



Early impacts of college aid[☆]

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ABSTRACT

We analyze the impact of an expansion in government aid for higher education in Chile in a sample of elementary and high school students. Using students who had an alternative source of funding as a control group, and administrative records before and after the reform, we present evidence that students are affected in different ways. First, we show that parents of students who ex ante were more likely to be credit restricted are more likely after the reform to report that their child ends up completing college. Second, we find that students in the same groups that increase their college expectations, obtain a score in high-stakes examination that actually qualified them for college aid. Third, we find that lifting future credit restrictions reduces the probability of dropping out of high school.

1. Introduction

In this paper, we analyze the impact of a major expansion in college aid on a sample of primary and secondary school students in Chile. The policy consisted in government-guaranteed university loans (*Crédito con Aval del Estado*, hereafter CAE), implemented in 2006. Specifically, this reform not only increased the available college funds but also expanded the pool of eligible post-secondary institutions that would benefit from lifting students' credit restrictions. Over the span of three years after the reform, 30% of all college students were receiving aid through CAE. Given the magnitude of this reform, the main hypothesis of this paper is that CAE not only lifted credit restrictions for students who were planning to attend college, but also enhanced expectations about higher education among students, who at the time were in primary and secondary education. Therefore, we expect a change in the behavior of those students well before they applied to college, not only in extensive margins such as high school dropout rates, but also in intensive margins like educational achievements.

Before the CAE reform, most of the funds for student aid were concentrated in individuals attending a subset of "traditional" higher education institutions. These schools were historically able to impose higher entry cutoffs in the national standardized admission test. This means that, by expanding college aid to all post-secondary institutions,

the reform was perceived as a relaxation in the academic requirements to obtain student aid. To evaluate the policy, we use individual school records for Chilean high school students over all school years, merged with college admission examination records; and standardized test records for elementary and high school students. By ranking students according to their likelihood of qualifying for other pre-CAE sources of funding, we use a Dif-in-Dif approach with multiple treated groups and students with the highest probability alternative funding as our control group to study the impact associated to CAE.

In the following sections, we present evidence that students are affected in different ways. First, we show that parents of students who had a lower probability of other sources of funding are more likely to report after the implementation of CAE that the student in the future will complete college education. Second, we find that students in the same groups as those that increase their college expectations are more likely to achieve a score in a high-stakes examination that actually qualified them for college aid after finishing high school. Third, we find that lifting future credit restrictions reduces the probability of dropping out of high school.

Our paper is related to several strands of the literature. The first one consists of studies stressing the role of credit restrictions on college enrollment decisions. Given the relative importance of post-secondary education in the system, the evidence provided has focused on

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developed countries (see, for example the seminal work by Dynarski (2003), and also Christian, 2007, Stinebrickner & Stinebrickner, 2008 and Lochner & Monge-Naranjo, 2011). In the same line of research, a handful of studies have specifically evaluated the impact of the CAE reform. Rau, Rojas, and Urzúa (2013) show that the CAE reform had not only increased enrollment rates in post-secondary education, but had also reduced dropout rates at the college level. Nevertheless, they show that CAE's beneficiaries do not have higher earnings because of perverse incentives introduced by the reform into post-secondary institutions. Solis (2017), using the discontinuity in the eligibility of CAE (and other college aid alternatives) according to the PSU score, finds a significant positive effect on college enrollment.¹ Both studies (Rau et al., 2013 and Solis, 2017), focus on students already on the “edge” of attending college (i.e. those taking the college admission test). Different from these papers, we study the impact of the reform on high school students regardless of whether or not they take the PSU later.²

A second line of research studies the role of expectations (and their interaction with credit restrictions) on human capital accumulation³ (see, for example, Jacob & Wilder, 2011, for the U.S.; Jensen, 2010, for the Dominican Republic, and Attanasio & Kaufmann, 2009 for Mexico).^{4,5} Specifically for Chile, Dinkelman and Martinez (2014) perform a randomized controlled experiment among eighth graders, where *treated* students were informed about credit and fellowships opportunities. The results reveal that the exposure to information increases college-oriented high school enrollment (scientific-humanistic), primary school attendance, and financial aid knowledge, with gains concentrated among medium- and high-grade students. By using administrative records we are not only able to analyze the heterogeneity at the school level (on top of the one at the student level), but also to follow students beyond the first years of high school and to study the impact of the reform on other outcomes not analyzed before. Specifically, we study the impact on family's expectations, high school dropouts, the college admission test, and non random sorting of students across schools. That is, our estimates are informative about the potential effects and the channels explaining the short and medium run impact of a policy reducing future credit restrictions.

