Extended Abstract

Are New Universities Helping the Poor Get More Education?

Pablo Garriga

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Abstract

This paper uses the expansion of Argentina's Public University System to test its effects on educational attainment. I use the establishment of new universities between 1991 and 2001 in districts that previously had no college to measure its effect on educational attainment and see whether having a college nearby may have led individuals to pursue more education than they would have if there were no universities in their district. To identify this effect I exploit location and age variation across individuals. I use a fixed-effects methodology to compare individuals that were exposed to the treatment to those that were not, while controlling for unobserved heterogeneity across districts and cohorts. Results derived from this study are expected to be informative for policy purposes: a positive effect would suggest returns to schooling are high enough to induce individuals to attain more education, while a negative or zero effect would indicate that higher education does not provide sufficient returns to compensate investing in it.

1 Introduction

Many papers have tried to determine how much it matters to have a school nearby for education outcomes. Past research has mainly focused on the effect of building schools on primary and secondary education (Duflo, 2001; Handa, 2002; Alderman et al., 2003; Burde and Linden, 2013; Kazianga et al., 2013), but there is less evidence for the case of higher education (Card, 1993), especially in developing countries. Having a better understanding of the determinants that lead to increased college attainment in the developing world is of key importance for countries trying to promote higher education.

One of the main challenges faced by studies trying to connect investments in education to individual-level outcomes is the fact that education is not randomly assigned across the population so, treating it as exogenously determined will lead to biased estimates. In this paper, I analyze the effect of the establishment of a new university on educational attainment. I use public university openings in Argentina to see whether

having a college nearby may have led individuals to pursue more education than they would have if there were no universities in their district. To identify this effect I exploit location and age variation across individuals. I empirically test this relation by using census data for the years 1991 and 2001 to obtain household and individual characteristics. Data on universities is obtained from the National Ministry of Education. To identify the causal effects I use a fixed-effects methodology to compare individuals that were exposed to the treatment to those that were not, while controlling for unobserved heterogeneity across districts and cohorts.

There are a vast number of papers studying education in developing countries and very important contributions have been made over the last years thanks to improvements in empirical research (Glewwe and Kremer, 2006; Glewwe and Muralidharan, 2016). One of the main concerns has been to determine which education policies increase enrollment. Perhaps the most influential paper analyzing the impact of building new schools is that of Duflo (2001), who uses a difference-in-difference methodology to estimate the effect on schooling of a large scale construction program in Indonesia. Since then, there have been several other studies using the same methodology to study the impact of different policies. Handa (2002) estimates the effect of the construction of new primary schools in Mozambique, while Alzua, Gasparini and Haimovich (2015) analyze the effects of an educational reform on secondary school attendance in Argentina. Other papers have focused on the role of college proximity on education outcomes. The initial contribution in this area was done by Card (1993), who uses geographic variation in college proximity to estimate the return to schooling, while Currie and Moretti (2003) use this same source of variation to examine the effect of maternal education on infant health. To my knowledge there are very few studies concerned about the location of universities in developing countries. I use the the difference-in-difference approach for the case of universities in Argentina, where the main concern has been to increase the number of people obtaining higher education degrees.

In the following sections I will describe Argentina's Public University System, discuss the methodology used in my estimations and describe the data used for that purpose. Finally, I will briefly discuss the expected findings of the study.

2 Argentina's Public University System

Argentina's Public University System is composed of 56 universities. Access to any of these universities is provided free of charge and, in principle, anyone with a high school degree can enroll. Table 1 shows a list of all the universities along with their location and date of establishment. Originally universities were located in the largest cities but over the last decades many were built across the whole country, with 30 of them created between 1980 to 2016. It is important to notice that since one third of the country's population lives in the Greater Buenos Aires region (GBA), comprised of the city of Buenos Aires (the country's capital) and

24 adjacent districts, many of these universities have been located in this area.

These new universities are not close substitutes to the more traditional ones, in general they tend to provide lower-level tertiary education and offer shorter programs oriented towards students who want to pursue jobs requiring a basic level of higher education. For this reason they might be attractive to individuals who would otherwise pursue no more education than high school, and for whom the return to an additional year of education may not be as high. For such individuals, the opportunity costs and barriers to entry may turn out to be too high if the university is located far away.

It is important to notice that the location and timing of creation of a university might respond to multiple factors which make it unlikely to be an exogenous event. Nevertheless, my identification strategy will not depend on such variation to estimate the effects and therefore there should be no concerns on endogeneity issues arising from this aspect of the research design.

3 Methodology

3.1 Estimation

The treatment of an individual is determined by her district of residence and and her cohort. I use fixed-effects methods to control for unobserved heterogeneity across the different groups. Formally, the basic model can be estimated through the following equation:

$$S_{iyd} = c + \alpha_d + \beta_y + \theta X_i + \delta T_i + \varepsilon_{iyd} \tag{1}$$

where S_{iyd} represents years of education for individual i, born in year y living in district d; c is a constant; α_d are district fixed effects; β_y are cohort fixed effect; T_i is the treatment variable equal to 1 if the individual i lives in a treated district and belongs to a cohort exposed to the university; X_i are additional controls. The error term, ε_{iyd}, is clustered at district level since individuals living in the same district will have correlated outcomes. The estimated coefficient, δ, reflects the average change in years of education for an individual exposed to the treatment relative to someone not exposed. The identification assumption is that treated individual's education would have behaved in the same way as untreated ones, on average, in the absence of the establishment of the university in the district.

