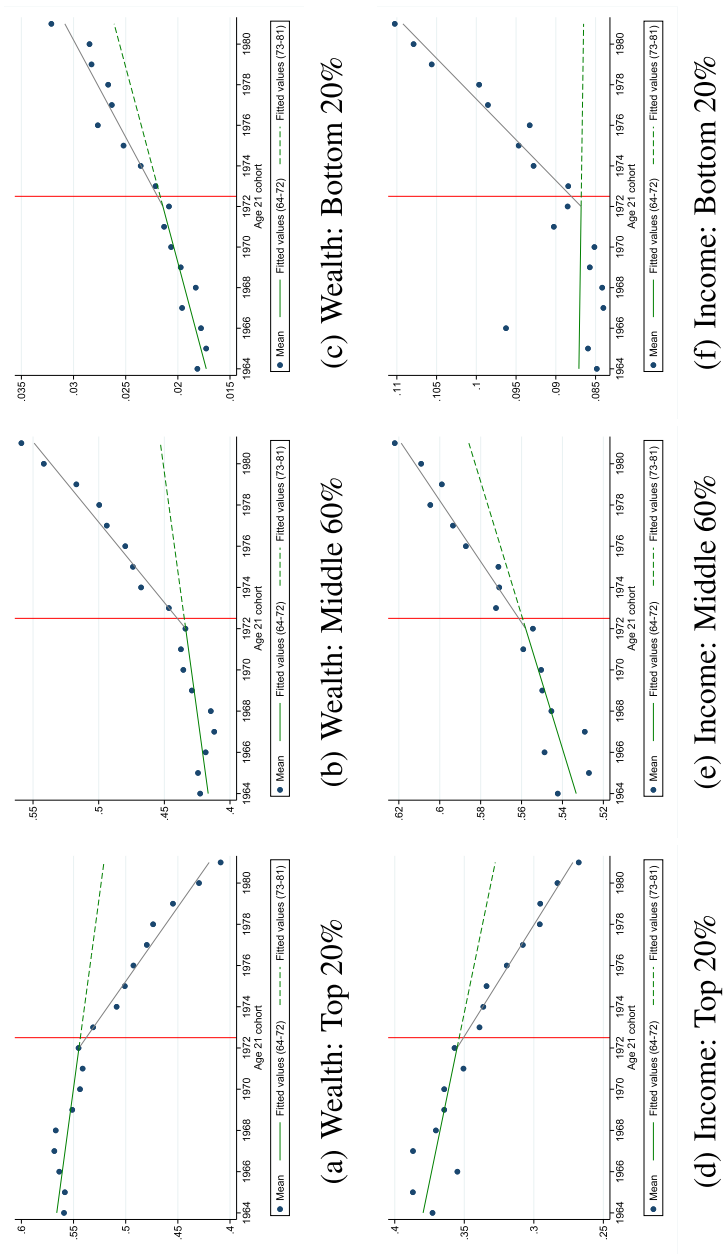


Figure 7: Visualization of kink in household wealth and income.

Notes: Panels show averages by cohort for the variable in the caption. Solid green line corresponds to line of best fit for cohorts reaching college age before 1973. Dashed green line shows extrapolation for later cohorts. Solid gray line corresponds to line of best fit for cohorts reaching college age in 1973 or afterwards. Panels (a)–(c) use data from 1992 population census, while panels (d)–(f) use data from the CASEN survey between 1990 and 2017.

Table 2: Household wealth and income.

	Wealth (1992 census)			Income (CASEN: 1990–2017)		
	Top 20%	Middle 60%	Bottom 20%	Top 20%	Middle 60%	Bottom 20%
	(1)	(2)	(3)	(4)	(5)	(6)
Yr Age 21	−0.002*** (0.0005) [0.015]	0.001*** (0.0005) [0.037]	0.000*** (0.0001) [0.001]	−0.002** (0.0008) [0.087]	0.003*** (0.0008) [0.008]	−0.000 (0.0004) [0.403]
Yr Age 21 × Dictatorship	−0.013*** (0.0007) [0.001]	0.012*** (0.0007) [0.001]	0.001*** (0.0001) [0.003]	−0.006*** (0.0011) [0.002]	0.003*** (0.0011) [0.035]	0.003*** (0.0006) [0.000]
County × gender FE	Yes	Yes	Yes	Yes	Yes	Yes
Survey year FE	No	No	No	Yes	Yes	Yes
Observations	1,007,957	1,007,957	1,007,957	163,342	163,342	163,342
R-squared	0.114	0.085	0.050	0.080	0.046	0.028
Mean of dependent variable	0.500	0.475	0.024	0.327	0.577	0.096

