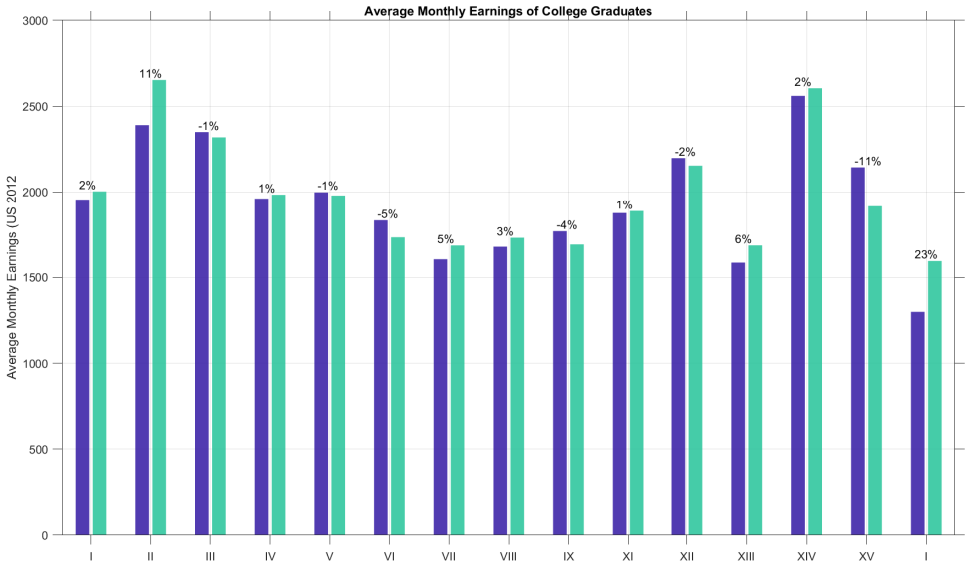
Further Details on Estimation and Identification

The estimation strategy to recover the parameters of the demand model follows applications from emprical IO that share a common structure with both heterogeneous preferences of individual consumers and endogeneity of market/choice specific unobservables. Notable papers in this tradition include **?**,**?**,**?** and **?**. Recent work by **?** present nonparametric identification results for similar models using only aggregate data on choices. While many of the broader results carry over to the case with microlevel data, **?** emphasizes that in the context of observing microlevel data, where within market variation of choices with fixed market-level unobservables as are school ξ_j. The prior work shows that for identification we need both market level cost shifters and variation of choice sets. In this application I use similar instruments as past applications such as other firms' fixed attributes and market level cost shifters that I discuss further below. I also leverage the significant variation in choice sets I observe for families making choices across markets, across locations within a market and most importantly of all, the choices with and without the SEP policy in place. I discuss each source of variation in what follows.

I begin describing the more traditional source of variation coming from market level variation in cost shifters. I interact these aggregate cost shifters with school characteristics such as type of administration because local costs are likely to have different effects on public and private schools. One measure of market level cost shifter is a proxy for the cost of college educated labor such as the earnings of other professionals not in the education service industry by market and year. Figure 1 shows the variation in earnings and in some markets we see increased earnings while in others earnings are flat or even go down.

Figure 1: Earnings of College Graduates Across Markets and Time



Note: This figure shows average earnings for college graduates across regions.

I now describe the variation in the data produced by the individual choice level data we observe over time and across markets. Table 1 shows the average school characteristic chosen by students of different observable types in different moments in time in the same market. We can see that low income students with less educated mothers traveled significantly less than richer students from more educated families. School quality also is very different as are prices and these change over time. These micromoments provide variation in choices for different types of students faced with the same market level unobservables.

