Competition among schools and educational quality: Tension between various objectives of educational policy

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**Abstract**

Using Chilean data for fourth grade students, this research studies the effect of competition among schools on the results of standardized tests, academic self-esteem and motivation, the climate within the school, civic participation, and healthy lifestyle habits. To address the potential bias due to the endogeneity of the competition among schools, an instrumental variable approach is implemented, using instruments associated with the size of each "educational market." The results show that an increase of one standard deviation in competition among schools generates a moderate increase in standardized test results (0.06 standard deviations) and a more significant decrease in the other indicators of quality (between 0.02 and 0.16 standard deviations). Therefore, the results suggest a tension in the school between various objectives of educational policy, in which pressure to improve standardized test scores resulting from competition among schools could produce an undesired effect of deterioration in other dimensions of quality.

1. Introduction

There is a rich discussion regarding the relevance of market incentives in the field of educational policies.\textsuperscript{1} Since Friedman published his seminal work in 1962 (Friedman, 1962), promoters of these policies have argued that competition for enrollment among schools, and for subsidies when there is a voucher system, would put pressure on schools to make an effort to improve their educational quality. The Chilean case has attracted special interest because, since the early 1980s, the country has maintained an educational system in which, by design, market dynamics play a key role in the assurance of educational quality.\textsuperscript{2}

As we present in the next section, the literature on Chile and other countries does not have a consensus regarding the effects of school competition on educational achievement. However, all of these studies define educational quality in terms of standardized test results. Although some studies have considered the effects on other aspects such as school segregation (Hsieh and Urquiola, 2006) or the increase in school coverage (Bravo et al., 2010), the literature with a quantitative focus has not addressed the effect of market dynamics on other aspects of educational quality and the possible tension between these aspects and standardized tests.

The goal of this article is to contribute towards filling this gap. Specifically, we address the effect of competition among schools, measured as the percentage of schools in each district that are subsidized private schools,\textsuperscript{3} on a wide range of educational quality indicators. As in the literature that focuses on the impact of competition on standardized tests, our empirical strategy addresses the potential bias in the estimates due to the endogeneity of the level of competition among schools, using a set of instrumental variables that are related to the size of the potential demand that the schools face in each district. Failing to correct for this endogeneity could lead us to confuse the effect of competition on all these aspects of educational quality with the effect of unobserved variables — such as parent involvement — on those results.

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\textsuperscript{1} For a good summary of this discussion in the economic literature, see Epple et al. (2017). See also Masino and Niño-Zarazúa (2016), who identify policy interventions that improve education quality and student learning in developing countries. From an normative point of view, Brando (2017) argues against market mechanisms improving the education of the least advantaged.


\textsuperscript{3} Given this definition, which is the standard practice in the literature, it would be possible to rephrase the goal of this paper as estimating the effect of school privatization on different measures of school quality.
measurements.

Having a broader and more diverse approach to defining educational quality is especially important when the various measurements of educational quality are not highly correlated with one another. Otherwise, there would be no issue with focused our analysis on one aspect of quality, as the current literature does. Table 1 shows the correlation between the various measures of educational quality that we use in this article. As we can see, although all of these indicators present a positive correlation, standardized tests overall (in the case of Chile, the SIMCE tests) have a high correlation and a minor correlation with other measures, particularly with healthy lifestyle habits and civic participation. Given these correlation levels, educational policy should anticipate that, if its incentives are mainly focused on improved standardized test performance, this will not necessarily imply improvements in the other indicators. In fact, as we will show in this article, there is evidence that the improvements on those tests may come at a cost for the other aspects of educational quality.

Our empirical strategy is implemented using census data for Chilean fourth grade students in 2013. The results of our estimates, which combine simple linear regressions and least square estimates in two fourth grade students in 2013. The results of our estimates, which cost for the other aspects of educational quality.

Regarding this literature and specifically for the case of Chile, there are articles that state that competition does not have an effect other than zero (McEwan and Carnoy, 2006; Hsieh and Urquiola, 2003, 2006). Others state that it would have a statistically significant and positive effect of moderate magnitudes (Gallego, 2002, 2006; Auguste and Valenzuela, 2005). Regarding evidence for other countries, Bettinger (2011) is noteworthy, reviewing comparative evidence among Colombia, Chile and Sweden, concluding that there is mixed evidence that strongly depends on the institutional specificities of each nation. For the case of Colombia, it is worth noting a few articles (Angrist et al. 2002, 2006) that identify a positive effect on standardized tests from the implementation of a voucher program focused on an at-risk sector of Colombian students (around 10% of enrollment).

Overall, as Epplle et al. (2017) emphasize, this literature is characterized by mixed evidence, which explain why they argue that the evidence to date is not sufficient to warrant recommending that vouchers (i.e. school competition) be adopted on a widespread basis.

About statistical methodology, the main challenge of these studies is the endogenous nature of competition. To solve that problem the literature takes advantage of experiments, quasiexperiments, instrumental variables and panel data. Since the Chilean voucher system was implemented nationwide and simultaneously, studies addressing it only consider the first two strategies to deal with endogeneity. In particular, they consider the following instrumental variables: the (logarithm of) total enrollment of the district (Gallego, 2002); the (logarithm of) total population of the district (Hsieh and Urquiola, 2003), and the urbanization rate of the district (Auguste and Valenzuela, 2005; Gallego, 2002; Hsieh and Urquiola, 2003). In Section 5 we discuss the soundness of these instruments. Our paper uses all of them. As a robustness check and following Hsieh and Urquiola (2003), we also estimate panel data model. As opposed of them, due to data limitations, we do so by estimating a short panel model, using districts as the unit of analysis.

Depending on the period of study and certain methodological trade-offs, the models estimated in this literature have considered different units of analysis: students (Gallego, 2006); schools (McEwan and Carnoy, 2006; Gallego, 2002); and districts (Hsieh and Urquiola, 2003; Auguste and Valenzuela, 2005). While using individual or school data is better for controlling for potential confounder factors, using districts as the unit of analysis has the advantage of better dealing with the sorting of students across schools, a relevant feature in the Chilean case. Regarding this methodological discussion, we take an agnostic approach and consider all three units of analysis in the estimation of our model.

Secondly, our paper is related to the literature that discusses the nature of school quality. In this regard, Tikly and Barrett (2011) provide a useful starting point for re-conceptualizing education quality and how it can be evaluated.

The Education Quality Agency of Chile proposed a set of quality

### Table 1

<table>
<thead>
<tr>
<th></th>
<th>Self-esteem and motivation</th>
<th>School climate</th>
<th>Citizen Participation</th>
<th>Healthy lifestyle habits</th>
<th>Mathematics SIMCE</th>
<th>Language SIMCE</th>
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</table>

Source: Generated by the authors based on 2013 SIMCE results and data from the 2013 Quality and Context of Education Survey given to fourth grade students, and their teachers, parents, and guardians.
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