Notes: Dependent variable in the header. Sample includes individuals born between 1943 and 1960 with 4+ years of secondary education. “Yr Age 21” is a continuous variable indicating the year at which the cohort reached age 21, normalized to zero in 1972. “Dictatorship” is a dummy for cohorts that reached age 21 on or after 1973. Columns 1–3 use data from the 1992 census, while columns 4–6 use pooled data from the CASEN survey between 1990 and 2017. Standard errors clustered by county (columns 1–3: birth; columns 4–6: residence) in parentheses. *p*-values from wild cluster bootstrap at the cohort level in brackets. Significance level: \*\*\**p* < 0.01, \*\**p* < 0.05, \**p* < 0.1.

and then employs the same weights to construct the counterfactual for the period after 1973.

We perform this analysis using harmonized census data from 61 countries listed in Online Appendix Table A.5. Data for Chile corresponds to the 1992 census, while for other countries we use censuses between 1987 and 1997. We focus our attention on a limited set of outcomes with available harmonized data for a large set of countries: college completion, labor force participation, and professional occupation. In line with established practice, we use lagged values of each outcome to build the synthetic control and we only use *even* years to avoid cherry-picking and over-fitting (Ferman *et al.*, 2019). Our baseline analysis includes all countries with available data from IPUMS — International. Online Appendix Figure A.8 provides similar results for alternative samples: (i) excluding other Latin American countries, (ii) excluding autocracies, and (iii) excluding years before 1960.



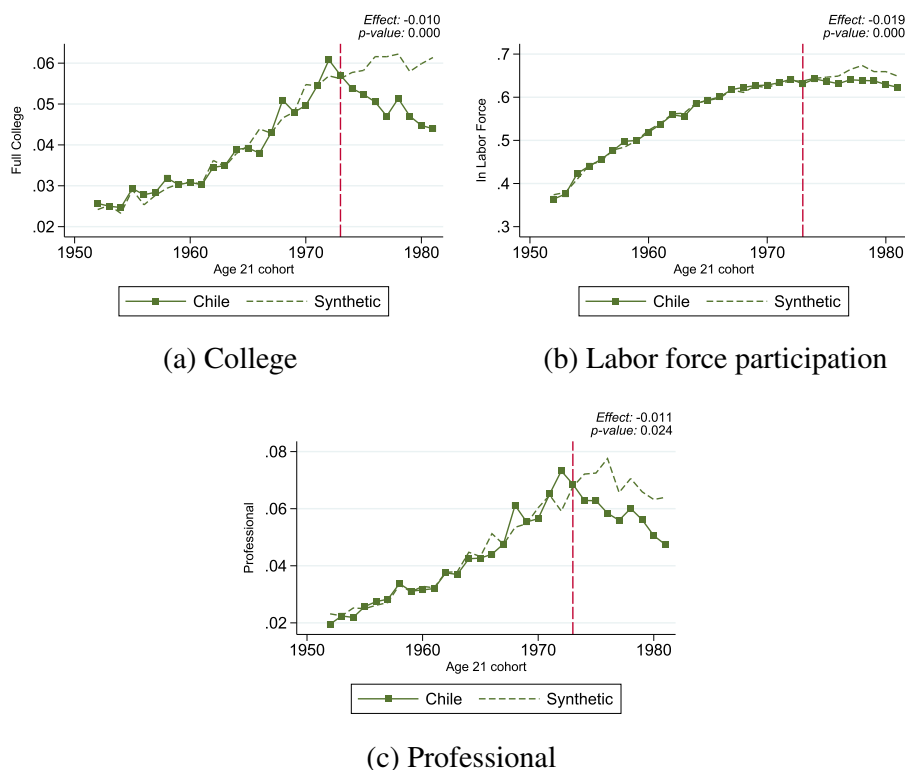


Figure 8: Synthetic control.

*Notes:* Panels show results from a synthetic control analysis using harmonized data from IPUMS International. The dependent variable is college completion in panel (a), labor force participation in panel (b), and professional occupation in panels (c). Data for Chile corresponds to 1992 census. For other countries, we use censuses between 1987 and 1997.

Panel (a) in Figure 8 shows the results for college completion. The solid line corresponds to the actual data for Chile, while the dashed line shows the prediction from the SCM. This counterfactual closely tracks the realized time series until the coup. Afterwards, the synthetic control keeps growing, while the actual series drops. We estimate an average gap of 1 pp in college completion after the coup ( $p$ -value  $< 0.001$ ). Panel (b) similarly shows that the synthetic control predicts well Chile's cohort trend in labor force participation until 1973 and exceeds it afterwards. The SCM yields an average estimated gap of 1.9 pp after the coup ( $p$ -value  $< 0.001$ ). Panel (c) shows similar results for the share of professionals, with an estimated post-coup gap of 1.1 pp ( $p$ -value: 0.024).