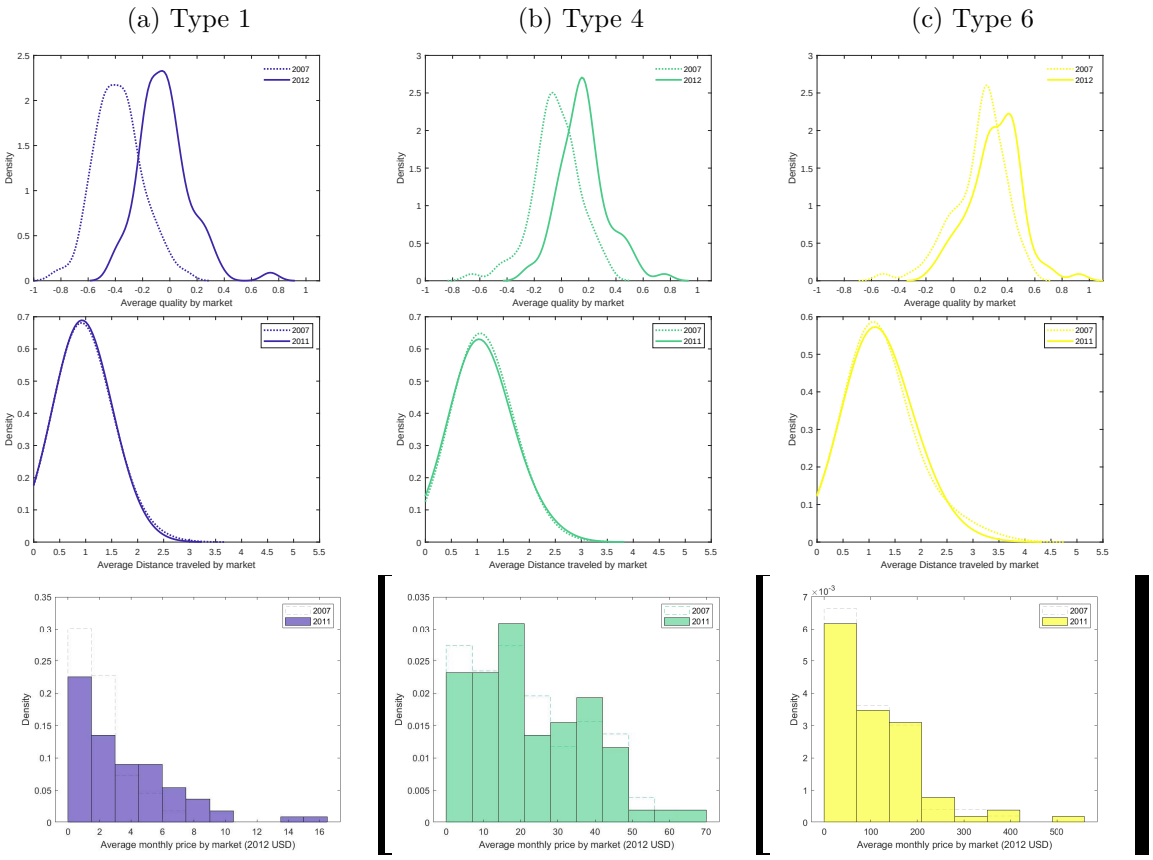
Table 1: Example Micromoments

Type = 6 High Education, Non Poor			
Year	q	Price (US$ Monthly)	Km to School
2006	0.33	91	1.5
2007	0.35	97	1.6
2008	0.39	103	1.6
2009	0.44	107	1.6
2010	0.49	114	1.8
2011	0.45	115	1.8

Type = 1 Low Education, Poor			
Year	q	Price (US$ Monthly)	Km to School
2006	-0.42	4	0.6
2007	-0.44	5	0.6
2008	-0.35	5	0.6
2009	-0.30	5	0.6
2010	-0.18	5	0.7
2011	-0.15	6	0.7

Figure 2 shows the distribution of these averages across markets. This shows there is a lot of choice set variation across markets where students of similar observable type are systematically choosing different options when faced with different choice sets. The discussion in (**?**) makes it clear that the instruments that seem to be most valuable and unique to this literature are those generated by the SEP policy that changes prices faced by families in each period. Each distribution in Figure 2 is shown for two points in time: 2007, preceding SEP implementation, and 2011, once the policy has been in place for three years. The changes experienced between these years represent another source of variation in choice sets that is useful for identification.

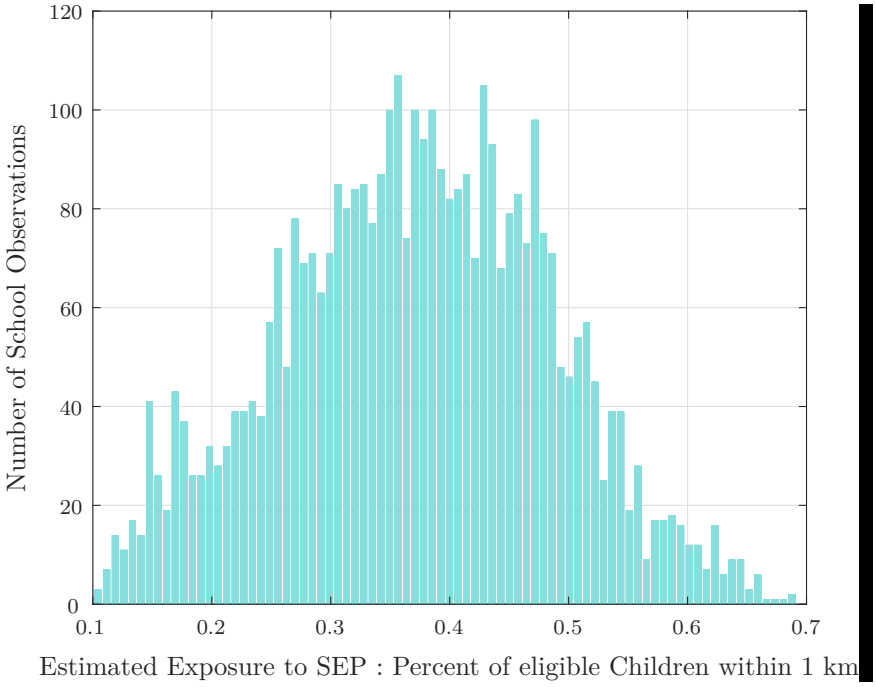
Figure 2: Empirical distribution of average quality, distance and prices across markets, for three types of students



Note: The figures in the first row show the empirical distribution of average quality received by each type of student, across markets. The second row does the same for the average distance traveled, and the third row for prices. Distributions are shown for the three most numerous types of students: Type 1 (Poor/Mother with less than high school) in the first column, Type 4 (Not poor/Mother completed high school) in the second column, Type 6 (Not poor/Mother with more than high school) in the third column. Markets included in the distributions are the 74 that were used in the estimations. Quality refers to our Value Added Measure with controls.

