Increase in general school attainment depending on institution type and other facilities such as free uniforms, mid-day meals, and others. Evidence from Indian survey data.

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Contents

1 Introduction

Because of the following factors, learning about general education attainment dependent on school choice was exciting. 1. Every researcher in economics and education society boasts about implementing private education in India, but this outcome may differ in the Indian context due to several other factors, including the distance to a nearby school, the quality of the education, the consumption habits of the household, the household's income status, and many others. 2. Based on the research study, I revealed that people who attend public schools may have general education attainment that is around 9 percentage points higher than students who attend private and other institutions.

However, in the context of Indian society, each state has a different educational policy, and these results could alter as a result. And I argue that advertising in favor of private educational institutions is futile if the general level of education could be raised when students were attending government schools. Additionally, people, in general, prefer attending government schools for graduation or higher education, and those schools are at the top level, but the government-run primary and secondary schools are not, which could raise their standards and level of quality education if the governing body had inspection teams look upon those schools very frequently by auditing them once a year or once every six months.[1]

2 Methodology

I conducted a primary regression analysis using the OLS to determine the effect of general education level on institution type selection. As there are three different types of institutions in India—government, private non-funded, and government-funded private institutes—everyone's choice of school may vary depending on their level of income, whether the school is located close to their home or not, or whether they are eligible for additional amenities at no additional cost.

In addition, using the fundamental OLS, I used general education attainment as my dependent variable and the following independent variables as my independent variables: school choice, whether or not the student received textbooks, stationery, a midday meal, an academic session, whether the student was enrolled full-time or part-time, the medium of instruction in school, whether or not the student received a scholarship, his social or religious group, and others. Later, I used a Diff-in-Diff regression model and multiple linear regression

[1]The fiscal cost of weak governance: Evidence from teacher absence in India by Muralidharan KDas JHolla A et al(2017)

with clustering to examine the impact of the Round*Institution type interaction term on school attainment years following the four years of observations. Lasso for the model's better accuracy prediction, and DML to provide the general framework for providing the estimation based on including all other variables.

3 Data and Descriptive statistics

I used National Sample Survey (NSS) data from the Ministry of Statistics & Programme Implementation's up-to-date National Data Archive of India. The Indian government conducted a study of data between 2014 and 2018. Both the overall number of residents and the demographics of the households are provided by the statistics. The Indian government also conducted a survey on household educational attainment for the first time, and therefore I ended up using this data as its primary source of analysis. Although several villages in the Union territory are excluded due to the geographic placement of islands and access concerns, this study covers all the Indian states and the Union territories.

However, sample allocation and selection in surveys were carried out by allocating a minimum sample size to each State/UT and listing the total number of first-stage units of households in the states and union territories in proportion to their populations as of Census 2011. Specifically, I used the information from this survey on the 71st and 75th rounds. It was interesting to observe how the choice of the institute affected the general level of education. I also wanted to investigate how educational attainment affected test scores. Nevertheless, this analysis was excluded from this study due to data restrictions.

When I cleaned the data in STATA for the basic regression results and for the sake of programming and coding expertise with the language, the results for the summary of the descriptive statistics can be referred from Table 1. The data for the analysis of this research study contains 119189 observations and 39 variables. Furthermore, I ended up with 92368 observations and 36 variables when I imported the data in a CSV format for additional analysis and cleaning in R.

4 Results

The results of the OLS regression for general school attainment and school choice with additional covariates are displayed in Table 2 - Table 3.

4.1 Using the OLS and DID

A person's general school attainment is the total amount of education they receive in a given year. It considers a student's choice of school, whether he received school supplies like textbooks, uniforms, stationary, scholarships, and free tuition, whether he attended any private study sessions, his gender, the distance between various schools and his home, as well as other factors.

As can be seen in Table 2 - Table 3, the general school attainment is 2.17 on average, which is represented by the constant term. According to the main regression model, a change in school attainment based on the government's choice of school results in an overall increase of 15 percentage points in school-level education, which is significant at the 1% level of a significance test. While comparing the other covariates, I also obtained a few variables that demonstrate the importance of general school attainment, such as whether or not households have computers, changes in educational institutions over time, the type of course, whether or not textbooks and midday meals were provided, and a few others.