Taken together, the results from the SCM indicate that the linear counterfactual from our baseline analysis is not fundamentally shaping our main findings. Alternatively, Online Appendix Tables A.6 and A.7 show that our baseline

results are unaffected if we exclude from the analysis the cohorts that reached college age between 1970 and 1972. These are the cohorts that benefited from the rapid expansion in access to college that took place under Allende.

### ***Robustness Checks***

We provide a large battery of robustness checks that lend further support to a causal interpretation of our findings. The corresponding tables and figures are available in the Online Appendix.

One concern related to a purely cross-sectional comparison (i.e., a single census) is that it may conflate the differential access to college across cohorts with nonlinear age effects. Addressing this concern, Online Appendix Tables A.8 and A.9 show that we obtain similar results if we pool multiple survey waves or censuses (1992 and 2002) and estimate a more stringent specification with age fixed effects. This ensures that we only compare individuals from different cohorts at the same point in the life cycle. We additionally verify in Online Appendix Figures A.9 and A.10 that our results are unchanged if we tighten or expand the set of cohorts in our sample. A tighter bandwidth reduces the confounding effect of age, as study cohorts are closer together in the life cycle, but also increases comparability and exposure to other factors that may have changed after 1973.

Regarding such factors, Online Appendix Figure A.11 shows that while economic conditions were volatile around the 1973 coup, the time series for some of the main macroeconomic indicators does not display a monotonic worsening after the coup such that it could explain our results. These indicators include GDP growth, government spending (% of GDP, based on Diaz *et al.*, 2016), youth unemployment, youth employment in the public sector, and the number of new unions. If anything, the cohorts that reached college age around 1980 and were most affected by the educational contraction experienced a booming economy at this time. “The period from 1980 to 1981 was probably the high point of the military regime... a period of abundant consumption and optimistic economic indicators” (Valdés, 1995, p. 35). Online Appendix Tables A.10 and A.11 further show that our results are unaffected if we include the macroeconomic indicators listed above as controls.

Another major change that may have affected the educational decisions of younger cohorts after the coup was the increase in state repression. Several pieces of evidence indicate that repression and its deterrent effect on college applicants is not driving our results. First, as shown above, the supply of openings was the binding constraint on admissions and the victims of repression represent a very small share of the college student body. Moreover, while only 6% of the victims of repression reported by Comisión Rettig (1996) were women, Online Appendix Tables A.12 and A.13 show that both genders experienced the negative impact of reduced access to college.

A related concern is that political persecution drove thousands of people into exile and that our results may be driven by the inability to observe international migrants in the affected cohorts. To assess the role of migration, Figure A.12 plots data for four different measures: (i) the number of Chilean students abroad, (ii) the share of 1992 census respondents (with full secondary) that report living abroad in 1987, (iii) the number of Chileans that the Ministry of Foreign Affairs reports as living abroad in 2003, and (iv) the share of voters per cohort in the 2017 elections that are registered abroad. Reassuringly, these sources systematically show lower migration among the affected cohorts, plausibly as a result of their reduced access to college.<sup>19</sup>

Regarding some of our methodological choices, Online Appendix Figures A.14 and A.15 show that our results are also robust to using alternative ages for first year college students (i.e., alternative kink points for the cohort-level trends). The results are also unaffected if we include in the sample individuals without complete secondary education (Online Appendix Tables A.14 and A.15).

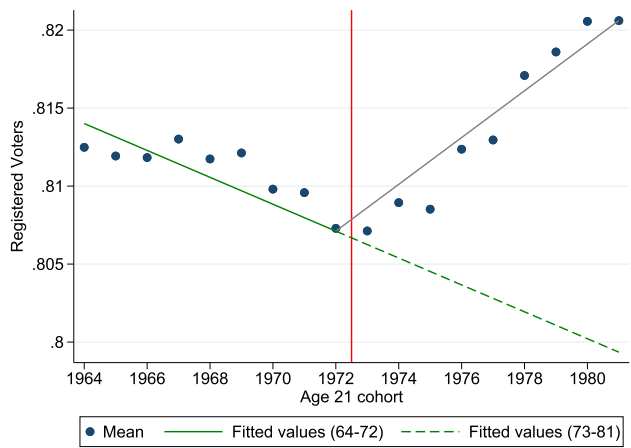
## Political Behaviors

We now study the political behavior of individuals affected by the contraction of higher education. In 1980, the military regime drafted a new constitution that awarded Pinochet an 8-year term as president. After this time, a plebiscite asked voters whether they wanted Pinochet to remain in power for eight more years (SI option) or to have open presidential elections instead (NO option). The plebiscite, held in October 1988, was the first free election in Chile since 1973 and the “NO” option won with 55% of votes. This result triggered the country’s democratic transition, with the first presidential election held in 1989 and Pinochet stepping down as president in 1990.