The SEP policy also creates heterogeneous exposure within markets due to preexisting market structure and where eligible students lived. I use the percent of the students that live within 1km of the school as a measure of exposure of the neighborhood to the policy ands show this varies substantially across markets in Figure 3 and within markets as seen in Figure 4. This measure interacted with time generates variation with a broad base that varies across and within markets and is possible because of the important policy change.

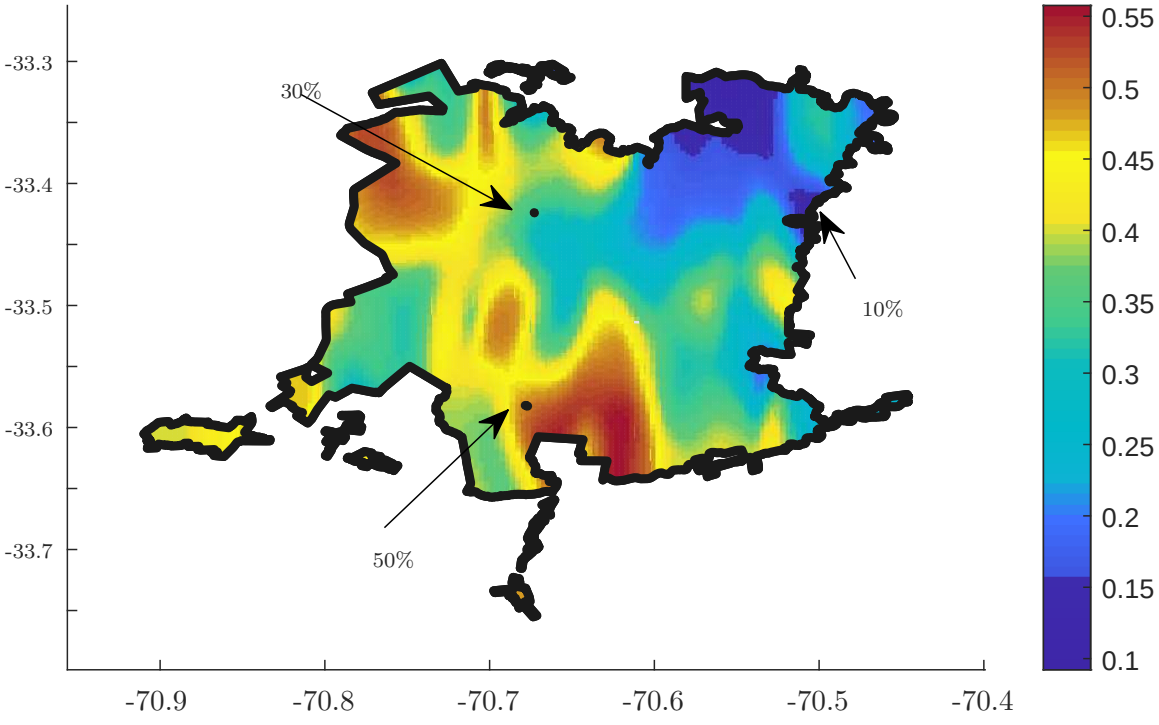
Figure 3: Histogram of Exposure to Policy Across Markets



Note: This figure shows the distribution of the percent of students who would be eligible for the additional subsidy once the policy is in place that live approximatly within 1km of each school. The histogram shows the distribution of exposure levels for schools in 2007. This is across and within market variation as it includes all schools.

Many other local market characteristics vary across and within markets. An important worry that may still remain is that choice set variation we are using is subject to sorting on unobservables over time. The assumption needed to be made here is that sorting across/within markets and neighborhoods is exogenous to the timing of the policy implementation. Within the time frame under analysis this seems like a reasonable assumption.

Figure 4: Exposure to Policy within Markets



Note: This figure shows the distribution of the percent of students who would be eligible for the additional subsidy once the policy is in place that live approximatly within 1km of each school. The figure shows a map of one market (Santiago) to illustrate the heterogeneity within a market in the exposure to the policy.

