Does attending an elite school improve students achievement? Evidence from Tunisia

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Preliminary work

Abstract

Although documented in many papers, the impact of attending a better school on future achievement is unclear and vary greatly depending on the context. I examine the impact of attending a high school with high achieving peers in Tunisia. Using a quasi-experimental setting due to a special feature of the Tunisian secondary education system, I find that attending an elite high school increases by 0.13 standard deviation the score of the students at the Baccalauréat exam. This impact is higher for boys than for girls.

JEL: I21, I28.

†I would like to thank Julien Grenet and Manon Garrouste for useful comments. Any opinions expressed here are those of the author and not of any institution.
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1 Introduction

A major change in educational systems these recent years is the introduction of more and more diverse options of schooling. Those alternative forms of schooling are often supported by government and at least partly publicly funded. A striking example is that of charter schools which popularity increased upon the last 20 years in as many countries as England, Sweden, the United States and China. The introduction of new types of schools, belongs to a larger move toward involving parents in their children schooling decisions. But more flexible school choice system with more freedom for parents to choose the school of their children rise a fear of more segregated schools (segregation could be on multiple dimensions: socioeconomic background, ability, gender...). The public debate in France a few years ago about relaxing strict school zoning in secondary education gives a good example of that. Assessing the effectiveness and implications of such systems is then of great importance from a public policy point of view.

One of the most studied question related to the way students are allocated to schools is that of ability tracking. Educational systems vary widely in the extend to which they track students with Germany for example having a strongly tracked system and France officially against tracking. Recovering the causal impact of tracking is empirically challenging as talented students would have anyway achieved better results than less talented student. How to disentangle the effect of the tracking from the selection effect? Economists developed various identification strategies to overcome this difficulty, relying mainly on exogenous variations in school assignment. A review of this literature show little consensus.

On one hand, Jackson (2010) finds a large positive effect on attending a better middle school for students from Trinidad and Tobago. PopEleches and Urquiola (2011), using Romanian data, also find a positive impact. Working on students in Charlotte-Mecklenburg who moves to better school Hastings and Weinstein (2007) similarly find large positive impact on short term achievement. On the other hand, Zhang (2009), relying on a school admission lotteries in China, find no significant impact of attending schools with higher achieving peers. In a recent paper, Abdelkadiroğlu, Angrist and Pathak (2011) found similar deceiving results on data from New York and Boston. Clark (2010) in a work on English data conclude to a very small if not insignificant impact of attending a selective high school on short term outcome but potential for positive impact on longer term outcome.

In this paper we take advantage of a specificity of the Tunisian secondary educations system that offer a quasi-experimental setting to study the impact of attending a school with high achieving peers. 12 of the public high schools in Tunisia are selective schools that attract the best students at the end of middle school. Students are selected in these elite high school based on their results at a national exam which creates admissions cut-offs that we exploit in a fuzzy regression discontinuity design.

We find a positive and significant impact of attending an Elite school on the score at the Baccalau-

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112 during the period of study, their number increased these past years
réat exam, conditional on taking the Baccalauréat exam four years after entering high school\textsuperscript{2}. As opposed to the literature, the impact we measure is higher for boys than for girls. We also observe that the impact is larger in the most selective high schools compared to the less selective ones\textsuperscript{3}. These elite high schools are very popular in Tunisia and new ones have been opened these recent years to cope with the increasing demand from parents.

The next section describes the Tunisian education system and presents the data. The third section describes the empirical strategy. In the fourth section, we present the results. Section five concludes.

2 Describing the elite high schools and the data

2.1 The elite high schools in Tunisia

The Tunisian education system derive from the French education system. Six years of primary education are followed by three years of preparatory education (in middle schools) and then four years of secondary education (in high schools).

The Brevet is a national exam that students could take at the end of middle school. Taking this exam is not compulsory, and in 2012 only about 20\% of the students registered in the last year of middle school choose to take the exam. The exam is compound of written tests in Arabic, French, English, mathematics and natural science.

