Teacher mobility and student learning

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Abstract

Teachers' motivation is likely to be a relevant factor affecting students' learning. Motivated teachers are typically those who have chosen to be in a given school, while teachers just waiting to move to another school may be rather demotivated. We look at this dimension of teacher motivation by studying the link between teachers' turnover (transfer from one school to another) and students' learning. On the one hand, both the turnover per se and the reduced motivation of teachers are expected to negatively affect students' learning. On the other hand, teachers who end up in a given school because of their willingness to move there could have a positive impact upon students' achievements. This paper examines the strength of these possible links, putting them in the wider debate about teachers' effectiveness and job satisfaction. Specifically, students' achievements are measured by Italian lower-secondary school students' results of the the reading and mathematics tests run by INVALSI as part of a national examination. We find that the share of teachers applying for a transfer to another school is negatively related to students' achievements. Specifically, of particular concern is the negative effect of teacher mobility and turnover on students' achievements in schools serving mainly disadvantaged children (actually those that teachers typically try to leave).

Keywords: Teacher mobility, applications-to-transfer, student achievement

JEL codes: I20, I21, I28, J45, J61

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1 Introduction

Of particular importance for education policy-makers is the possibility that teacher mobility adversely affects the quality of teaching. Dissatisfied teachers who want to transfer to another school may be poor performers both because of general motivational factors (Rockoff 2004, Hanushek, Kain and Rivkin 2005), and also because they are simply waiting to move on to a different location, putting low effort into their current work duties and disregarding any longer term plans for their students. Teachers' motivation is likely to be a relevant factor affecting students' learning. Motivated teachers are typically those who have chosen to be in a given school, while teachers just waiting to move to another school may be rather unmotivated. Using data of students in North Carolina, Jackson (2010) shows that teacher effectiveness is higher after a transfer to a different school and teacher-school matching can explain a non-negligible part of teacher quality. Boyd, Lankford, Loeb, Ronfeldt and Wyckoff (2010) find that teachers whose students demonstrate higher achievement growth are less likely to transfer to another school. These results suggest that one reason teachers may desire to move is that they are a poor fit for their present schools. Thus, a better school job matching may potentially increase productivity and student achievement both in their former and new school. Hanushek and Rivkin (2010) show that teachers who remain in their school tend to outperform those who leave, and this gap appears to be larger for schools serving predominantly low income students.

In this paper we look at the dimension of teacher motivation by studying the link between teachers' mobility within the public school system (transfer from one school to another) and students' learning. We do so by using data from the combination of different administrative registries of Italian schools and teachers maintained by the Italian Ministry of Education, data from the 2001 Italian population and housing census, and data from a national examination of Italian lower-secondary school students. Italian schools are characterized by a sizable teacher turnover. Specifically, such a turnover is not totally random, as tenured teachers, the ones allowed to look for an alternative location, sistematically attempt to leave schools where teaching is likely to be more difficult because of the student mix or the social context of the school. Thus, schools serving mainly disadvantaged and minority children often end up having more turnover and teachers less experienced and possibly less motivated to invest additional effort in the school where they are currently operating, because they are often just waiting to move elsewhere.

Specifically, we exploit our previous analysis of the determinants of teacher mobility where two main drivers of teacher mobility were identified, namely broad geographical context and factors related to the school environment (Barbieri, Rossetti and Sestito 2011). The

first driver mainly refers to personal factors (typically the desire to move back closer to one's birthplace), while the second (as captured by the socio-economic characteristics of the school catchment area) typically implies that schools where teaching is likely to be more difficult are the ones that many teachers attempt to leave. On the one hand, both the turnover per se and the reduced motivation of teachers are expected to negatively affect students' learning. On the other hand, teachers who end up in a given school because of their willingness to move there could have a positive impact upon students' achievements. This paper examines the strength of these possible links, putting them in the wider debate about teachers' effectiveness and job satisfaction.

Our analysis of the relationship between teacher mobility and student learning is not the first in the international literature. Nonetheless, to our knowledge our work is the first for its widespread coverage, since we consider all Italian lower-secondary schools and all students enrolled there as well as all teachers working there. Moreover, our exercise is unique in that we use teachers' transfer applications and results from a national test common to all schools that should, in principle, assure comparability across schools.