Instrumental Variables and Endogenous Variables

	Quality		Price		Shares	
Exogenous School Characteristics	(1)	(2)	(1)	(2)	(1)	(2)
For Profit	-0.084***	-0.086***	0.050***	0.056**	-0.009***	-0.009***
	(0.000)	(0.000)	(0.000)	(0.027)	(0.000)	(0.000)
Religious	0.027***	0.024*	0.026***	0.034	0.002***	0.001
	(0.000)	(0.070)	(0.006)	(0.109)	(0.001)	(0.177)
Private Voucher	0.254***	0.267***	NA	NA	0.000	0.000
	(0.000)	(0.000)	(.)	(.)	(0.968)	(0.904)
Private Non Voucher	0.466***	0.472***	4.587***	4.614***	0.014***	0.014***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Has High School	0.157***	0.142***	0.244***	0.234***	0.006***	0.006***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Traditional x Private Voucher	0.022***	0.016	-0.120***	-0.110***	0.004***	0.004***
	(0.000)	(0.259)	(0.000)	(0.000)	(0.000)	(0.000)
Traditional x Private Non Voucher	0.194***	0.173***	0.547***	0.537***	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.781)	(0.910)
Instruments						
Base Voucher (2012)	0.224***	0.174**	0.718***	0.733***	0.038***	0.039***
	(0.000)	(0.039)	(0.000)	(0.000)	(0.000)	(0.000)
Earnings of Non Teacher Professionals	-567.673***	-877.076***	167.995	118.891	-19.948***	-14.854
	(0.000)	(0.000)	(0.359)	(0.811)	(0.003)	(0.417)
Earnings of Non Teacher Professionals^2	101710***	165682***	-28567	-17439	2636*	1301
	(0.000)	(0.003)	(0.504)	(0.879)	(0.096)	(0.759)
% Poor within 1km	-0.101***	-0.095***	-0.175***	-0.177***	0.008***	0.007***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
% Poor within 1km x SEP Policy	0.043***	0.052***	-0.014	-0.012	-0.001**	-0.001
	(0.000)	(0.000)	(0.149)	(0.522)	(0.027)	(0.175)
Instruments : Other Nearby Schools Charateristics						
ForProfit Nearby	-0.201***	-0.183***	-0.051	-0.069	-0.039***	-0.040***
	(0.000)	(0.005)	(0.394)	(0.604)	(0.000)	(0.000)
Religious Nearby	-0.166***	-0.186***	-0.061	-0.051	0.031***	0.030***
	(0.000)	(0.002)	(0.241)	(0.659)	(0.000)	(0.000)
Private Voucher Nearby	-0.393***	-0.419***	-0.662***	-0.656**	-0.099***	-0.122***
	(0.000)	(0.002)	(0.000)	(0.014)	(0.000)	(0.000)
Private Non Voucher Nearby	-0.221**	0.048	2.146***	2.191***	-0.100***	-0.117***
	(0.014)	(0.815)	(0.000)	(0.000)	(0.000)	(0.000)
Has High School Nearby	0.005	0.033	0.280***	0.274***	0.021***	0.020***
	(0.774)	(0.425)	(0.000)	(0.001)	(0.000)	(0.000)
Traditional x Public Nearby	-0.372***	-0.374***	-0.357***	-0.369*	-0.083***	-0.106***
	(0.000)	(0.001)	(0.001)	(0.098)	(0.000)	(0.000)
Traditional x Voucher Nearby	-0.015	0.003	0.024	0.008	-0.048***	-0.043***
	(0.548)	(0.959)	(0.614)	(0.940)	(0.000)	(0.000)
Traditional x Private Non Voucher	-0.507***	-0.830***	-0.979***	-1.035***	-0.094***	-0.099***
	(0.000)	(0.000)	(0.000)	(0.005)	(0.000)	(0.000)
Constant	0.761***	1.244***	-0.097	-0.090	0.141***	0.155***
	(0.000)	(0.000)	(0.668)	(0.878)	(0.000)	(0.000)
Year FE	x	x	x	x	x	x
Only 2007 and 2011		x		x		x
R^2	0.247	0.258	0.890	0.892	0.261	0.271
F-statistic of the Excluded Instruments	123.180	28.201	335.212	67.160	907.110	191.081
N Obs	38852	7775	25176	5033	38852	7775

Table 2: Income and Exposure to Policy - Market FE

	Private Voucher				Public		
	(1)	(2)	(3)	(4)	(1)	(2)	(3)
	Quality	Has Fine	Has SNED	Price	Quality	Has Fine	Has SNED
% Poor within 1km	-0.118***	0.017***	0.022***	-0.102***	-0.169***	0.023***	-0.049***
	(0.000)	(0.004)	(0.002)	(0.000)	(0.000)	(0.001)	(0.000)
% Poor within 1km x SEP Policy	0.029***	-0.013**	0.019**	-0.083***	0.043***	-0.024***	0.001
	(0.000)	(0.032)	(0.011)	(0.000)	(0.000)	(0.001)	(0.892)
Income per Student	0.271***	-0.011*	0.127***	0.677***	-0.247***	-0.020	0.080***
	(0.000)	(0.095)	(0.000)	(0.000)	(0.000)	(0.385)	(0.003)
Income per Student^2	-0.007***	0.000	-0.003***	-0.016***	0.016***	-0.001	-0.006**
	(0.000)	(0.590)	(0.000)	(0.000)	(0.000)	(0.596)	(0.049)
Traditional x Private Voucher	0.051***	-0.001	0.093***	-0.057***	NA	NA	NA
	(0.000)	(0.855)	(0.000)	(0.000)	(.)	(.)	(.)
For Profit	-0.068***	0.024***	-0.108***	0.025***	NA	NA	NA
	(0.000)	(0.000)	(0.000)	(0.000)	(.)	(.)	(.)
Religious	0.037***	-0.007	0.028***	0.004	-0.031***	-0.005	-0.020**
	(0.000)	(0.158)	(0.000)	(0.243)	(0.000)	(0.473)	(0.015)
Constant	-0.511***	0.171***	0.096***	-1.012***	0.294***	0.326***	0.170***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Year FE	x	x	x	x	x	x	x
Market FE	x	x	x	x	x	x	x
R^2	0.158	0.135	0.071	0.588	0.218	0.198	0.045
N Obs	27342	27342	27342	27342	17419	17419	17419

Note: This table shows the results of the implementation of the policy for quality measures and price in schools by the geographic exposure of schools to SEP eligible students, considering markets fixed effects. Specifically, I calculate the share of SEP eligible students that live within a 1.5 km radius from the school, to make a exposure-to-policy measure for schools. The regressions account for income received by schools from co-pay and vouchers.