Students take the Brevet exam mainly for two reasons. First, those who get a score of 10 out of 20 pass the exam and are granted a place in a high school no matter how they have done during the school year. The Brevet exam is then for some students an opportunity not to repeat the last grade of middle school. Second, students willing to access one of the elite high school have to take the Brevet exam as the results at this exam are used to allocate students to the elite high schools. Students’ tests are anonymously marked by teachers from a different school district.

High schools are of three sorts: private high schools which in Tunisia are not of good quality and are mainly for the students who struggle to stay in the public system\textsuperscript{4}, normal public high schools and elite public high schools. Allocation of students to normal public high schools is based on school zones: each student is allocated to a high school depending on the middle school she was in. Elite schools are public but selective. Students are selected into elite schools based on their scores at the Brevet national exam.

\textsuperscript{2}Grade repeaters are excluded. In future development of this paper I will present estimations of the impact of the elite schools on college admission

\textsuperscript{3}I received a new data set recently that will allow me to investigate the impact of attending an elite high school on the access to higher education and the quality of the accessed tracks.

\textsuperscript{4}Private high school accounted for 10\% of the students in high schools in 2008. The same year, only 3\% of students registered in primary schools were registered in a private school. On the contrary of private high schools, private primary school are of high quality.
In the period we are considering (2006 to 2009) there are 26 educational districts in Tunisia. Only 12 of them have an elite school. Elite schools have the same curriculum as normal high schools and differ mainly in peer compositions. Another major difference though is continued selectivity: passing to the next grade requires minimum scores in some majors and grade repetition is not allowed in elite high schools. Students in elite schools have to wear a uniform and computer science classes are mandatory and taught at all levels. Finally, elite school offer a specialization in science only.

Besides these officially acknowledged differences a common belief in Tunisia is that elite high school attract better teachers. In fact, teachers are allocated to schools based on their expressed preferences, their ranking in a national exam and their experience. Older and better performing teachers at the exam are more likely to get their first choice and one may think that teachers are more willing to teach in elite school. The elite high school are then high school with higher achieving peer and probably better teachers.

For students interested in a elite school, the admission process is the following: they have to register to the Brevet exam, they have to notify the ministry of education that they are interested in an elite school and rank up to two elite schools and finally they have to take the Brevet exam. Prior to the exam, the ministry of education announce the number of places available in each elite school. Once the results of the Brevet exam are announced, all students with an interest in an elite school are ranked based on their score at the Brevet exam. The first student in this ranking is allocated to her most preferred school. The student ranked \( k \) in the list is allocated to her most preferred school if a place is remaining. If not she is allocated to her second preferred school. If no place is available at both schools, the student is not matched to an elite school and is assigned to the normal public high school associated with her middle school. The assignment process continues until all places in elite schools are allocated or all students in the list are allocated. As a result of this allocation process, I expect the relationship between the test score at the Brevet and the probability of attending a selective high school to be discontinuous. The discontinuity can be observed in Figure 1. The construction of the data used to plot Figure 1 is detailed in the following sections. It is this discontinuity that unable the estimation of the impact of attending an elite school on future educational achievements.

Two years before the end of high school, students choose a specialization in one of 7 fields. As mentioned before, elite schools offer only specialization in mathematics and natural science. Those students from elite schools willing to follow another field of specialization have to move to another high school. At the end of high school, students take another national exam: the Baccalauréat exam. Students take about 6 different tests and these tests depend on the field of specialization. A general test score is computed at the end. I will call it the score at the Baccalauréat and it is the main outcome I am interested in.

The Baccalauréat exam is very important as passing this exam is a requirement to access higher

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5In an upcoming version of this work, I will be will be able to control for teachers experience and ability.