Unlike previous research focusing on actual worker mobility, we focus on desired mobility, and specifically on transfer applications by tenured teachers. These applications by definition reflect teachers' preferences about leaving the current school in favor of another school. Throughout the paper we will refer to the (lack of) motivation of teachers currently enrolled in a given school as their (lack of) desire to work there. Hence, we interpret the fact of filing an application to move to another school as a sign of dissatisfaction with the current school and we analyze the possible consequences of this dissatisfaction on students' learning.

Students' achievements are measured by Italian lower-secondary school students' results of the the reading and math tests run by the Italian National Institute for the evaluation of the School System ("Istituto Nazionale per la Valutazione del Sistema Educativo di Istruzione e di Formazione", from now on INVALSI), as part of a national examination. Students' results in those tests are regressed on measures of teacher mobility and a set of school characteristics and features as well as socio-economic variables of the catchment area of the school. In order to take into account the possible reverse channel from students' achievements (as part of the school's teaching conditions) to teachers' mobility we use an instrumental variables approach, exploiting the information on the distance between teachers' place of birth and place of work, which is one of the main driving forces for teacher mobility, but it is not expected to directly affect student achievements.

We find that the share of teachers applying for a transfer to another school is negatively related to students' achievements. Specifically, of particular concern is the negative effect of teacher mobility and turnover on students' achievements in schools serving mainly

disadvantaged children.

The paper is organized as follows. Section 2 presents the data. Section 3 presents an analysis of the relationship between schools' characteristics and students' achievements. Finally, Section 4 offers some conclusions.

2 Data and variables

2.1 The data

The data used in this paper comes from the combination of different administrative registries of Italian schools and teachers maintained by the Italian Ministry of Education, data from the 2001 Italian population and housing census, and data from a national examination of Italian lower-secondary school students.

The first registry maintained by the Italian Ministry of Education is the teacher database, which contains records of teachers with information on gender and date of birth, municipality of birth, type of contract (yearly temporary assignments or full tenure), seniority if a tenured position is held, a unique anonymized teacher identifier, and a unique anonymized identifier of the school where the teacher works.

Through the anonymized teacher identifier we were able to link the teacher database to the registry for teachers' transfer applications. For each tenured teacher who files a transfer application, this registry records the preferences given to new destinations. Specifically, transfer applications can be submitted during the school year (in February) and tenured teachers in secondary schools can indicate up to 20 new preferred destinations.

Through the anonymized school identifier we were able to link the teacher registries to school registries. These school registries contain records of school type, municipality and postal address, the number of enrolled students, the number of foreign-born students, the number of disabled students, and the number of students enrolled in the first year in a school having had to repeat one or more years' of study in their previous school career.

These administrative data does not present problems which are typical of survey data, such as unit and item non-response, measurement errors and bias effects due to interaction with interviewers. Relative to normal survey data however, they contain very little information on socio-economic characteristics of the teachers and on their family situation. Data on all registries completely cover the school years from 2005/2006 to 2010/2011.

Using the detailed school address, we were able to link the school registries to data from the 2001 Italian population and housing census, which gave us the possibility to gain some information about the socio-economic context where the school is located. Census data contains information about the gender and age composition of the resident population,

educational qualifications, the labor market, and housing. Census data collection is organized by dividing Italy into territorial units called census divisions. We construct a hypothetical market for each individual school by associating to it the closest census divisions. For a description of the construction of this hypothetical market see Barbieri et al. (2011).

Data on student achievements are from the national examination of Italian lower-secondary school students carried out by INVALSI. The main advantage of this data is that, as coming from a national test common to all schools, the performance of students attending the same schooling level should exhibit a higher level of comparability across different schools. A major limitation is that this data does not include information about students' socio-economic background and schools characteristics. To overcome this limitation we link data from the national examination to the data from the school registries and the Italian population and housing census described above.