Table 3: Simulated Income and Exposure to Policy - Market FE

	Private Voucher				Public		
	(1)	(2)	(3)	(4)	(1)	(2)	(3)
	Quality	Has Fine	Has SNED	Price	Quality	Has Fine	Has SNED
% Poor within 1km	-0.169***	0.025***	-0.003	-0.202***	-0.169***	0.018**	-0.049***
	(0.000)	(0.000)	(0.628)	(0.000)	(0.000)	(0.012)	(0.000)
% Poor within 1km x SEP Policy	0.079***	-0.020***	0.045***	-0.050***	0.085***	-0.027***	0.039***
	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Income per Student (Simulated)	0.035***	0.014***	0.010***	0.099***	-0.088***	0.029***	-0.045***
	(0.000)	(0.000)	(0.007)	(0.000)	(0.000)	(0.000)	(0.000)
Income per Student^2 (Simulated)	-0.007***	-0.001***	-0.002***	-0.009***	0.003***	-0.002***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.004)
Traditional x Private Voucher	-0.002	-0.003	0.054***	-0.154***	NA	NA	NA
	(0.675)	(0.580)	(0.000)	(0.000)	(.)	(.)	(.)
For Profit	-0.110***	0.023***	-0.145***	-0.011**	NA	NA	NA
	(0.000)	(0.000)	(0.000)	(0.023)	(.)	(.)	(.)
Religious	0.013**	-0.004	0.004	0.004	-0.035***	-0.007	-0.024***
	(0.030)	(0.382)	(0.534)	(0.441)	(0.000)	(0.298)	(0.003)
Constant	0.098***	0.115***	0.430***	0.167***	0.265***	0.189***	0.542***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Year FE	x	x	x	x	x	x	x
Market FE	x	x	x	x	x	x	x
R^2	0.149	0.140	0.069	0.340	0.239	0.201	0.053
N Obs	25331	25331	25331	25331	17426	17426	17426

Note: This table shows the results of the implementation of the policy for quality measures and price in schools by the geographic exposure of schools to SEP eligible students, considering markets fixed effects. Specifically, I calculate the share of SEP eligible students that live within a 1.5 km radius from the school, to make a exposure-to-policy measure for schools. The regressions account for simulated income received by schools from co-pay and vouchers. The specific simulation is to fix the students in 2007 and to obtain values of transfers and payments over the years, based on fixed enrollment and current vouchers values; like if there was no students sorting that can be endogenous to the policy.

Table 4: Income and Exposure to Policy - School FE

	Private Voucher				Public		
	(1)	(2)	(3)	(4)	(1)	(2)	(3)
	Quality	Has Fine	Has SNED	Price	Quality	Has Fine	Has SNED
% Poor within 1km x SEP Policy	0.045***	-0.010*	0.027***	-0.032***	0.026***	-0.020***	-0.003
	(0.000)	(0.078)	(0.000)	(0.000)	(0.000)	(0.005)	(0.685)
Income per Student	0.125***	-0.013	0.066***	0.176***	0.222***	-0.104***	0.223***
	(0.000)	(0.243)	(0.000)	(0.000)	(0.000)	(0.003)	(0.000)
Income per Student^2	-0.003***	0.000	-0.002***	-0.004***	-0.013***	0.005	-0.013***
	(0.000)	(0.611)	(0.000)	(0.000)	(0.000)	(0.143)	(0.000)
Constant	-0.241***	0.193***	0.209***	-0.060***	-0.624***	0.481***	-0.118*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.062)
Year FE	x	x	x	x	x	x	x
School FE	x	x	x	x	x	x	x
R^2	0.676	0.244	0.452	0.939	0.521	0.265	0.358
N Obs	27342	27342	27342	27342	17419	17419	17419

Note: This table shows the results of the implementation of the policy for quality measures and price in schools by the geographic exposure of schools to SEP eligible students, considering schools fixed effects. Specifically, I calculate the share of SEP eligible students that live within a 1.5 km radius from the school, to make a exposure-to-policy measure for schools. The regressions account for income received by schools from co-pay and vouchers.