I used the following two models as my main estimates: Eq. 1 is the plain OLS, and the Eq. 2 is the diff-in-diff model.

$$Y = \beta_0 + \beta_1 * InstitutionType + \beta_2 * ChangeInstitution365days + \beta_3 * Round + ... + Covariates + \epsilon \quad (1)$$

$$Y = \beta_0 + \beta_1 * Interaction + \beta_2 * InstitutionType + \beta_3 * ChangeInstitution365days + .. + Covariates + \epsilon \quad (2)$$

Referring to Table 4 - Table 5 , this table produces results that are similar to those of the STATA OLS results, but without accounting for clusters and without taking reference groups for the variables into account, I obtained negative but statistically significant results. When everything is constant over the course of a year, the term "cons" refers to the overall educational attainment.

Table 6 refers to the DID estimation results without clustering or adding reference groups to the analysis, so I obtained results similar to Table 3. However, here the main estimation results are shown by the interaction term, which refers to equation 2 and shows the significant results with the other variables such as round, age, textbooks, taking private coaching by the person, taking the mid-day meal, scholarship, and other variables.

4.2 Using the Lasso and DML

The estimated results for the coefficient Table 7 and obtained plots can be followed further from figure 1 - Figure 2 which represents the majority of the coefficients lying around the 75–100 percentile. Using the Lasso, I followed a similar procedure for extracting the variables of choice and running the linear regression based on them. And based on the cross-validation findings, I determined that 0.002667928 was the ideal value for lambda. The estimation results can be seen in Table 8, which shows new lasso estimation results for the coefficients. The intercept result represents the average level of school attainment when everything is constant, which is approximately 2.46, during the running of the results based on using the best optimal value for the lambda.

4.3 DML estimations

I used the general education variable as my dependent variable while adding the other covariates as my Y, D, and X variables in the DML data, which amounted to a sample size of around 92368 observations and approximately 34 variables for the estimations. The treatment variable was institution type. Additionally, I applied the machine learner to the regression and set the default k-value option to the 10th fold of iterations. After performing the estimations, the output from Table 9 shows that there is a significant impact of general school attainment on institute choice and that it reduces school attainment by 7 percentage points of school level education annually with standard errors of 0.006.

5 Conclusion and Discussion

Finally, based on the findings of the OLS estimation, the study question I propose demonstrates the important outcomes based on the individual's school choice and provision of other amenities in terms of overall improvement in general educational attainment. However, the R studio results, such as those obtained by applying the DML, Lasso, DID, or MLR, demonstrate the negative impacts of general level academic achievement, which is the exact reverse of what was intended due to a lack of coding experience. If I had been able to alter this

output choice in terms of selecting the reference groups for the regression estimation, the outcome would have been favorable technically.

Additionally, even if the results were negative, the significance level assigned implies that the impact of general education, depending on the institution of choice, has beneficial and significant effects.

6 Recommendations

Additionally, I would like to propose continuing to work on the same study subject for future research to remove any issues that arose while learning programming concepts and some technical jargon in DML and Lasso. Additionally, I'd be curious to see how comparable research based on student's test results and educational attainment would affect upcoming developments in research while clustering the effects according to state-level education policies in India.

7 Figures and Tables

Table 1: Descriptive statistics

Variable	Obs	Mean	Std. dev.	Min	Max
IID	119,299	2.41e+10	1.05e+10	1.00e+10	4.00e+10
HH_ID	119,299	2.41e+08	1.05e+08	1.00e+08	4.00e+08
psrl_no	119,299	4.214453	1.816249	1	66
state_dist~t	119,299	1687.258	1016.815	101	3631
age	119,299	16.25729	4.492491	5	35
gen_edu	119,299	9.472385	2.467193	1	16
other_exp	93,246	1899.189	6540.737	0	500000
tot_exp	119,274	26563.62	41053.45	0	2913000
age_entry	118,312	4.991108	.8970497	1	20
acad_session	119,299	11.92104	.6837788	0	12
lang_home	119,299	9.945373	10.51043	1	29
amt_wav	5,040	11596.15	22585.41	0	800000
hh_cons_exp	119,299	13423.25	9355.967	300	250000
Round	119,299	.596627	.4905764	0	1
Gender	119,299	.5871466	.4927064	0	3
Religion	119,299	.46391	1.071828	0	7
Social_group	119,299	1.964065	.9727418	0	3
Institutio~e	119,299	1.089054	.89553	0	3
Medium_ins~n	119,299	.6375158	.4807196	0	1
Course_type	119,299	.0065047	.0803891	0	1
Free_educa~n	119,299	.8670064	.3395692	0	1
Tution_fee~v	119,299	1.126196	.9795608	0	2
Scholarship	119,299	.8510549	.3560358	0	1
Textbooks	119,299	4.347882	1.622772	0	5
Stationary	119,299	4.878323	.6966372	0	5
Midday_meal	119,299	.910695	.2851847	0	1
Transport_~e	119,299	1.444161	1.362713	0	4
Dist_inst	119,299	2.469317	2.1299	0	5
Private_co~g	119,299	.7963269	.4027304	0	1
Sector	119,299	.5240279	.4994244	0	1
Distance_p~y	119,299	.1095147	.3977357	0	5
Distance_u~r	119,299	.3290304	.7771937	0	5
Distance_s~y	119,299	.8482133	1.337934	0	5
HH_Computer	119,299	.6712881	.469747	0	1
Internet	119,299	.4565336	.4981092	0	1
Present_cl~s	119,189	.9737644	.1985145	0	2
Scholarshi~e	17,769	1.993022	1.928412	0	6
Transport_~n	33,609	.6038264	.4891086	0	1
Change_ins~s	119,291	2.355961	1.845812	0	4
Marital_st~s	119,297	.0177205	.1342019	0	3