6The 7 fields of specialization are: mathematics, natural science, literature, economy, sports, computer science and technology.
education. Moreover, students allocation in higher education depend solely on their score at the Baccalauréat exam. In the following I am interested in the impact of attending an elite high school on the score at the Baccalauréat exam\textsuperscript{7}.

\section*{2.2 Data and summary statistics}

The data used come from two sources: the official data on the Brevet exam for 2006 to 2008 and the official data on the Baccalauréat exam for 2010 to 2012. The final data set contains information on the students that took the Brevet exam in 2006 to 2008 AND took the Baccalauréat exam 4 years later. That is to say, I have no information about the students who have not taken the Brevet exam, have repeated a grade in high school or have dropped out of the system after middle school but before the end of high school. I will discuss later the implication of these features of the data.

For each student in our data set I know the gender, date of birth, the score at the Brevet exam, if the student was accepted in an elite school and which one, the score at the Baccalauréat exam, the field of specialization in high school, the high school in which the student was registered for the Baccalauréat exam and if he passed the Baccalauréat exam or not.

I have no information about whether the student took the Brevet exam because he was interested in an elite school or not, and accordingly I have no information about students submitted preferences for elite schools. So I had to make assumptions about which elite schools students may be interested in. I choose to only keep students from school districts that have only one elite school. It seems safe to assume that those students ask in priority for that elite school in their district. As there is

\textsuperscript{7}As for the Brevet, students’ tests at the Baccalauréat are anonymously marked by teachers from a different school district
only 12 elite schools in the country. I assume these students are not interested in the second closest elite school which is probably quite far from their home. As I am considering students aged 14, it is reasonable to assume that their family is not willing to send them too far away. In line with this strategy, I choose to put aside the students from Tunis, the capital, as the capital is the only city with 2 elite schools.

In what follow, the scores at the Brevet exam are standardized by year and the score at the Baccalauréat exam are standardized by year and field of specialization.

I set the cut-off of each elite school equal to the minimum score in the school. This yields to 30 quasi-experiments (10 school districts, an elite school by school district and 3 cohorts). I choose to pool the data across cut-offs. I do this by normalizing each cut-off to zero and taking the distance between the cut-off and the score of the students at the Brevet exam. This distance variable is the forcing variable in the model. Each student serve as a unique observation: for her school district and cohort only.

The final data set compound of a little more than 40 000 students from three different cohorts and 10 different school districts. Table 1 summarizes the final data set. The average Brevet score of students taking the exam and ending at elite schools is 1.78 standard deviation higher than students taking the exam and ending at normal high schools. As expected, we observe much more heterogeneity in normal high school. More than half of the students are female reflecting the fact that girls are more numerous than boys at the secondary level and specially at the Baccalauréat level (last year of high school). As for outcomes, the passing rate at the Baccalauréat exam is higher in our sample than in the whole population: in 2010, the passing rate of the cohort that took the Baccalauréat exam is of 80% in our sample as compared to 72% in the whole population\(^8\). In our sample, the passing rate is higher in elite schools (close to one) than in normal high schools. The average Baccalauréat score at elite schools is 1.38 standard deviation higher than in normal high schools, but again, we observe a important heterogeneity in normal high school.

As described earlier, the final data set suffers from a selection based on the outcome. It is important to investigate the consequences of such a selection. Students in elite school face a lot of pressure to not repeat a grade as any student failing to pass a grade is fired from the school and have to return to the high school of her school zone. One effect of attending an elite school may then be a higher propensity to take the Baccalauréat exam with no delay (i.e. without repeating a grade). In that case, I would observe a discontinuity in the distribution of the forcing variable (distance to the cut-off) in my sample with the number of students below the zero being inferior to the number of students just above the zero. I run a McCrory (2008) test to test for such a discontinuity and the result is summarize in the Figure 2. The Figure 2 shows indeed a discontinuity that coincides with the hypothesis that attending an elite school decreases the probability of repeating a grade in high school.