Specifically, we use data from the national examination carried out at the end of the three-year program of the Italian lower-secondary ("Secondaria di I grado") schools in 2007/2008, 2008/2009 and 2009/2010. Lower-secondary school is compulsory and involve a final exam after three years. A regular student is thirteen years old at the end of the program. Also note that in Italy until lower-secondary school the educational curriculum is essentially the same for all students. In 2010 about 585.000 students in about 5.900 schools have compiled the test. For the school year 2007/2008 results from the test did not affect the grade of the students final exam. For the school year 2008/2009 the impact of the results from the test on the students grade was left to the judgment of each examination committee, while for the school year 2009/2010 the results from the test accounted for one sixth of the final grade. The test consists of two parts aimed of assessing reading ("Prova di Italiano") and math ("Prova di Matematica") respectively. Our final sample consists of 6,231 schools.

2.2 Variables

Our outcome of interest is the average student achievement in each school. Specifically, we use two alternative measures of student achievement, namely the test scores in reading and the test scores in math. These scores have been standardized into a range from 0 to 100, representing the percentage of right answers to the questions of the tests. Unfortunately, we are not able to link directly data from the national examination and data from the teacher registries at the student level. Thus, since with our data the only possible link between students and teachers is the school (through the school identifier) all our variables are at the school level.

Three sets of covariates related to school characteristics and features are used to model student achievement. The first set is related to the characteristics of the students enrolled in

each school, and it is obtained from both data on student achievements collected by INVALSI and directly from the school registries. As for data collected by INVALSI, we compute the percentage of students with one year and with two or more years of study delay (because they were not admitted to the next grade during their past academic career), the percentage of female students, the percentage of foreign students either from EU or non-EU countries. Because most of the foreign-born students from non-EU countries are immigrants from poor countries, a high proportion of foreign-born students from non-EU countries can be taken as an indicator of low economic background and teaching difficulties. As for the school registries, we compute the school's share of disabled students, and the share of students enrolled in the first year in a school having had to repeat one or more years of study in their previous school career. Together with the percentage of late students, these variables may be used as proxies for the students' educational ability, which is not directly observable from the data.

The second set is related to the characteristics of teachers working in each school, computed from the teacher registries using the school identifier. This set includes the percentage of teachers applying for a transfer to another school, the average seniority and the average age of tenured teachers, the percentage of female teachers, and the number of teachers (as a proxy for school size). With the exception of the number of teachers, that is a measure of total school size, all other variables related to teachers refer only to the tenured teachers in a school (temporary teachers are thus excluded from computations).

As long as a high percentage of teachers applying for a transfer to another school may signal a dissatisfaction of these teachers with the current school, we expect a negative impact of this variable on students achievement.

Data from the national examination does not include information on the student's socio-economic status. To overcome this limitation, we include a third set of covariates consisting of socio-economic census variables associated to the school catchment area. Specifically, we include the employment rate, the share of illiterate residents, and the share of people occupied in agriculture in the school catchment area. These variables provide a description of the socio-economic context of the school, possibly reflecting the socio-economic background of the students enrolled in that school. In fact, in Italy enrollment is essentially based on the school catchment area, and mobility of students across different areas is negligible.

From the teachers and schools registries we also compute the student-teacher ratio. We also included indicators for the geographic area where the school is located, and school year indicators.

Table 1 shows descriptive statistics of the variables used. The average share of right answer to reading tests is around 60%. For math tests, we report a lower share of right

answer (around 53%) with a higher variability. The average percentage of teachers applying for a transfer to another school is about 19%.

3 Schools' characteristics and students' achievements

Our aim is to identify the role of schools' characteristics in explaining students' achievements. We model average students' test scores in reading and math as a function of school characteristics and features related to the students enrolled and the teachers working in each school, and to the socio-economic variables of the catchment area of the school. Specifically, we are especially interested in those characteristics related to the mobility of teachers working in the school. In fact, the possibility that teacher mobility adversely affects the quality of teaching turns out to be of particular importance. This is especially true in the light of previous evidence showing that teachers sistematically attempt to leave schools serving mainly disadvantaged and minority children. Figure 1 shows the kernel density of average test scores by percentage of teachers applying for a transfer to another school. There is a clear gradient, with schools where the percentage of teachers requesting a transfer is in the bottom quartile having higher average scores. We observe a shift to the left (worse outcomes) in the distribution of average test scores as the share of teachers who want to move away from a school is higher.

