School and institutional effects on secondary education transitions in Mexico

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ABSTRACT

This study investigates school and institutional effects on student transitions to upper secondary, higher education, and the labor market in Mexico. I focus on school and institutional effects related to school resources, level of decentralization, and type of curriculum. Under the framework of human capital and signaling theory, I propose that the decision to pursue upper secondary and higher education depends on two main factors: first are the perceived returns to education at a school of certain characteristics; and second, the institutional characteristics of the attended school, such as level of centralization and type of curriculum. Using fixed effects and logistic regression models, I find evidence that schools matter in Mexico to foster transitions from lower secondary education to upper secondary education, particularly for students in the third quintile of test scores and higher. Similarly, I find evidence of school size as an important explanatory variable for transition outcomes in upper secondary education. Also, the socioeconomic status of schools is important and institutional effects vary on each transition outcome for graduates from upper secondary education. I show that vocational education is only relevant for labor market entry when socioeconomic status is not considered.

1. Introduction

On average, 60% of the gap in student outcomes – such as educational attainment and achievement – may be explained by family background (Jencks, 1972; Willms & Somer, 2001). This is especially relevant in the context of developing countries like Mexico, which face high levels of inequality and low social and economic mobility. Nonetheless, recent data show that Mexico’s educational mobility has improved significantly: almost every individual has acquired more education than that of their parents (CEEY, 2013).

Studying the factors that contribute to improve educational attainment can offer important insights for policymakers seeking to improve socio-economic welfare through educational interventions. This paper extends our understanding of how schools and institutions foster transitions to upper secondary, higher education and the labor market. As a consequence, it aims to serve as an instrument to design efficient education policies and interventions.

Scholars have studied how much of the variation in student academic performance is attributable to school effects – i.e. the extent to which attending a particular school affects student outcomes (Hedges, Laine, & Greenwald, 1994; Loeb & Bound, 1995; Madaus, Airasian, & Kellaghan, 1980; Raudenbush & Willms, 1995). The findings generally suggest that quality of teachers, peer effects and school resources are related to student outcomes. Similarly, evidence suggests that institutions can improve academic performance through mechanisms such as autonomy, reputation/quality, curriculum/tracking, and availability of resources (Hallinan & Kubitschek, 1999; Hanushek & Woessmann, 2010; Woessmann, 2003). However, beyond the influence of schools on...
Motivated by human capital and signaling theories and the empirical approach of education production functions, I pose the following research questions: how does attending a specific lower secondary school relates to the probability of attending upper secondary education? How are the degree of centralization and type of curriculum in upper secondary schools (institutional effects) correlated to the decision of graduates to enroll in higher education, enter the labor market, or become inactive? Do school characteristics matter in such decisions?

In the following pages, I describe the landscape of secondary education in Mexico as well as education and labor market opportunities in the country. That section is followed by relevant literature that study transitions between lower secondary, upper secondary education, higher education and the labor market transitions from the perspective of school and institutional effects. Then, I present the rationale, data and methodology used to estimate school and institutional effects on educational outcomes, and the results of the analyses conducted to investigate the research questions above. Finally, I discuss the implications of the findings for educational transitions and related education policies.

2. Upper secondary education in Mexico

Educational enrollment in Mexico is universal at most mandatory levels. However, only 36% of youth who enrolled in primary education graduate from upper secondary education. Currently, the enrollment rate in upper secondary education is 49% (OECD, 2012). From enrolled students in upper secondary education, about 70% graduate and less than 18% enroll in higher education (SEP, 2012; SEP, 2014). Nonetheless, upper secondary enrollment rates have increased in recent years. As a consequence, upper secondary graduation rates grew around 3.6% each year between 2000 and 2011. These facts present an area of opportunity for policy-makers, especially for educational authorities who set the goal to increase the upper secondary enrollment rate to 80% by 2018 (SEP, 2014).

Across the Mexican education system, schools differ significantly in terms of the availability of resources and types of institutions. Upper secondary education is divided into two main categories: 1) by the level of centralization and 2) by type of curriculum. In terms of centralization, institutions may be divided into 1) federal or state government centralized institutions, 2) federal or state government decentralized institutions, 3) autonomous institutions and 4) private institutions. In terms of curriculum, they can be categorized into 1) vocational institutions (technological or professional technical), 2) general institutions and 3) special institutions. All schools are subject to a common curricular framework (Marco Curricular Común, MCC), regardless of their institutional affiliation (COPEEMS, 2015). This common framework guarantees that, regardless of track, graduates from upper secondary education are competent in specific levels of content knowledge to succeed in higher education and the labor market. Nonetheless, extended curricula and professional competences are designed at the school or institution level depending on their degree of centralization. Institution types are summarized in Table 1.

As shown in Table 1, only 6% of upper secondary institutions are federal. Upper secondary schools that depend financially from the federal government can be centralized or decentralized in all other regards: operative framework, specific curriculum and syllabus (INEE, 2015). Together, federal institutions account for 22% of student enrollment. Similarly, schools that depend financially on states can also be centralized or decentralized. State institutions are decentralized from the federal government in terms of funding, which comes from the government of each state. As before, decentralized schools account for their own operative framework and curriculum. Among public institutions, state schools make up the largest type with 47% schools and nearly 56% of student enrollment (INEE, 2015).

On the other hand, autonomous upper secondary institutions belong to autonomous universities. Thus, decision-making processes in these institutions depend on each university’s governance system. Around 3% of upper secondary education schools are autonomous, accounting for more than 12% of student enrollment. Finally, there are more than 35% of private institutions in Mexico, which educate 19% of students throughout the country (INEE, 2015).

The other main division of upper secondary education institutions in Mexico is by type of curriculum. These are categorized into vocational institutions – education programs with business, trade, or vocational curriculum – and general institutions – education programs with academic or college preparatory curriculum (Hanushek, Woessmann & Zhang, 2011). More than 60% of students are enrolled in general curriculum institutions (INEE, 2015).

Although curricula differ between these two types of institutions, because of MCC, there are no limitations on enrollment to higher education from either track: all students that graduate from upper secondary can enroll in higher education. However, as of 2010 only 55% of students enrolled in vocational education pursued a higher education degree, whereas more than 66% of students enrolled in general education continued into higher education (ENDEMS, 2012). This is unsurprising as evidence suggests that students in the vocational track have larger incentives to enter the labor market and students in the general track might have larger incentives to enroll in higher education (Allmendinger, 1989; Altonji, 1992).

While institutional characteristics of schools are clear and identifiable, there is little public information on the characteristics of

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1 Although this paper is descriptive and does not intend to suggest causality, I borrow the terms of school and institutional effects to define the relationships and correlations between schools and institutions with educational outcomes

2 Compulsory levels include primary, lower secondary education and upper secondary education

3 In addition to vocational institutions and general institutions, there are also specialty institutions that mostly address arts curricula; however, less than 0.1% of public schools fall under this category.
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