Table 5: Simulated Income and Exposure to Policy - School FE

	Private Voucher				Public		
	(1)	(2)	(3)	(4)	(1)	(2)	(3)
	Quality	Has Fine	Has SNED	Price	Quality	Has Fine	Has SNED
% Poor within 1km x SEP Policy	0.015***	-0.011*	0.032***	-0.029***	0.013*	-0.029***	0.006
	(0.003)	(0.079)	(0.000)	(0.000)	(0.056)	(0.001)	(0.483)
Income per Student (Simulated)	0.027***	0.008**	-0.003	0.008***	0.007	0.033***	-0.012
	(0.000)	(0.036)	(0.440)	(0.000)	(0.245)	(0.000)	(0.102)
Income per Student^2 (Simulated)	0.001**	-0.001***	0.001	0.000	0.001***	-0.002***	0.001**
	(0.029)	(0.002)	(0.110)	(0.128)	(0.002)	(0.000)	(0.015)
Constant	-0.128***	0.156***	0.341***	0.225***	-0.315***	0.178***	0.310***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Year FE	x	x	x	x	x	x	x
School FE	x	x	x	x	x	x	x
R^2	0.674	0.242	0.449	0.929	0.515	0.267	0.359
N Obs	25331	25331	25331	25331	17426	17426	17426

Note: This table shows the results of the implementation of the policy for quality measures and price in schools by the geographic exposure of schools to SEP eligible students, considering schools fixed effects. Specifically, I calculate the share of SEP eligible students that live within a 1.5 km radius from the school, to make a exposure-to-policy measure for schools. The regressions account for simulated income received by schools from co-pay and vouchers. The specific simulation is to fix the students in 2007 and to obtain values of transfers and payments over the years, based on fixed enrollment and current vouchers values; like if there was no students sorting that can be endogenous to the policy.

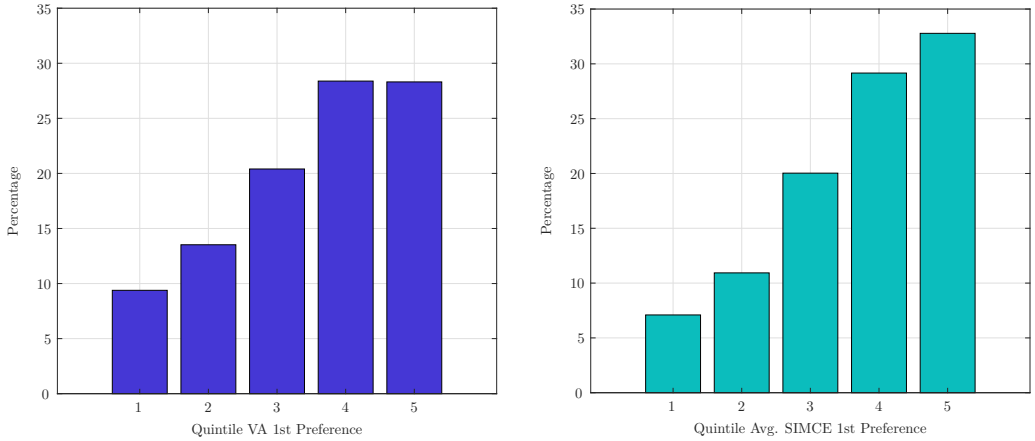
Table 6: Spending on Teachers - Market FE

	(1) Quality	(2) Has Fine	(3) Has SNED	(1) Quality	(2) Has Fine	(3) Has SNED
AdminHC Math	0.026***	0.001	0.018***	0.028***	0.002	0.017***
	(0.000)	(0.908)	(0.007)	(0.000)	(0.559)	(0.000)
AdminHC Lang	-0.007	0.006	-0.007	-0.005	0.002	0.003
	(0.311)	(0.367)	(0.359)	(0.251)	(0.520)	(0.518)
TeacherMath WeightedAve	0.282***	0.026	0.102***	0.299***	-0.014	0.154***
	(0.000)	(0.339)	(0.001)	(0.000)	(0.264)	(0.000)
TeacherLang WeightedAve	0.089***	-0.024	0.003	0.101***	-0.013	0.029
	(0.002)	(0.420)	(0.931)	(0.000)	(0.349)	(0.102)
SpendingPerTeacher	0.013***	-0.002***	0.019***			
	(0.000)	(0.001)	(0.000)			
Income per Student	0.041***	-0.001	-0.028**	0.164***	-0.006	0.032***
	(0.000)	(0.957)	(0.028)	(0.000)	(0.348)	(0.000)
Income per Student^2	-0.001***	-0.000	0.001*	-0.004***	-0.000	-0.001***
	(0.001)	(0.731)	(0.092)	(0.000)	(0.971)	(0.001)
Traditional	0.030***	0.011	0.012	0.056***	-0.003	0.089***
	(0.001)	(0.247)	(0.280)	(0.000)	(0.578)	(0.000)
For Profit	0.010	-0.001	0.016	-0.046***	0.022***	-0.096***
	(0.341)	(0.934)	(0.189)	(0.000)	(0.000)	(0.000)
Religious	-0.000	-0.007	0.026**	0.023***	-0.005	0.017***
	(0.970)	(0.465)	(0.023)	(0.000)	(0.358)	(0.009)
Constant	-0.497***	0.217***	-0.208***	-0.351***	0.160***	0.269***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Only 2014 - 2017	x	x	x			
Year FE	x	x	x	x	x	x
Market FE	x	x	x	x	x	x
R^2	0.243	0.039	0.156	0.204	0.133	0.081
N Obs	7729	7729	7729	24627	24627	24627