In order to deal with the possible reverse channel from students' achievements (as part of the school's teaching conditions) to teachers' mobility we use an instrumental variables approach, exploiting the information on the distance between teachers' place of birth and place of work, which is one of the main driving forces for teacher mobility, but it is not expected to directly affect student achievements. Specifically, along with all exogenous regressors described in the previous section, instruments for the percentage of teachers applying for a transfer to another school include a quadratic polynomial in the average distance[1] between a given school and the place of birth of the teachers' working in that school, the percentage of teachers born in a municipality, local living area,[2] province and region different from those where the school is located, and indicators about the size of the municipality where the school is located.[3] These instruments are among the main drivers of teacher mobility (see Barbieri et al. 2011), but they are not likely to directly affect student achievements.

[1] Distance is computed as the geodetic distance. Geodetic distance is the length of the shortest curve between two points along the surface of the earth. Geodetic distance behaves well for wide areas of coverage, and takes the earth's curvature into account.

[2] The local living area where a teacher working in a given school is supposed to reside is an area wider than the area immediately in reach of the school, within which most of the daily home-to-work commuting takes place.

[3] These indicators may proxy for the prestige and accessibility of a school, particularly in the case of a commuting teacher.

Table 2 shows estimated coefficients of the OLS and IV models for reading and math average test scores. All covariates are rescaled as differences from their sample mean, so that the constant is the average score in school year 2009/10 for a school located in the south of Italy with all characteristics equal to the sample mean. The last two rows of Table 2 reports an F test of the null hypothesis that the percentage of teachers applying for a transfer can be treated as exogenous. The null of exogeneity cannot be reject at any conventional level. Nevertheless, even if the percentage of teachers applying is exogenous the IV estimates are still consistent, while if that percentage is actually endogenous the OLS estimates would not be consistent. For this reason, we report both OLS and IV estimates. All else equal, schools located in the center of Italy have slightly lower average test scores than those located in the north, but higher than those in the south. In school year 2009/10 we observe higher test scores than in 2007/08, but lower with respect to the prior year. This is mainly due to the fact that tests may vary in difficulty and are not directly comparable over time.

In general, most of the coefficients have the expected sign. As for the characteristics related to the students enrolled in the school, not surprisingly the variables used as proxies for the students' educational ability, namely the percentage of students with one and two or more years of study delay and the percentage of students enrolled in the first year in a school having had to repeat one or more years' of study in their previous school career, are negatively related to both reading and math scores. Also the percentage of students with disability is negatively related to both reading and math scores, while the percentage of foreign students born in non-EU countries significantly reduces only reading test scores. In most cases, estimated IV coefficients of all these variables are lower than the OLS estimates.

As for the characteristics related to the teachers working in the school, average tenure, average age of tenured teachers, the percentage of female teachers and the student-teacher ratio are not statistically significant. Looking at the IV estimates, students attending large schools tend to perform worse. After controlling for other school characteristics, a high percentage of teachers requesting a transfer to another school is also negatively related to average test scores. When instrumental variables are used, a 1% increase in the share of teacher applying for a transfer to another school reduces the average reading and math test scores of about .1% and .09% respectively.

There is also a clear relation between test scores and the socio-economic context of the school. The latter is described by the inclusion of the employment rate, the share of illiterate residents, and the share of people occupied in agriculture in the school local catchment area, constructed from the 2001 Italian population and housing census. These variables can all be considered as exogenous. Specifically, there is a significant positive relation between

test scores and the employment rate in the school catchment area. A 1% increase in the employment rate is related to about a .2% increase in average test scores. Test scores are inversely related to the illiteracy rate in the school catchment area, while the share of employed in agriculture is not statistically significant. All in all, these variables, possibly reflecting the socio-economic background of the students enrolled in a school along with the percentage of foreign students from non-EU countries, confirm that student achievements are lower in schools serving mainly disadvantaged and minority children.

