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The Returns to Private Education: Evidence from Mexico

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ABSTRACT

Despite the rapid expansion and increasing importance of private education in developing countries, little is known on the impact of studying in private schools on education and wages. This paper contributes to filling this gap by estimating the returns to private high schools in Mexico. We construct a unique data set that combines labour market outcomes and historical census data, and we exploit changes in the availability and size of public and private high schools across states and over time for identification. We find that attending a private high school does not affect school progression to college nor high school wages but it does positively affect wages conditional on college completion. Results are robust to a number of robustness tests on the validity of the instruments.

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1. Introduction

In recent years there has been considerable debate over the privatization of the education sector in low and middle income countries where private education has fast expanded. Several international organizations have been involved in this expansion with the International Financial Corporation (IFC) being the largest multilateral investor: as of January 2011 the IFC provided \$523 million in financing to 68 private education projects in 33 developing countries for a total value of \$1.8 billion.¹ Proponents of privatization argue that the private sector can be used as a means of

increasing access to education via efficient supply: attending a private school has been associated with better test score results, increased school attainment and higher wages (e.g. Riddell, 1993). In high income countries, an extensive literature has estimated the effect of attending private schools on education and wages using a number of identification strategies to control for selection bias. Brown and Belfield (2001) review the studies for the US and the UK and report wage returns to private schools ranging between 7% and 10% for the UK and between 10% and 23% for the US, depending on the level of education and on the sample considered.

On the contrary, the evidence for low and middle income countries remains mainly descriptive. Largely due to data limitations, most studies simply compare differences in mean wages and school attainment between private and public schools' students without controlling for self-selection into the school of choice (e.g. Chudgar & Quin, 2012 for India; Asadullah, 2009 for Bangladesh and

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¹ www.ifc.org.

Pakistan; Calónico & Ñopo for Peru; Bedi & Garg, 2000 for Indonesia). A noticeable exception is the paper by Bravo, Mukhopadhyay, and Todd (2008), which uses data from a school voucher program introduced in Chile in 1980 to identify a dynamic structural model of private school attendance and wages. The authors find that the voucher program increased enrolment in private subsidized schools, which subsequently had a positive significant effect on labour force participation and wages.²

Thus, despite the important related policy implications, little is known on the relative efficiency of private and public schools in improving educational attainment and wages in low and middle income countries. This paper contributes to filling this gap by estimating the returns to private high schools in Mexico. We construct a unique dataset that combines individual-level data on school choices and wages with state-level school census data since the late 1980s. We first describe the evolution in the availability and size of public and private high schools across states in Mexico during the 1990s, and we show that the public high school sector expanded much faster than the private sector. We then exploit these changes in relative availability and size of public relative to private high schools to identify the effect of studying in a private high school on school attainment and on wages. More specifically, we instrument the choice of attending a private high school with measures of the relative availability and relative size of public high schools in the state and year when the high school choice was made for a sample of workers aged 23–35 in 2008.

We find that attending a private high school does not affect school progression from high school to college nor wages after high school, while it does increase wages upon college completion. These results are robust to a number of validity checks on the strength and exogeneity of the instruments, including controlling for measures of education quality and other omitted factors that may affect both school choice and wages, potential demand-driven changes in high schools' availability, and between-state migration. Even if this evidence is reassuring, we apply the method recently developed by Nevo and Rosen (2008) to further assess the robustness of our findings to weaker identification assumptions. In particular, we explicitly allow the instruments to be correlated with the error term in the outcome equation and estimate bounds of the returns to private high schools. When we relax the assumption that the instruments are exogenous, we find that the returns range between 8% and 58%. This range of estimates is too wide to be informative on the point estimate of the returns. However, the lowest point estimate of 8% is higher than the OLS returns, estimated at 5%, which, alongside the other checks on the validity of the instruments, suggests that there are robust positive

wage returns to private high school for those that complete college education.

This paper contributes to the existing literature by establishing a positive causal relationship between attending a private high school and wages in a middle income country. Two main limitations are worth bearing in mind when interpreting the findings. First, we are unable to estimate the exact magnitude of the wage returns because our estimates are likely to partly capture the impact of unobserved factors, such as peer effects and family background variables, which we cannot control for with the available data. Second, our estimates must be thought of as the short-term returns to private high school after college graduation since we work with a sample of young workers. Returns to private high school could reduce in the long-run if, over time, job experience becomes a more important determinant of earnings than the type of school attended.

The remainder of the paper is organized as follows. Section 2 describes the private and public high school sectors in Mexico and their evolution between 1970 and 2000. Section 3 outlines the empirical framework. Section 4 describes the data and presents summary statistics. In Section 5 we present the main results, and in Section 6 we discuss the validity of the instruments. Section 7 concludes.

2. Public and private high schools in Mexico

The Mexican education system is one of the largest in Latin America covering 33.3 million students in 2008, or 31.5% of the country's population (SEP, 2008a, 2008b). There are twelve years of formal education prior to college: six years of primary, three years of secondary, and two or three years of high school. Three main types of high school education are offered: (i) *bachillerato general*, which leads students on an academic track in preparation for college; (ii) *bachillerato tecnológico*, which has a more technical focus and prepares students for either vocational work or higher education to become qualified technicians in specific areas; and (iii) *profesional técnico*, which is a two-year program designed for students seeking a more technical or vocational training that does not allow continuation onto college.

High school education is offered by a mixture of public and private institutions.³ Enrolment in both public and private high schools is generally open up to capacity and only in the event of excess demand schools administer an entrance exam.⁴ However, there are monetary barriers to entrance, especially in the private sector where schools are primarily financed via tuition fees. Public high schools are free of charge and fully funded by the federal, state, or municipal governments. Even then, students are often

² Also for Chile, Anand, Mizala, and Repetto (2009) find no difference between the academic achievement of students in the fee-charging private voucher treatment group relative to their counterparts in free private voucher schools, while they find that students in fee-charging private voucher schools have higher scores than students in public schools.

³ Private schools are legally established after having obtained a license granted by the federal or state government, the *Reconocimiento de Validez Oficial (RVOE)*, which guarantees that basic standards are met. Once RVOE has been granted, there is no further regulation as to the quality or type of academic programs offered by private institutions.

⁴ An exception are public high schools in the metropolitan area of Mexico City, which recruit students through public competition (<http://www.comipems.org.mx>).

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