Table 2: OLS multi-regression Results

Linear regression

Number of obs	= 92,368
F(50, 680)	= 1876.64
Prob > F	= 0.0000
R-squared	= 0.7924
Root MSE	= 1.1234

(Std. err. adjusted for 681 clusters in state_district)

gen_edu	Coefficient	Robust std. err.	t	P>|t|	[95% conf.	interval]
Institution_type						
Government	.1471069	.0167206	8.80	0.000	.1142767	.1799371
Private aided	.0626277	.0169369	3.70	0.000	.0293728	.0958827
Not Known	.0680742	.074709	0.91	0.363	-.0786139	.2147622
Round						
75th	.1788121	.0358049	4.99	0.000	.1085108	.2491135
Change_insttn_365days						
No	.3121914	.0272424	11.46	0.000	.2587021	.3656807
Yes Govt-Private	.3268013	.0273481	11.95	0.000	.2731044	.3804982
Yes Private-Govt	.388947	.0267694	14.53	0.000	.3363864	.4415076
Yes Gov-Gov	.5796166	.029801	19.45	0.000	.5211036	.6381296
HH_Computer						
Yes	.0723917	.0128215	5.65	0.000	.0472172	.0975662
Private_coaching						
Yes	-.213269	.0149648	-14.25	0.000	-.2426517	-.1838863
Course_type						
Part Time	.3123271	.0753682	4.14	0.000	.1643447	.4603094
Sector						
Rural	-.0334753	.0129739	-2.58	0.010	-.0589489	-.0080016
age_entry	-.1256326	.0093981	-13.37	0.000	-.1440854	-.1071798
age	.4452024	.0025795	172.59	0.000	.4401377	.4502671
Gender						
Female	.1595429	.009929	16.07	0.000	.1400477	.1790381
others	.241356	.1685479	1.43	0.153	-.0895809	.5722928
Marital_status						
Currently Married	-.1859377	.0545354	-3.41	0.001	-.2930158	-.0788596
Widowed	-1.04565	.8104095	-1.29	0.197	-2.636855	.5455556
Divorced/Separated	-1.913308	.779014	-2.46	0.014	-3.44287	-.3837466
Social_group						
scheduled tribe	-.1264512	.0250458	-5.05	0.000	-.1756276	-.0772748
scheduled caste	-.0744212	.0160623	-4.63	0.000	-.1059587	-.0428836
other backward class	-.02057	.0131059	-1.57	0.117	-.0463028	.0051628