\(^8\)As my sample is compound of high achieving students (as measured by their test score at Brevet) and non repeater, this result is expected.
Table 1: Summary statistics

<table>
<thead>
<tr>
<th></th>
<th>Elite High Schools</th>
<th>Normal High Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score at the Brevet exam (normalized)</td>
<td>1.64 (0.27)</td>
<td>-0.14 (0.91)</td>
</tr>
<tr>
<td>Female</td>
<td>0.67 (0.47)</td>
<td>0.61 (0.49)</td>
</tr>
<tr>
<td>Passed the Baccalauréat exam</td>
<td>0.99 (0.09)</td>
<td>0.83 (0.37)</td>
</tr>
<tr>
<td>Score at the Baccalauréat exam (normalized)</td>
<td>1.27 (0.72)</td>
<td>-0.11 (0.94)</td>
</tr>
<tr>
<td>Observations</td>
<td>3215</td>
<td>37057</td>
</tr>
</tbody>
</table>

Standard deviations are reported below the sample means.

Figure 2: Density of the forcing variable (distance to the cut-off)

The observed discontinuity at the cutoff could be mislead for an evidence that students manipulate the assignment process. If students could manipulate the cutoff, the effect of attending an elite school is not identified. To see that, think that students with the ability to manipulate the cutoff would be over-represented on the right side of the cutoff as they will manage to have access to an elite school. The populations on both parts of the cutoff differ regarding their capacity to manipulate the cutoff and assuming this capacity is correlated to the outcome in some way, it is not possible any more to disentangle the effect of attending an elite school from the effect of being able to manipulate the cutoff.

Such manipulations seems unlikely in the Tunisian context. The cutoff is automatically determined as a function of the stated preferences of students for elite schools, the number of places in each
elite school -both of which are stated before the Brevet exam-, the distribution of test scores at the Brevet and the allocation mechanism. It is in the students interest to score as high as possible at the Brevet in order to be granted a place at an elite school and it is convincing students can not manipulate the cutoffs.

The discontinuity can also be the result of my assumptions on students preferences. The only geographic information about the students I have is the location of the high-school where they took the Baccalauréat exam. I assume students have not moved between the end of middle school and the end of high-school, thus their school district at the time of Brevet is the same than their school district at the time of Baccalauréat. I then assume each student ask only for the elite high school in her school district. But students are allowed to rank two elite schools and it is plausible that some students rank as second an elite school different from that of their district. Among those students, those rejected from the elite school of their district may be admitted to the elite school they ranked second as long as the cutoff for this second elite school is lower than the cutoff of their district elite school. In each district I will miss a number of students: those with a test score just below the cutoff and who were admitted in another elite school. As a result, students above and below the cutoff are not comparable and my results are biased in the sens I overestimate the positive impact of elite high-schools.

The complete data set is needed to test for a discontinuity in the density of the whole population and I expect to access it soon. I will also access some information about students’ preference that may allow me to test the assumptions I have made.

3 Identification strategy

We are interested in estimating the impact of attending an elite school on students’ achievement. We consider two main outcomes: the score at the Baccalauréat exam conditional on taking this exam without delay\(^9\) and passing the Baccalauréat exam again conditional on taking the exam without delay.

Let assume the outcome depend on the fact of attending an elite high school in the following way:

\[ Y_i = \alpha + \beta T_i + \epsilon_i \]  

\(Y_i\) is the outcome. \(T_i\) is the treatment variable, equal to 1 if the student attends an elite high school and 0 otherwise. \(\epsilon_i\) is the error term. The OLS estimate of \(\beta\) will over estimate the effect of attending an elite school because of a the positive correlation between attendance and the error term resulting from the selection at entry. Controlling for the test score at the Brevet exam is not enough to coop with the endogeneity of the treatment variable. In fact, students self select into elite schools (recall that taking the Brevet exam is not mandatory). Unobserved characteristics of students that explain the choice of school could be correlated to the outcome and thus bias the OLS estimate of \(\beta\).