Table 7: Spending on Teachers - Market FE - Public Schools

	(1)	(2)	(3)	(1)	(2)	(3)
	Quality	Has Fine	Has SNED	Quality	Has Fine	Has SNED
AdminHC Math	0.026***	-0.007	0.023**	0.018***	-0.008*	0.016***
	(0.001)	(0.446)	(0.015)	(0.000)	(0.058)	(0.002)
AdminHC Lang	-0.024***	0.010	-0.042***	-0.017***	0.005	-0.031***
	(0.005)	(0.364)	(0.000)	(0.000)	(0.317)	(0.000)
TeacherMath WeightedAve	0.124***	0.028	0.100**	0.133***	0.010	0.052**
	(0.000)	(0.499)	(0.015)	(0.000)	(0.589)	(0.020)
TeacherLang WeightedAve	0.093**	-0.080*	0.096**	0.043**	-0.040*	0.055**
	(0.013)	(0.082)	(0.034)	(0.035)	(0.055)	(0.025)
SpendingPerTeacher	0.004***	-0.001	0.006***			
	(0.000)	(0.203)	(0.000)			
Income per Student	-0.248***	-0.030	0.090**	-0.356***	-0.028	0.027
	(0.000)	(0.501)	(0.041)	(0.000)	(0.206)	(0.315)
Income per Student^2	0.016***	-0.000	-0.007**	0.024***	-0.001	-0.002
	(0.000)	(0.951)	(0.050)	(0.000)	(0.741)	(0.502)
Religious	-0.038***	-0.004	-0.039***	-0.036***	-0.007	-0.025***
	(0.002)	(0.774)	(0.009)	(0.000)	(0.343)	(0.003)
Constant	0.152**	0.379***	-0.015	0.469***	0.346***	0.257***
	(0.026)	(0.000)	(0.858)	(0.000)	(0.000)	(0.000)
Only 2014 - 2017	x	x	x			
Year FE	x	x	x	x	x	x
Market FE	x	x	x	x	x	x
R^2	0.198	0.131	0.088	0.189	0.198	0.046
N Obs	4981	4981	4981	16473	16473	16473

Figure 5: Quintile of the first school listed in the application - SAE 2018



(a) Value Added quintiles

(b) Average SIMCE score quintiles

Note: This figure shows the quintile to which the first school in the student applications belongs. The percentage is with respect to the total number of applicants. Panel (a) is divided into quintiles of Value Added, and panel (b) into quintiles of average SIMCE scores. Applications shown are for levels preK and 1st grade, and only applicants with at least ten schools in a radius of 1.5km are considered.

Table 8: School in First Preference SAE 2018

	(1) School_1st_Pref	(2) School_1st_Pref	(3) School_1st_Pref	(4) School_1st_Pref
Distance to School (km)	-0.050*** (0.000)	-0.050*** (0.000)	-0.050*** (0.000)	-0.050*** (0.000)
Ln Avg. Price	-0.005*** (0.000)	-0.005*** (0.000)	-0.002** (0.012)	-0.002** (0.023)
Value Added	0.099*** (0.000)	0.101*** (0.000)		
Value Added * SEP Student		-0.008* (0.070)		
Q2 VA			0.010*** (0.000)	0.011*** (0.001)
Q3 VA			0.039*** (0.000)	0.037*** (0.000)
Q4 VA			0.087*** (0.000)	0.087*** (0.000)
Q5 VA			0.125*** (0.000)	0.129*** (0.000)
Q1 VA * SEP student				0.004 (0.313)
Q2 VA * SEP student				0.001 (0.789)
Q3 VA * SEP student				0.008* (0.067)
Q4 VA * SEP student				0.002 (0.552)
Q5 VA * SEP student				-0.008* (0.054)
Constant	0.124*** (0.000)	0.124*** (0.000)	0.060*** (0.000)	0.057*** (0.000)
R^2	0.033	0.034	0.042	0.042
N Obs	76216	76216	76216	76216

Note: The dependent variable is constructed as follows: for each applicant in levels preK or 1st grade, all schools that are within a radius of 1.5 km around him are assigned. Then, I built a dummy variable if the school was the first preference in the application of the student. This subsample considers applicants with at least ten schools in the radius predefined. Q1 to Q5 variables correspond to quintiles of Value Added in each student set of neighbors schools.

To better understand the impact of SEP on schools performance, I perform a differences-in-differences exploiting time and cross-sectional variation given by the geographic exposure of schools to SEP eligible students. Specifically, I calculate the share of SEP eligible students that live within a 1.5 km radius from the school and divide schools into five quintiles based on this measure. I keep schools in the top and bottom quantile and estimate the following non-parametric differences-in-differences model:[1]

$$y_{jt} = \sum_{t} \beta_t Exp_j + \gamma_t + \psi_j + \varepsilon_{jt} \tag{1}$$

where the year 2007 serves as the baseline year, and the coefficients γ and ψ denote year and school-specific fixed effects. The dummy variable Exp takes the value of 1 and 0 for schools in the top and bottom quintile respectively.