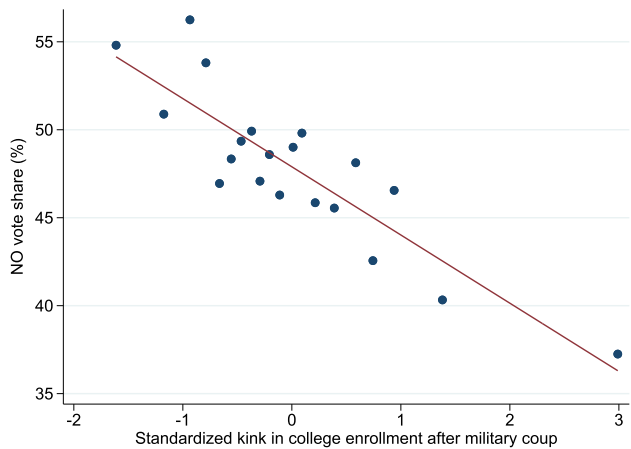
We first look at voter registration in the run-up to the plebiscite as a measure of engagement with the political process (Bautista *et al.*, 2023). The military junta declared the previous voting registry void shortly after the coup, so all voters had to register anew to participate in the plebiscite. Based on individual-level records for the universe of voters in 2017, panel (a) in Figure 9 plots the share of voters per cohort that registered in 1987 or 1988, as well as the estimated trends for the cohorts reaching college age before and after the coup.<sup>20</sup> We observe a clear upward kink in the registration rate among

<sup>19</sup>Online Appendix Figure A.13 shows that the number of enlisted soldiers follows no clear trend after the 1973 coup.

<sup>20</sup>Chile introduced automatic voter registration in 2012, so the composition of our sample in 2017 is unaffected by differences in the propensity to register across cohorts. The electoral data does not include information on educational attainment, so these results correspond to the unrestricted sample.



(a) Voter registration



(b) NO vote share

Figure 9: Political outcomes in the 1988 plebiscite.

*Notes:* Panel (a) shows the share of voters per cohort in 2017 that registered to vote in the 1988 plebiscite. Solid green line corresponds to line of best fit for cohorts reaching college age before 1973. Dashed green line shows extrapolation for later cohorts. Solid gray line corresponds to line of best fit for cohorts reaching college age in 1973 or afterwards. Panel (b) shows a binned scatter plot of the estimated kink in college enrollment at the county level (adjusted for precision and standardized) and the vote share for the NO option in the 1988 plebiscite. Unit of observation is the county.

the affected cohorts. However, registration was generally very high, with a sample mean of 81%, so the magnitude of the kink is relatively small (i.e., 0.1 pp average net gain in registration per post-coup cohort). Still, we interpret this result as suggesting increased political engagement by those experiencing reduced access to higher education.

To study potential effects on the outcome of the plebiscite, we construct a county-specific measure of the contraction in higher education. For this purpose, we estimate a modified version of Equation (1) that allows for separate estimates of the kink in college enrollment for each county  $j$  in the 1992 census.<sup>21</sup> To facilitate interpretation, we standardize this measure of the impact of the college contraction across counties.<sup>22</sup> Panel (b) in Figure 9 shows a binned scatterplot of the NO vote share against this impact measure. There is a strong correlation between the size of the educational contraction and support for the NO option in the plebiscite, with counties that experienced a greater reduction in college enrollment voting against Pinochet at higher rates.

Table 3 examines the robustness of this correlation. We present robust standard errors in parentheses. We also show in brackets the  $p$ -values from a bootstrap procedure that accounts for the county-specific estimates of the kink in college enrollment that we use as regressors. Column 1 indicates that a one standard deviation (SD) decrease in the county-specific kink in college enrollment (i.e., sharper fall) is associated with a 3.9 pp increase in the NO vote share (8% increase over sample mean). This column includes no controls, while column 2 controls for total population and for the shares of rural and female population in 1970. Column 3 further controls for the respective distances to Santiago, the regional capital and the provincial capital. Column 4 adds region fixed effects. The magnitude of the correlation between the kink in enrollment and the NO vote share decreases as we add more controls, but it remains economically and statistically significant.