Treated districts are those where the university settles, while control districts are those that do not have a university in year y but will have one in the future. The young cohort, exposed to the treatment, is defined as anyone who is less than 18 years of age when the university opens, while those 21 or older are not exposed to treatment. These definitions are not trivial as they could greatly affect my results. Districts

that will have a university in the future might seem as a proper control group since they are likely to share similar characteristics with the treated district before the establishment of a university. Nevertheless, this setting relies on the assumption that the timing of the treatment is not correlated with unobservable district characteristics. In the case of age cohorts, I initially rely on the usual high school graduation age as a lower bound for exposure, but the brackets could be defined in multiple ways.

Another issue that could affect my identification is the possibility that people with certain unobservable characteristics migrate to districts where there is a university or where the construction of a university is expected. This could induce bias in my estimations since district of residence would be endogenously determined. I address this potential problem using information on previous residence to restrict my sample to those individuals who did not move.

3.2 Data

I combine two sources of data for my analysis. Information on individuals come from a sample of census data for the years 1991 and 2001, accessible through IPUMS. The main variables of interest at the individual level are: location of residence, sex, age, education. Since census data does not contain information on wages, I construct an index of unmet basic needs using information on dwelling characteristics, access to utilities and education level. The index is composed of seven indicators, a household is classified as poor if at least one of them is unfulfilled. Data on universities is obtained from the National Ministry of Education. It specifies date and location of establishment for each institution. The resulting dataset will have individuals as units of observation while the source of variation in the treatment will be district of residence and cohort.

4 Expected Findings

I plan to estimate equation 1 under different specifications. A priori, there is one main threat to identification that I will try to address: the definition of a proper control group. To do so, I will perform a series of falsification tests such as changing the definition of treated and control cohorts, or randomly assigning the treatment to control districts. Once I confirm that my results are robust, I will be able to provide a causal interpretation of the findings. In the case I find a positive effect of the treatment, this will suggest that returns to schooling are high enough to induce individuals to attain more education, while a negative or zero effect will indicate that higher education does not provide sufficient returns to compensate investing in it.

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Table 1: List of Universities

Name	District	Province	Capital District Suburb?	Established
UNAB	Burzaco	Buenos Aires	Yes	2016
UNSAdA	San Antonio de Areco	Buenos Aires	No	2015
UNAU	San Vicente	Misiones	No	2015
UNSO	San Isidro	Buenos Aires	Yes	2015
UNDEF	Capital District	Capital District	No	2014
UNAHUR	Villa Tesei	Buenos Aires	Yes	2014
UNA	Capital District	Capital District	No	2014
UNLC	Villa de Merlo	San Luis	No	2014
UNRaf	Rafaela	Santa Fe	No	2014
UNTDF	Ushuaia	Tierra del Fuego	No	2010
UNAJ	Florencio Varela	Buenos Aires	Yes	2009
UNDAV	Avellaneda	Buenos Aires	Yes	2009
UNJP	José C. Paz	Buenos Aires	Yes	2009
UNM	Moreno	Buenos Aires	Yes	2009
UNViMe	Villa Mercedes	San Luis	No	2009
UNO	San Antonio de Padua	Buenos Aires	Yes	2009
UNRN	Viedma	Río Negro	No	2008
UNCAus	Roque Sáenz Peña	Chaco	No	2007
UNChi	Chilecito	La Rioja	No	2002
UNNOBA	Junín	Buenos Aires	No	2002
UNLa	Lanús	Buenos Aires	Yes	1995
UNTREF	Saenz Peña	Buenos Aires	Yes	1995
UNVM	Villa María	Córdoba	No	1995
UNPA	Río Gallegos	Santa Cruz	No	1994
UNGS	Los Polvorines	Buenos Aires	Yes	1993
UNLaR	La Rioja	La Rioja	No	1993
UNSM	San Martín	Buenos Aires	Yes	1992
UNLM	San Justo	Buenos Aires	Yes	1989
UNQ	Quilmes	Buenos Aires	Yes	1989
UNF	Formosa	Formosa	No	1988
UNP	Comodoro Rivadavia	Chubut	No	1980
UNMDP	Mar del Plata	Buenos Aires	No	1975
UNICEN	Tandil	Buenos Aires	No	1974
UNER	Concepción del Uruguay	Entre Ríos	No	1973
UNJu	San Salvador de Jujuy	Jujuy	No	1973
UNLPam	Santa Rosa	La Pampa	No	1973
UNLu	Luján	Buenos Aires	No	1973
UNM	Posadas	Misiones	No	1973
UNSJ	San Juan	San Juan	No	1973
UNSL	San Luis	San Luis	No	1973
UNSE	Santiago del Estero	Santiago del Estero	No	1973
UNCa	Catamarca	Catamarca	No	1972
UNLZ	Lomas de Zamora	Buenos Aires	Yes	1972
UNSa	Salta	Salta	No	1972
UNRC	Río Cuarto	Córdoba	No	1971
UNCOMA	Neuquén	Neuquén	No	1971
UNR	Rosario	Santa Fe	No	1968
UNNE	Corrientes	Corrientes	No	1956
UNS	Bahía Blanca	Buenos Aires	No	1956
UTN	Capital District	Capital District	No	1948
UNCu	Mendoza	Mendoza	No	1939
UNT	San Miguel de Tucumán	Tucumán	No	1914
UNLP	La Plata	Buenos Aires	No	1897
UNL	Santa Fe	Santa Fe	No	1889
UBA	Capital District	Capital District	No	1821
UNC	Córdoba	Córdoba	No	1613