\(^9\)without delay means that the students did not repeat a grade during high school
I so have a fuzzy design: the treatment does not necessarily switch on at the cut-off, but the probability of treatment does jump at this cut-off (remember Figure 1). The fuzziness is first due to the fact that I do not observe the expressed preferences of the students. I assume that all students who took the Brevet exam want to go to an elite school although some of them may not and so I observe some non treated students above the cut-off. Second, the fuzziness is due to the fact that test score measure students ability with some error.

In this fuzzy design, identification rely on the variation in $E(T_i|S_i)$ which is the probability of attending an elite school as a function of $S_i$. If this variation is important enough to create a discontinuity at the cut-off then I could use the predicted probability of treatment (as a function of assignment scores) as an instrument for treatment.

Two assumptions are needed for identification:

- Local continuity assumption: Students with score just below the cutoff for selection into an elite school serve as a valid counterfactual for students with a score at the Brevet juste above the cutoff
- Local monotonicity\(^\text{10}\): $T_i$ is non-decreasing in $S$ for all students $i$ at the cut-off.

One should be careful in the interpretation of the estimates though. They must be interpreted as local to those students around the cut-off whose treatment status would switch from non-recipient to recipient if their score $S$ crossed the threshold.

More formally, Equation 1 becomes:

$$Y_i = m(S_i) + \beta T_i + u_i$$  \hspace{1cm} (2)

An instrumental variables procedure, recover a consistent estimate of $\beta$. The indicator function for being above the cut-off is used as an instrument for the treatment (see Imbens and Lemieux (2008)). The first stage regression is then:

$$E(T_i|S_i) = f(S_i) + \gamma 1_{S_i>s} + \nu_i$$  \hspace{1cm} (3)

with $s$ being the score at the cut-off.

I chose to use a strictly local estimation at the cutoff with a semi-parametric specification (local linear regressions). That means $m()$ and $f()$ are specified as linear functions of $S$ with a different spleen on the right of and on the left of the discontinuity. Equation 2 becomes:

$$Y_i = \alpha + \beta T_i + \gamma 1_{S_i\geq0} * S_i + \delta 1_{S_i<0} * S_i + u_i$$  \hspace{1cm} (4)

One should be careful to the choice of the bandwidth: a larger bandwidth increases the number of observations used in the estimation and thus lead to a more precise but potentially more biased estimate (as the identifying assumption holds only locally). Imbens et Kalyanaram (2012) presents a

\(^{10}\)For more details see Hahn et al. (2001)
method to calculate an optimal bandwidth. It is the optimal bandwidth I will use in the regressions presented in the results section.

The first stage regression, regressing the dummy for being in an elite school on a dummy for having a score at the Brevet exam above the cut-off (and other exogenous controls), confirms the jump of Figure 1. Moving from below to above the cut-off increases the probability of entering an elite school by 89%.

| Score at Brevet is above the cut-off       | 0.881 (0.018)** |
| Controls                                  | Distance from the cut-off, Gender, Age at the Brevet and Distance*Being above the cut-off |
| $R^2$                                     | 0.84 |
| Fisher                                    | 2322 |
| Observations                              | 6737 |

Robust standard errors in parenthesis. Standard errors adjust for clustering at the school district time year level.

This first stage regression is done on the students in the optimal bandwidth only.

*significant at the 10% level; **significant at the 5% level; ***significant at the 1% level.

Before moving to the presentation of the final estimates, Figure 3 presents some graphic evidence of the potential impact of attending an elite school on the score at the Baccalauréat exam. We do observe a small discontinuity that suggests a possible positive impact.

Figure 3: Score at the Baccalauréat exam
4 Results

4.1 General Results

Table 3 presents the results of the OLS estimation and the 2SLS non parametric estimation. To summarize the main findings we observe a positive and significant impact of attending an elite school on the score at the Baccalauréat exam.