The final strand of the literature to which this paper relates, is the one studying the role of lifting restrictions to higher education on the (signal) value associated to a specific education level. Bedard (2001) finds, for the U.S., that regions with easier access to college are characterized by higher dropout rates. This result is explained in a model where education has a signaling value. Starting from an equilibrium where students are constrained in accessing higher education (and thus

both high and low ability students are “pooled” in high school graduation), a reduction in those barriers makes some high ability students continue with their education beyond high school. This deviation of high ability students, on the other hand, reduces the value of education for less able students for whom originally completing high school was optimal, but who in this new equilibrium, become high school dropouts. Given that we analyze a policy that was aimed directly at reducing barriers to entering college, and that we do have a measure of academic performance previous to the reform, we find ourselves with an adequate environment for evaluating the signaling hypothesis in a context of a strong school's heterogeneity.^{6,7} Our results on dropout rates and the observed decrease in grade dispersion do not seem supportive of Bedard's hypothesis. However, we do find evidence of separation between high and low performance students on other margins, as we observe an increase of school sorting (in high school students).

The paper is organized as follows. In Section 2, we briefly describe the main aspects of the Chilean educational system, as well as the main features of the CAE. In Section 3, we describe our empirical strategy. Section 4 presents the data, samples and outcomes used in the analysis. In Section 5 we present our results. Section 6 concludes.

2. The CAE reform and the education system in Chile

Since a major educational reform in the early 1980s,⁸ Chile's primary and secondary educational system has been characterized by its decentralization and by a significant participation of the private sector. By 2012, the population of students was approximately three and half million, distributed throughout three types of schools: public or municipal (41% of total enrollment), subsidized private (51% of total enrollment), and non-subsidized private schools (7% of total enrollment).⁹ Municipal schools, as the name indicates, are managed by municipalities, while the other two types of schools are controlled by the private sector. Though both municipal and subsidized private schools get state funding through a voucher scheme, the latter are usually called “voucher schools”.¹⁰

Primary education consists of eight years of education while secondary education depends on the academic track followed by a student. A “Scientific-Humanist” track consists of four years and prepares students for a college education. A “Technical-Professional” track has a duration in some cases of five years with a vocational orientation aimed at helping the transition into the workforce after secondary education. Until 2003, compulsory education consisted of eight years of primary education; however, a constitutional reform established free and

¹ Specifically, he finds that credit access leads to a 100% increase in immediate college enrollment and a 50% increase in the probability of ever enrolling. Moreover, access to loans effectively eliminates the income gap in enrollment and number of years of college attainment.

² Around 65% of the population of high school students analyzed in this paper in fact took the college admission test. Indeed, taking the admission exam and the score in that test will be outcomes in our analysis. Even though the magnitude of the reform may have affected the supply and type and quality of colleges, given that here we analyze students while they are still in elementary or high school (whose supply side is unaffected), all effects occur through the demand side, since expectations are increased by the greater access and reduced by the potential reduction in quality. Therefore, our findings can be seen as the net impact on the expected return of higher education of these two countervailing effects.

³ There is growing literature stressing the importance of subjective expectations in economics beyond the ones associated to the return of education. For a survey of this literature, see Attanasio and Kaufmann (2009) and Attanasio (2009).

⁴ Jacob & Wilder, 2011 analyze trends in educational expectations between the mid-1970s and the early 2000s, finding that, even though expectations have become somewhat less predictive of attainment, they remain strong predictors of attainment above and beyond other standard determinants of schooling.

⁵ Attanasio and Kaufmann (2009), using household data for Mexico, show a positive correlation between individual's expectations about the return of education and educational decisions, even though this correlation is weaker among individuals who are more likely to be credit constrained.

⁶ Bedard (2001) uses differences in the local supply of universities to estimate the impact of university access on dropout rates.

⁷ Moreover, we may be able to provide an estimate that is less likely to be contaminated by spillovers in education. Moretti (2004) finds that an increase in the supply of college graduates raises high school dropouts' wages by almost five times the increase in college graduates' wages.

⁸ The management of primary and secondary education was transferred to municipalities, payment scales and civil servant protection for teachers were abolished, and a voucher scheme was established as the funding mechanism for municipal and non-fee-charging private schools. Both municipal and non-fee-charging private schools received equal rates tied strictly to attendance, and parents' choices were not restricted to residence. Although with the return to democracy some of the earlier reforms have been abolished or offset by new reforms (policies), the Chilean primary and secondary educational system is still considered one of the few examples in a developing country of a national voucher system, which in the year 2009 covered approximately 93% of the primary and secondary enrollment. For more details, see Gauri and Vawda (2003).

⁹ There is a fourth type of schools, “corporations”, which are vocational schools administered by firms or enterprises with a fixed budget from the state. In 2012, they constituted less than 2% of the total enrollment. Throughout our analysis, we treat them as municipal schools.

¹⁰ Public and “voucher” schools are allowed to receive a copayment from parents, even though the latter have fewer restrictions in their copayment policy. According to Gallego and Hernando (2008), 78% of municipal school students attend free schools (that is, schools that do not require a copayment in addition to the voucher), while only 24% of voucher school students attend free voucher schools.

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