I estimate the model for two different outcomes. First, I calculate the impact of SEP exposure on school's value added. As discussed above, we find large effects after 2007. Reassuringly, there are no observable pre-trends before SEP is in place. To assess the role of sorting of students across schools I perform the same analysis using fitted test-scores based on students' observables from Equation XX. If the impacts on value added were a mechanical result of student sorting, the estimated impact on both variables should be very similar. Results of the estimation of Equation 1 are shown in Table 9 and Figure 6. While school value added estimates are large and significant after the policy, estimates for fitted test scores are very small in magnitude.

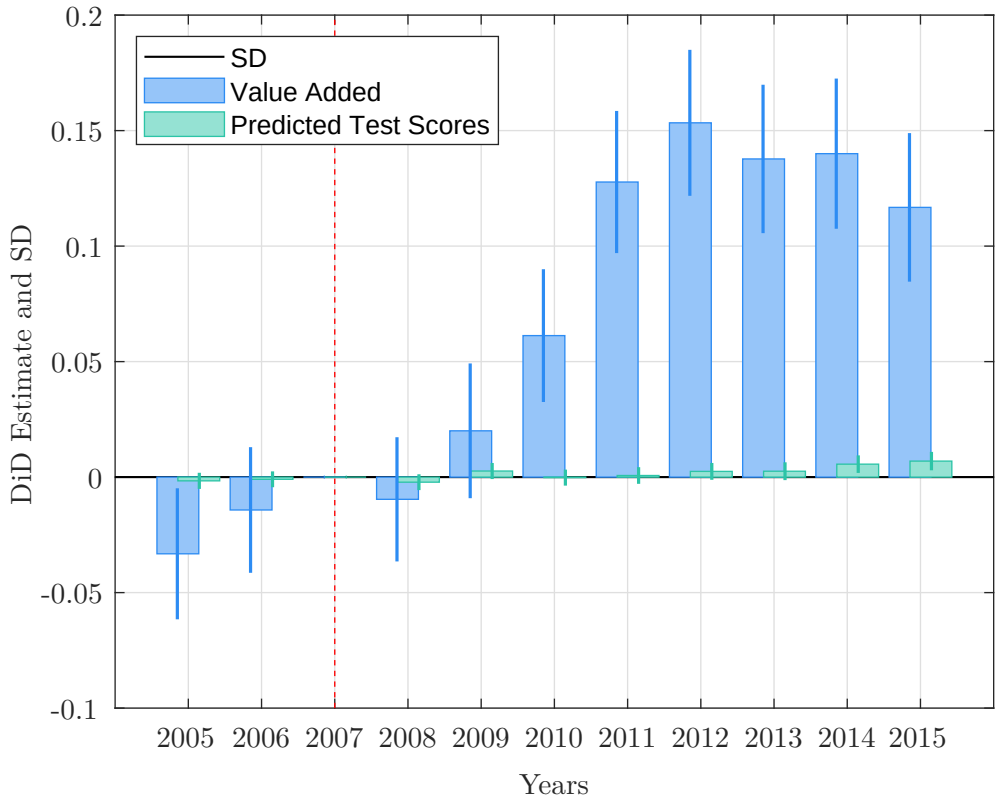
[1] Results are quantitatively and qualitatively similar if we use the two top quintiles as treatment units and the two lowest quintiles as controls.

Table 9: Differences in Differences for School Value Added and Fitted Test Score Values

	(1) $\widehat{q}_{jt}$	(2) $X_i\gamma$
Treated * 2005	-0.033**	-0.002
	(0.022)	(0.363)
Treated * 2006	-0.014	-0.001
	(0.305)	(0.586)
Treated * 2007	0.000	0.000
	(.)	(.)
Treated * 2008	-0.010	-0.002
	(0.483)	(0.208)
Treated * 2009	0.020	0.003
	(0.178)	(0.139)
Treated * 2010	0.061***	-0.000
	(0.000)	(0.900)
Treated * 2011	0.128***	0.001
	(0.000)	(0.706)
Treated * 2012	0.153***	0.002
	(0.000)	(0.182)
Treated * 2013	0.138***	0.003
	(0.000)	(0.195)
Treated * 2014	0.140***	0.006***
	(0.000)	(0.004)
Treated * 2015	0.117***	0.007***
	(0.000)	(0.001)
Constant	-0.123***	0.214***
	(0.000)	(0.000)
Year FE	x	x
School FE	x	x
R^2	0.682	0.949
N Obs	33468	33773

Note: This table shows the dynamic differences in differences regresions for predicted school value added (1) and fitted test score values (2). The baseline year is the year before to the implementation of the SEP policy, 2007. I divide schools into five quintiles based on the percent of poor students (SEP eligible) within 1.5 km. This is referred to as exposure to the policy and is analogous to a school being in a more poor neighborhood. The treatment and control groups correspond to the highest and lowest exposure group, respectively. The regressions have school level clusters.

Figure 6: Differences in Differences Estimates for School Value Added q_j and Fitted Test Score Values $X_i\gamma$



Note: This figure show the estimated coefficients from a dynamic differences in differences estimation, over the quality measure $\widehat{q}_{jt}$ (Value Added) and the predicted test scores $X_i\gamma$. I divide schools into five quintiles based on the percent of poor students (SEP eligible) within 1.5 km. This is referred to as exposure to the policy and is analogous to a school being in a more poor neighborhood. The treatment and control groups correspond to the highest and lowest exposure group, respectively.