Table 3: OLS multi-regression Results continued

Religion						
Islam	-.0581601	.0213084	-2.73	0.007	-.0999983	-.0163219
Christianity	-.1863824	.0328806	-5.67	0.000	-.2509421	-.1218226
Sikhism	-.1481718	.0353709	-4.19	0.000	-.2176211	-.0787225
Jainism	.0015239	.0641435	0.02	0.981	-.1244192	.1274671
Buddhism	-.1025951	.0772295	-1.33	0.184	-.2542319	.0490418
Zoroastrianism	-.0291122	.5758246	-0.05	0.960	-1.15972	1.101496
others	.1315689	.0976296	1.35	0.178	-.0601228	.3232605
Medium_instruction						
Hindi	-.0051149	.0179474	-0.28	0.776	-.0403539	.0301241
lang_home	.0028114	.0007348	3.83	0.000	.0013687	.0042541
Free_education						
Yes	-.0986592	.0329902	-2.99	0.003	-.1634341	-.0338843
Tution_fee_wav						
Yes Fully	.0606093	.0278377	2.18	0.030	.0059511	.1152675
Yes Partly	.1256295	.0388784	3.23	0.001	.0492934	.2019656
Scholarship						
Yes	.0881168	.0185782	4.74	0.000	.0516393	.1245943
Textbooks	.0451879	.004666	9.68	0.000	.0360263	.0543495
Stationary	-.0238762	.0065243	-3.66	0.000	-.0366864	-.0110659
Midday_meal	.140394	.0228142	6.15	0.000	.0955992	.1851888
Transport_mode	.0419691	.0044955	9.34	0.000	.0331423	.0507959
Dist_inst	.0745697	.0035028	21.29	0.000	.0676921	.0814472
Distance_primary	-.0146492	.0144174	-1.02	0.310	-.0429571	.0136588
Distance_upper	-.0104168	.0094343	-1.10	0.270	-.0289407	.0081071
Distance_secondary	-.0260391	.0049703	-5.24	0.000	-.035798	-.0162802
acad_session	-.0047296	.0111026	-0.43	0.670	-.0265291	.0170699
other_exp	3.02e-06	1.02e-06	2.97	0.003	1.02e-06	5.03e-06
tot_exp	1.98e-06	2.70e-07	7.32	0.000	1.45e-06	2.50e-06
1.Internet	-.0820171	.0122914	-6.67	0.000	-.1061509	-.0578834
Present_class						
Yes	-.0504267	.0347977	-1.45	0.148	-.1187506	.0178972
Other	.3164407	.0832911	3.73	0.000	.146902	.4739794
hh_cons_exp	-4.01e-06	6.91e-07	-5.81	0.000	-5.37e-06	-2.65e-06
_cons	2.169909	.1555313	13.95	0.000	1.86453	2.475289

Table 4: simple OLS results using R

```
Call:
lm(formula = gen_edu ~ Institution_type, data = data)

Residuals:
    Min      1Q  Median      3Q     Max
-8.7759 -2.4267  0.3987  1.3987  6.5733

Coefficients:
                 Estimate Std. Error t value Pr(>|t|)
(Intercept)      9.775870   0.012625  774.35   <2e-16 ***
Institution_type -0.174585   0.009054  -19.28   <2e-16 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 2.46 on 92366 degrees of freedom
Multiple R-squared:  0.004009,  Adjusted R-squared:  0.003999
F-statistic: 371.8 on 1 and 92366 DF,  p-value: < 2.2e-16
```