<table>
<thead>
<tr>
<th>Table 3: Impact of attending an elite school (Total population)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Score at Bac</strong></td>
</tr>
<tr>
<td>Attending an ES</td>
</tr>
<tr>
<td>Controls</td>
</tr>
<tr>
<td>Nobs</td>
</tr>
<tr>
<td>$R^2$</td>
</tr>
<tr>
<td>P(attending an ES)</td>
</tr>
<tr>
<td>Bandwidth</td>
</tr>
</tbody>
</table>

Robust standard errors in parenthesis. Standard errors adjust for clustering at the school district time year level.

In the 2SLS local linear model, the optimal bandwidth is calculated with the Imbens et Kalyanaram (2012) method and may vary from one outcome to another (which is reflected in the varying number of observation depending of the outcome).

*significant at the 10% level; **significant at the 5% level; ***significant at the 1% level.

As expected, the OLS estimate is higher than the 2SLS estimates. Being in an elite school results in an average increase of 1.5 in the Baccalauréat exam score test score. Keeping in mind that the scores at Baccalauréat range from 0 to 20, this effect is huge.

2SLS estimates are 4 times lower. Attending an elite school results in an average increase of 0.13 standard deviation in the score at the Baccalauréat exam, which correspond to an average increase of 0.3 in the score. This impact is still quite importante. One student grades at the Baccalauréat exam are used to allocate her in higher education. The ministry of higher education announces the number of places available in each university and each track, students who passed the Baccalauréat exam submit a list of preferences, priority in each track depend on the grades of the applicants and a matching is obtained using a deferred acceptance algorithm (the college proposing version). Put simply, a better score at the Baccalauréat translate in a greater chance to access a more preferred track in higher education and possibly a more selective one.

In a further version of this work I will investigate the effect of attending an elite school on the access to higher education, some of the questions I am willing to answer are: What is the impact on
accessing a preferred higher education track? What is the impact on the access to a more selective higher education track?

Specifications (3), (4), (7) and (8) investigate the consequences of changing the bandwidth. As expected, increasing the bandwidth leads to more bias, as shown by the increase in the estimated average effect, and more precise estimates. Reducing the size of the window around the cut-off has the opposite effects.

4.2 Results by gender

Table 4 shows the results for the subpopulations of girls and boys separately. The observed effect on the score is different for boys and girls. The effect is large and significant for boys while lower and not significant for girls. The difference between the effect for boys and for girls is significantly different from zero at the 5% level\textsuperscript{11}. In this, my results are different from those in the literature\textsuperscript{12}. Jackson (2010) for example, finds a positive global impact for attending better secondary schools but with a higher impact on girls than on boys.

\begin{table}[h]
\centering
\begin{tabular}{lcccccccc}
\hline
 & \multicolumn{2}{c}{OLS} & \multicolumn{2}{c}{2SLS Local linear regression} \\
Score at Bac & (1) & (2) & (3) & (4) & (5) & (6) & (7) & (8) \\
\hline
Attending an ES & .523 & .495 & .045 & .215 & .065 & .236 & .093 & .279 \\
& (.024)*** & (.030)*** & (.051)*** & (.065)*** & (.050)*** & (.060)*** & (.044)* & (.059)*** \\
Gendre & Girls & Boys & Girls & Boys & Girls & Boys & Girls & Boys \\
Controls & Yes & Yes & No & No & No & No & No & No \\
Nobs & 24,915 & 15,348 & 3686 & 3477 & 4533 & 4312 & 5360 & 5145 \\
R\textsuperscript{2} & 0.342 & 0.326 & 0.094 & 0.153 & 0.125 & 0.181 & 0.152 & 0.193 \\
\hline
P(attending an ES) & .864 & .919 & .868 & .918 & .866 & .921 \\
& (.020)*** & (.018)*** & (.019)*** & (.017)*** & (.020)*** & (.017)*** \\
Fisher & 1893 & 2515 & 2060 & 2886 & 1866 & 2802 \\
Bandwidth & ±0.341 & ±0.615 & ±0.427 & ±0.814 & ±0.512 & ±0.977 \\
\hline
\end{tabular}
\caption{Impact of attending an elite school (Boys and girls)}
\end{table}

The OLS estimates for boys and girls are similar and very large. This can reflect the fact that OLS is only driven by selection in the the case of girls while for boys there is half selection and half the positive effect of attending elite schools.

