



Labour Market Matters

Volume 2, Issue 9

September 2010

Special points of interest:

- Inter-school competition found to improve student achievement.
- Extra-year of highschool mathematics found to be of less value to high-scoring students, than for lower-scoring students.

“The study found that test score gains between grade 3 and 6 are larger for students in both systems in the more competitive markets”



Abigail Payne
(McMaster University)

Does Competition Create Better Schools?

Rising costs and growing concerns over student success raises into question what is the best way to deliver publicly funded education programs. Competition between schools within the educational system could encourage the better use of resources by school districts based on school performance, which could result in stronger student performance.

In their study **“School Competition and Efficiency with Publicly Funded Catholic Schools,”** ([CLSRN Working Paper no. 66](#)), CLSRN affiliates David Card (University of California-Berkeley), Martin Dooley (McMaster University), and Abigail Payne (McMaster University) examine the Ontario public education system to assess whether there is evidence of a willingness to switch schools and, if so, whether student performance is in fact better in areas where the willingness to switch schools is greater.

In Ontario, as in most other provinces, Catholic parents have the choice of sending their children to two separately run publicly funded educational systems: the larger secular public school system, or smaller Catholic school system, which is open only to children of Catholic families. The two systems are run independently and receive equal government funding per student. The study focuses on the movement of

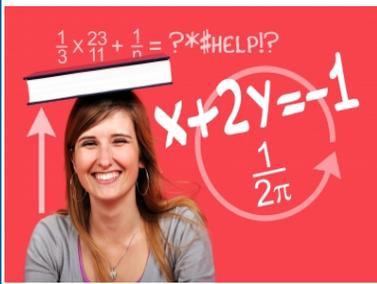
Catholic children between Ontario schools, as only Catholic families can move between secular and Catholic schools.

The study examines the willingness of Catholic families to switch systems by measuring the impact of schooling openings on enrolment trends at nearby schools. A high willingness of families to move between the systems, means poor performing schools will attract fewer students, which results in less funding. This threat of losing resources should provide administrators with an incentive to use resource in a way that results in stronger student performance. If Catholic parents are highly committed to a given system, the opening of a new school in one system will have no effect on neighbouring school enrolment in the competing system. If parents are relatively uncommitted to a school system, however, some families will switch systems. The researchers find significant cross-system switches in enrolment following new school openings, at a level consistent with local fraction of Catholics. The effects are bigger in fast-growing areas, where families appear to have weaker ties to a particular system.

Is student performance stronger in schools that face greater competition? The study found that test score gains between grade 3 and 6 are larger for students in both systems in the more competitive markets

(ie: fast-growing neighbourhoods with a higher fraction of Catholics who have switched into the more competitive schools). The study finds statistically significant impacts of the market characteristics associated with greater potential competition on the growth rate of student achievement. Both the fraction of Catholics and its interaction with a measure of population growth are associated with faster student test score gains. The study confirms these effects extend to students in both systems. The study’s estimates suggest that expanding choice to all Ontario students would have a modest improvement on 6th grade test scores.

Two major implications of the study for the design of alternative public education systems include: One, the evidence that a significant fraction of families are willing to move between publicly-funded schools to access a combination of higher quality or more convenient schools suggest cross-system competition can lead to improved efficiency of publicly-funded schools. Second, more research between parental choice decisions and the incentives faced by competing school systems could lead to a better understanding of how to better structure publicly funded school systems.



First-year mathematics can be a nightmare for many new university students. How much can an extra year of high-school mathematics help these students? Image: [Freedigitalphotos.net](https://www.freedigitalphotos.net)

“The finding that high-ability students do not gain much from an extra year of mathematics raises the question of why so little value-added?”



Louis-Philippe Morin
(University of Ottawa)

Does an Extra Year of High-School Mathematics Help University-Bound Students?

New university students have a lot to deal with their first year in university. Many will be striking it out on their own, living away from home for the first time, learning how to fend for themselves, managing burgeoning social lives, all the while trying to survive a challenging new academic environment. Of the many first-year experiences, first-year mathematics is an experience that will send many a neophyte university student reeling. Could an extra year of high-school mathematics help the transition for university-bound students? A study by CLSRN affiliate Louis-Philippe Morin entitled **“Estimating the Benefit of High School for College-Bound Students”** ([CLSRN Working Paper no. 54](#)), attempts to measure the value-added of an extra year of high-school mathematics for university-bound students using data generated from the elimination of Grade 13 in Ontario, and the subsequent graduation of a “double-cohort” (Grade 12 and Grade 13 students) in Ontario, in 2003.

In 1997, the government of Ontario announced that starting in 1999, students would be expected to graduate highschool after Grade 12, instead of after Grade 13. As a consequence of the reform, in 2003, the first cohort of students graduating from Grade 12 and the last cohort of Grade 13 graduates entered universities simultaneously –

allowing for a unique comparative opportunity to shed light on the benefits of high school for university-bound students.

The study uses these non-uniform changes in curriculum to identify the value-added of Grade 13 mathematics. The academic performance in subjects that were not affected by the reform is used in the study to control for potential individual ability differences between Grade 13 and Grade 12 students which allowed Morin to measure the effect of an extra year of highschool on university mathematics performance among similarly-abled students. This is especially important since, knowing that 2003 would be a more competitive year for college admissions, some students delayed their university application by a year while others “fast-tracked” high school, graduating a year early to avoid the double cohort.

Morin employs a model that uses administrative data from the University of Toronto, the largest university in Canada. The size of the university and its classes made it possible to observe a large number of Grade 12 and Grade 13 graduates with similar backgrounds except for Grade 13 Mathematics, ‘competing’ in the same first-year compulsory courses, one of them being a mathematics course.

The main finding of the study is that for these high-ability students, the estimated benefit of an extra year of high-school mathematics is small. Students coming out of Grade 13 have a 2.2 point advantage (on a 100 point scale) over students from Grade 12 – which represents only a small advantage in mathematics performance. However, the study found that an extra year of mathematics seemed to benefit lower-ability students more than higher-ability students.

Morin’s study raises some important questions for public policy. The finding that high-ability students do not gain much from an extra year of mathematics raises the question of: why so little value-added? Morin suggests that it is possible that high school teachers direct most of their effort towards lower-ability students, leaving high-ability students with fewer resources to acquire additional knowledge. It is also possible that high-ability students, once in university, can make up for the missing year of mathematics, ‘effortlessly.’ Understanding why high-ability students do not benefit much from an extra year of mathematics can lead to more informed decisions regarding the allocation of (scarce) high-school resources.

Endnotes

[Labour Market Matters](#) is a publication of the Canadian Labour Market and Skills Researcher Network (CLSRN). The CLSRN is supported by Human Resources and Skills Development Canada (HRSDC) and the Social Science and Humanities Research Council of Canada (SSHRC). Opinions expressed in this publication do not necessarily reflect the views of HRSDC or the SSHRC.

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