Finally, in Appendix B we present some robustness checks estimating different alternative specifications of the model for average test scores. Only the coefficients on the variables related to teacher mobility and turnover are reported. Specifically, we estimate six different specifications of the model. Model 1 includes schools fixed effects to control for school-level unobserved heterogeneity. In Model 2 regressors also include the percentage of teachers applying for a transfer in $t-1$ and $t-2$. In Model 3 all variables related to teachers refer to both tenured and temporary teachers in a school (i.e. percentages are computed by including also temporary teachers in the teacher pool). In Model 4 regressors also include the percentage of teachers who arrived in a school after their mobility application submitted in the previous period was accepted. The fact that a teacher arrived in a given school after she requested so can be interpreted as a sign that her willingness to work there was satisfied. In Model 5 regressors also include the percentage of temporary teachers. A high percentage of temporary teachers in a school may be related to the presence of vacancies and to a high teacher turnover. Finally, in Model 6 regressors also include both the percentage of teachers who arrived in a school after their mobility application was accepted and the percentage of temporary teachers. All specifications also include the exogenous regressors described in the previous section. In Model 1 the percentage of teachers applying for a transfer is instrumented.

Estimation of these models mainly confirms our previous findings that the share of teachers applying for a transfer to another school is negatively related to students' achievements. Moreover, the percentage of temporary teachers is also negatively related to test scores. The effects of teachers arrived in a school after their request for a transfer was satisfied go to the opposite direction. In fact, this share is positively related to test scores. In general, we find that measures of (dis)satisfaction of teachers working in a given school are (negatively) positively related to student achievements in that school. A high level of turnover is also negatively associated with student test scores.

4 Conclusions

Our results confirm that the variables used as proxies for the students' educational ability, namely the percentage of students with one and two or more years of study delay and the percentage of students enrolled in the first year in a school having had to repeat one or more years' of study in their previous school career, are negatively related to both reading and math scores.

Furthermore, the variables reflecting the socio-economic background of the students, namely the variables describing the socio-economic context of the school as well as the share of foreign students in the school, confirm that student achievements are lower in schools serving mainly disadvantaged and minority children.

More interestingly, we find that the share of teachers applying for a transfer to another school is negatively related to students' achievements. Specifically, of particular concern is the negative effect of teacher mobility and turnover on students' achievements in schools serving mainly disadvantaged children. In fact, teachers are typically more likely to move away from these schools, where teaching is likely to be more difficult because of the student mix or the social context of the school.

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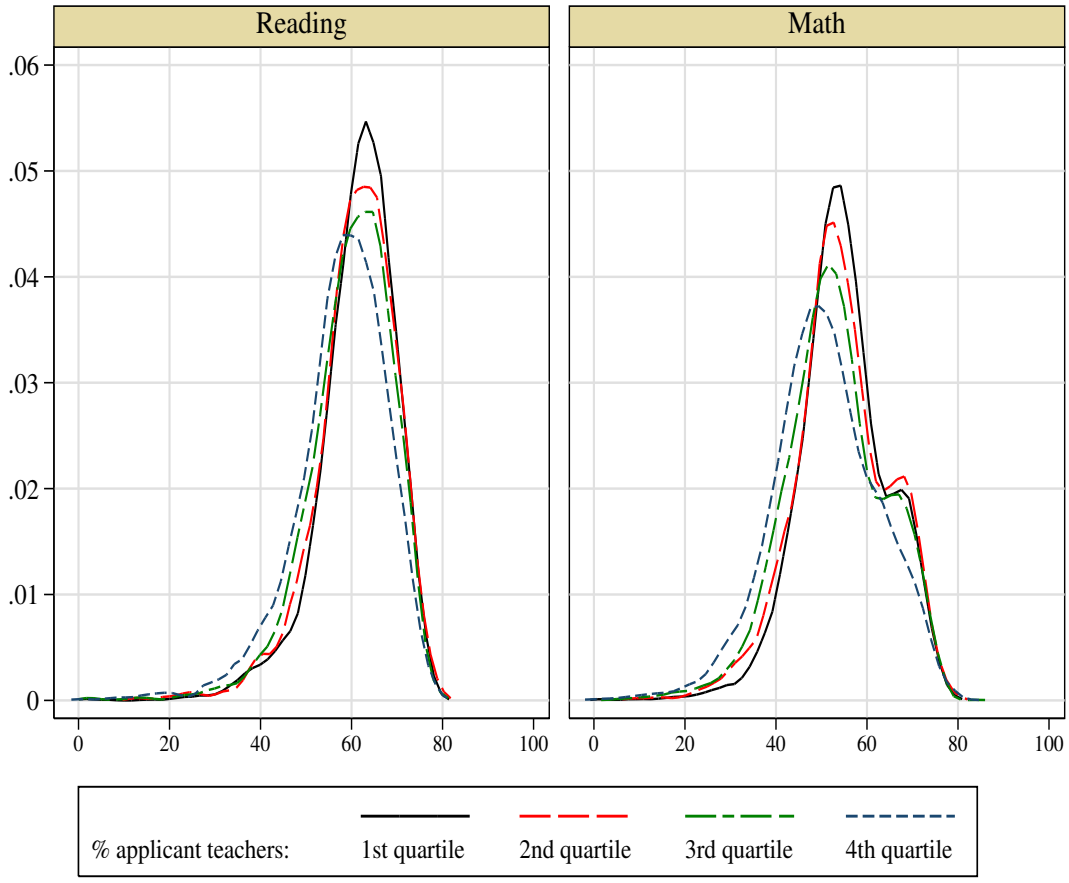
Table 1: Descriptive statistics.