\textsuperscript{11}I constructed a simple test with the assumption that coefficients for boys and girls are independent.

\textsuperscript{12}Angrist and Lavy (2009), Hastings et al. (2006) and Jackson (2010)
4.3 Results by selectivity

Table 5 presents the same estimates for two different groups of cut-offs. The first group, referred to by "20% lowest", is compound of the 20% of the population that faced the lowest cut-offs when applying to an elite school. The second group, referred to by "20% highest", is compound of 20% of the population that faced the highest cut-offs when applying to an elite school. As the estimate resulting from a regression discontinuity design is local in a sense it only measures the mean effect for those students close to the cut-off, I wanted to take advantage of the fact I have in my data different cut-offs to try and give a feel of what happens at different points of the distribution of Brevet test score.

The main result is that the more selective the school the more important and significant is the impact on future achievement. That to say, the effect of attending a better school is more important for higher achieving students. The difference between the two estimated effects is not significantly different from zero, so one should be careful when interpreting these results.

Table 5: Impact of attending an elite school (by selectivity)

<table>
<thead>
<tr>
<th>Score at Bac</th>
<th>OLS 20% worst schools</th>
<th>OLS 20% best schools</th>
<th>2SLS Local linear regression 20% worst schools</th>
<th>2SLS Local linear regression 20% best schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attending an ES</td>
<td>.536 (.037)***</td>
<td>.500 (.036)***</td>
<td>.074 (.089)</td>
<td>.117 (.065)*</td>
</tr>
<tr>
<td>Controls</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Nobs</td>
<td>6916</td>
<td>7640</td>
<td>1685</td>
<td>1979</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.306</td>
<td>0.338</td>
<td>0.151</td>
<td>0.183</td>
</tr>
<tr>
<td>P(attending an ES)</td>
<td></td>
<td>.839 (.066)***</td>
<td>.874 (.024)***</td>
<td></td>
</tr>
<tr>
<td>Fisher</td>
<td>161</td>
<td>1299</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bandwidth</td>
<td>±0.539</td>
<td>±0.734</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Robust standard errors in parenthesis. Standard errors adjust for clustering at the school district time year level. 2SLS regressions include no controls. For more details please see Table 3

*significant at the 10% level; **significant at the 5% level; ***significant at the 1% level.

5 Conclusion

In this paper I am interested in the impact of attending a very selective high school for students in Tunisia. Those selective high schools welcome each year a very small fraction of students ending middle school and only the best of those students are granted a place. The curriculum taught in the selective high schools is the same than in normal schools and the observed effect could be interpreted as the effect of having high achieving peers. I estimate an important and significant positive impact of attending selective schools on the test score at the Baccalauréat exam, conditional on taking the
exam within four years from entering high school. These results are consistent with other works showing large effects of attending selective schools (Jackson (2010) and Pop-Eleches and Urquiola (2011)). In the case of Tunisia, and on the contrary of what can be found in the literature, the effect is higher for boys than for girls. Finally, the impact is more important in lower selective high schools compared to less selective ones.

These Elite high school are very popular in Tunisia among parents. A lot of pressure is put on the Ministry of education to provide more of this kind of schools and new ones have been opened these recent years. My findings may contribute to the debate about the effectiveness and suitability of this kind of tracking.

The specific way students are allocated in higher education make the observed positive impacts on Baccalauréat test scores potentially important for future outcomes. In a development of this paper, I will investigate more long term effects of attending selective high school by estimating the impact on accessing college and the quality of the accessed tracks in colleges.
References