Finally, column 5 adds the vote share for Allende in 1970 as an additional control. This is a strong predictor of the NO vote: a one-point increase in the Allende vote is associated with a 0.44 pp increase in support for NO. Adding this control reduces the correlation of the NO vote share with the local kink in college enrollment by 43%, but it still remains sizable, negative and statistically significant. This suggests that the areas affected by the contraction were also the ones that supported Allende and plausibly benefited from his

<sup>21</sup>For computational convenience, we drop the county by gender fixed effects in this regression. We also adjust the county-specific kink in enrollment ( $\pi_{1,j}$ ) based on the precision of the estimates (Krueger and Summers, 1988).

<sup>22</sup>The only four counties experiencing growth in college enrollment after the coup are affluent counties in Santiago (Las Condes, Providencia, Ñuñoa, and La Reina), while those most affected are middle- and lower-class counties also in Santiago (Quilicura, Maipú, Puente Alto).

Table 3: Opposition to Pinochet in the 1988 Plebiscite.

	Dependent variable: NO vote share				
	(1)	(2)	(3)	(4)	(5)
Kink in college enrollment	-3.88*** (0.79) [0.000]	-3.21*** (0.66) [0.000]	-2.35*** (0.67) [0.010]	-1.98*** (0.62) [0.000]	-1.13** (0.56) [0.050]
Population in 1970 (1000s)		0.02 (0.01)	0.01 (0.01)	0.00 (0.01)	0.01 (0.01)
Rural share of population in 1970		-20.44*** (2.22)	-21.36*** (2.13)	-22.69*** (2.46)	-15.75*** (2.43)
Female share of population in 1970		42.35** (19.26)	12.16 (19.73)	26.79 (22.32)	20.11 (17.96)
Distance to Santiago (km)			-0.01*** (0.00)	-0.01 (0.01)	-0.01** (0.01)
Distance to regional capital (km)			-0.01 (0.01)	-0.01 (0.01)	-0.02* (0.01)
Distance to provincial capital (km)			0.01 (0.01)	0.02 (0.02)	0.03** (0.01)
Allende vote share in 1970					0.44*** (0.04)
Population controls	No	Yes	Yes	Yes	Yes
Geographic controls	No	No	Yes	Yes	Yes
Region FE	No	No	No	Yes	Yes
Observations	318	318	318	318	318
R-squared	0.100	0.439	0.485	0.543	0.681
Mean of dependent variable	47.90	47.90	47.90	47.90	47.90

*Notes:* Dependent variable is the NO vote share in the 1988 plebiscite. Unit of observation is the county. Local impact measure is equal to the county-specific estimate of the net trend in college enrollment for cohorts reaching college age between 1973 and 1981, which we adjust for precision and standardize. Population controls include total population, rural share and female share in 1970. Geographic controls include distance to Santiago and to the provincial and regional capitals. Observations weighted by population in 1970. Robust standard errors in parentheses. *P*-values from wild bootstrap in brackets. Significance level: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

policy agenda, including the college expansion. We interpret these results as suggestive evidence that the contraction of higher education led to a political backlash and contributed to Pinochet's defeat in the 1988 plebiscite.

## Conclusion

Political regime change led to a large contraction of the system of higher education in Chile after 1973. This contraction was partly driven by a concern about universities as focal points for political activism during the early stages of regime consolidation and was facilitated by the technocratic and fiscally conservative nature of the Pinochet dictatorship. Also important was the

fact that the contraction mostly affected marginal college applicants from the middle class, rather than the elites from which the regime drew its strongest support. Our findings suggest that educational policy in autocracies at early stages of consolidation may prioritize regime stability over human capital accumulation, particularly at the tertiary level due to the heightened political risk.

Our empirical analysis shows that individuals who reached college age shortly after 1973 experienced a sharp decline in college enrollment, had worse economic outcomes throughout their lives and struggled to reach the top of the socioeconomic ladder. Our results suggest that the contraction of higher education plausibly contributed to the extraordinary increase in inequality under Pinochet. These distributional changes mostly affected the middle class.

Our results also suggest that diminished educational opportunities can negatively affect support for an authoritarian regime when a democratic window of opportunity arises. Policies that reduce access to education can undermine the long-term survival of authoritarian regimes, even if they serve short-term goals of political control or fiscal consolidation. In this regard, Chile's persistently high level of inequality has arguably contributed to the rising levels of political discontent observed in this country in recent years. Exploring this further is a promising avenue for future research.

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