Variable	Mean	SD
Reading test score	60.480	9.656
Math test score	53.705	10.993
% teachers applying for a transfer	19.014	15.826
% 1-year delay students	7.608	5.928
% 2-year delay students	1.991	3.124
% female student	49.184	8.089
% foreign stud. from EU countries	1.668	2.946
% foreign stud. from non-EU countries	3.606	5.607
% disabled students	3.338	2.577
% previously repeating students	2.906	2.365
Average tenure	16.354	3.897
Average age of tenured teachers	50.695	4.233
% female teachers	77.125	10.196
Number of teachers	26.959	18.908
Student-teacher ratio	11.065	10.316
Employment rate	41.199	8.359
% illiterate residents	2.489	2.477
% agricultural workers	8.976	7.975
School in the North	0.333	0.471
School in the Centre	0.153	0.360

Table 2: Estimated coefficients of the model for average test scores. (robust standard errors clustered at the school level; + significant at 10%, * significant at 5%, ** significant at 1%).

	Reading		Math	
	OLS	IV	OLS	IV
% teachers applying for a transfer	-0.022 **	-0.092 *	-0.017 **	-0.083 +
% 1-year delay students	-0.113 **	-0.113 **	-0.131 **	-0.131 **
% 2-year delay students	-0.150 **	-0.150 **	-0.146 **	-0.145 **
% female student	0.009	0.008	-0.044 **	-0.044 **
% foreign stud. from EU countries	-0.004	-0.010	-0.033	-0.039
% foreign stud. from non-EU countries	-0.068 **	-0.067 **	0.018	0.018
% disabled students	-0.332 **	-0.306 **	-0.386 **	-0.361 **
% previously repeating students	-0.111 **	-0.119 **	-0.210 **	-0.217 **
Average tenure	0.036	-0.057	0.093 **	0.005
Average age of tenured teachers	-0.044	-0.059	-0.032	-0.046
% female teachers	0.003	0.004	0.007	0.007
Number of teachers / 10	0.050	-0.132	0.142 **	-0.029
Student-teacher ratio	0.016 *	0.017 *	0.016 *	0.017 *
Employment rate	0.231 **	0.223 **	0.222 **	0.214 **
% illiterate residents	-0.240 **	-0.206 **	-0.211 **	-0.178 *
% agricultural workers	-0.011	-0.004	-0.002	0.005
School in the North	3.878 **	3.551 **	5.481 **	5.199 **
School in the Centre	3.619 **	3.419 **	4.994 **	4.823 **
School year 2007/08	-4.231 **	-4.013 **	-3.651 **	-3.444 **
School year 2008/09	5.850 **	6.042 **	10.132 **	10.311 **
Constant	57.452 **	57.652 **	48.200 **	48.375 **
R^2	0.392	0.383	0.500	0.494
F test of endogeneity		2.467		1.829
p-value		0.116		0.176

Figure 1: Kernel density of average test scores by percentage of teachers applying for a transfer to another school.



APPENDICES

A First stage of the IV model.

This appendix presents estimated coefficients of the first stage of the IV model for average test scores. (robust standard errors clustered at the school level; + significant at 10%, * significant at 5%, ** significant at 1%).

Distance of tenured teachers	-0.945 *
(Distance of tenured teachers)^2	0.157
% teachers born in a different munic.	0.076 **
% teachers born in a different LLS	0.033 **
% teachers born in a different province	-0.019
% teachers born in a different region	0.020
School over 600m a.s.l.	2.506 **
School in big munic.	2.094 **
School in the suburbs	3.136 **
School in the city centre	5.007 **
% 1-year delay students	-0.003
% 2-year delay students	0.028
% female student	0.000
% foreign stud. from EU countries	-0.053
% foreign stud. from non-EU countries	0.033
% disabled students	0.357 **
% previously repeating students	-0.087
Average tenure	-1.277 **
Average age of tenured teachers	-0.199
% female teachers	0.011
Number of teachers / 10	-2.516 **
Student-teacher ratio	0.019
Employment rate	-0.135 **
% illiterate residents	0.382 **
% agricultural workers	0.113 **
School in the North	-5.031 **
School in the Centre	-3.638 **
School year 2007/08	3.169 **
School year 2008/09	2.685 **
Constant	1.940 **
R^2	0.329

B Robusteness checks for the model for average test scores.

This appendix presents estimated coefficients of different alternative specifications of the model for average test scores (robust standard errors clustered at the school level; + significant at 10%, * significant at 5%, ** significant at 1%). Only the coefficients on the variables related to teacher mobility and turnover are reported. Model 1 includes schools fixed effects to control for school-level unobserved heterogeneity. In Model 2 regressors also include the percentage of teachers applying for a transfer in $t-1$ and $t-2$. In Model 3 the percentage of teachers applying for a transfer is obtained as the average over the last three years. In Model 4 the average percentage of teachers applying for a transfer over the past three years is instrumented using the distance between teachers' place of birth and place of work over the past three years. Model 5 adds schools fixed effects to Model 4. In Model 6 regressors also include lagged average test scores. In Model 7 all variables related to teachers refer to both tenured and temporary teachers in a school (i.e. percentages are computed by including also temporary teachers in the teacher pool). In Model 8 regressors also include the percentage of teachers who arrived in a school after their mobility application submitted in the previous period was accepted. The fact that a teacher arrived in a given school after she requested so can be interpreted as a sign that her willingness to work there was satisfied. In Model 9 regressors also include the percentage of temporary teachers. Finally, in Model 10 regressors also include both the percentage of teachers who arrived in a school after their mobility application was accepted and the percentage of temporary teachers. All specifications also include the exogenous regressors described in the previous section. In Model 1 the percentage of teachers applying for a transfer is instrumented.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Reading										
% teachers applying for a transfer	-0.027	-0.015 *	-0.041 **	-0.098 *	-0.028	-0.018 *	-0.017 *	-0.021 **	-0.021 **	-0.020 **
% teachers applying for a transfer (t-1)		-0.011								
% teachers applying for a transfer (t-2)		-0.015 *								
% teachers arrived								0.046 *		0.040 +
% temporary teachers									-0.024 **	-0.024 **
School fixed effects	Yes	No	No	No	Yes	No	No	No	No	No
IV	Yes	No	No	Yes	Yes	No	No	No	No	No
Math										
% teachers applying for a transfer	-0.022	-0.007	-0.042 **	-0.115 *	-0.085	-0.013 +	-0.016 +	-0.016 *	-0.015 *	-0.014 *
% teachers applying for a transfer (t-1)		-0.010								
% teachers applying for a transfer (t-2)		-0.025 **								
% teachers arrived								0.066 **		0.058 *
% temporary teachers									-0.032 **	-0.031 **
School fixed effects	Yes	No	No	No	Yes	No	No	No	No	No
IV	Yes	No	No	Yes	Yes	No	No	No	No	No