Table 5: Simple OLS using the R, without fixed effects and clustering.

```
Call:
lm(formula = gen_edu ~ . - IID, data = data)

Residuals:
    Min      1Q  Median      3Q     Max
-7.6856 -0.6783 -0.1098  0.5158  5.5671

Coefficients: (1 not defined because of singularities)
                          Estimate Std. Error t value Pr(>|t|)
(Intercept)             2.514e+00  8.887e-02  28.288  < 2e-16 ***
Round                   2.100e-01  2.415e-02   8.694  < 2e-16 ***
age                     4.457e-01  1.117e-03 398.947  < 2e-16 ***
Free_education          1.091e-01  2.250e-02   4.849 1.24e-06 ***
Gender                 -1.680e-01  7.852e-03 -21.396  < 2e-16 ***
Institution_type       -7.377e-02  5.183e-03 -14.234  < 2e-16 ***
Medium_instruction     -2.099e-02  9.674e-03  -2.170   0.0300 *
Scholarship            -8.226e-02  1.124e-02  -7.319 2.51e-13 ***
Religion               -1.696e-02  3.790e-03  -4.475 7.67e-06 ***
Social_group            4.298e-02  4.310e-03   9.971  < 2e-16 ***
Course_type             3.264e-01  4.712e-02   6.927 4.33e-12 ***
Sector                  2.396e-02  8.870e-03   2.702   0.0069 **
Tution_fee_wav         -2.987e-02  9.666e-03  -3.090   0.0020 **
Textbooks               4.333e-02  3.488e-03  12.422  < 2e-16 ***
Stationary             -2.402e-02  5.816e-03  -4.130 3.64e-05 ***
Midday_meal             1.558e-01  1.829e-02   8.518  < 2e-16 ***
Transport_mode          4.206e-02  3.252e-03  12.935  < 2e-16 ***
HH_Computer            -6.820e-02  9.854e-03  -6.921 4.51e-12 ***
Internet               -8.106e-02  9.208e-03  -8.803  < 2e-16 ***
Present_class           1.056e-01  1.865e-02   5.658 1.53e-08 ***
Dist_inst               7.863e-02  2.302e-03  34.164  < 2e-16 ***
Private_coaching        2.143e-01  9.579e-03  22.375  < 2e-16 ***
Distance_primary       -1.663e-02  1.051e-02  -1.582   0.1136
Distance_upper         -1.254e-02  6.100e-03  -2.056   0.0398 *
Distance_secondary     -2.655e-02  3.504e-03  -7.576 3.59e-14 ***
state_district          2.635e-05  4.126e-06   6.387 1.70e-10 ***
psrl_no                -1.092e-02  2.353e-03  -4.643 3.44e-06 ***
other_exp               2.902e-06  6.428e-07   4.515 6.35e-06 ***
tot_exp                 1.959e-06  1.133e-07  17.284  < 2e-16 ***
age_entry              -1.282e-01  4.636e-03 -27.660  < 2e-16 ***
acad_session           -7.708e-03  5.387e-03  -1.431   0.1524
hh_cons_exp            -3.636e-06  4.836e-07  -7.520 5.54e-14 ***
Change_insttn_365days  -8.602e-02  4.258e-03 -20.200  < 2e-16 ***
Marital_status         -2.156e-01  2.868e-02  -7.515 5.76e-14 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 1.129 on 92334 degrees of freedom
Multiple R-squared:  0.7904,    Adjusted R-squared:  0.7903
F-statistic: 1.055e+04 on 33 and 92334 DF,  p-value: < 2.2e-16
```

Table 6: DID estimation using R, without fixed effects and clustering.

```
36 x 5 sparse Matrix of class "dgCMatrix"
                          s0       s24       s49           s74           s98
                  100.000000 10.722672 1.0476158  1.023531e-01  1.097499e-02
(Intercept)         9.589046  9.589046 5.4390008  2.044606e+00  2.343991e+00
Round               .         .        .          .             .
age                 .         .        0.2517696  4.457688e-01  4.480951e-01
Free_education      .         .        .          2.032089e-02  3.802927e-02
Gender              .         .        .          .            -1.391909e-01
Institution_type    .         .        .          .            -4.910898e-02
Medium_instruction  .         .        .          .             .
Scholarship         .         .        .          .            -4.607681e-02
Religion            .         .        .          .            -1.146294e-02
Social_group        .         .        .          .             3.171969e-02
Course_type         .         .        .          .             1.836485e-01
Sector              .         .        .          .             5.350764e-03
Tution_fee_wav      .         .        .          .            -5.200878e-02
Textbooks           .         .        .          1.482825e-02  3.262364e-02
Stationary          .         .        .          .             .
Midday_meal         .         .        .          7.100981e-02  1.448929e-01
Transport_mode      .         .        .          1.855184e-03  3.851462e-02
HH_Computer         .         .        .          .            -4.422359e-02
Internet            .         .        .         -1.102375e-02 -6.852676e-02
Present_class       .         .        .          .             6.042515e-02
Dist_inst           .         .        .          6.661974e-02  7.626935e-02
Private_coaching    .         .        .          .             1.861487e-01
Distance_primary    .         .        .          .             .
Distance_upper      .         .        .          .            -4.453140e-03
Distance_secondary  .         .        .          .            -2.317766e-02
state_district      .         .        .          .             1.892437e-05
psrl_no             .         .        .          .            -7.727022e-03
other_exp           .         .        .          .             1.498946e-06
tot_exp             .         .        .          8.050463e-07  1.686716e-06
age_entry           .         .        .         -2.813405e-02 -1.181893e-01
acad_session        .         .        .          .             .
hh_cons_exp         .         .        .          .            -1.048561e-06
Change_insttn_365days .       .        .          .            -4.181424e-02
Marital_status      .         .        .          .            -1.198289e-01
```

Table 7: Estimated Coefficient by Lasso

36 x 5 sparse Matrix of class "dgCMatrix"

	s0	s24	s49	s74	s98
	100.000000	10.722672	1.0476158	1.023531e-01	1.097499e-02
(Intercept)	9.589046	9.589046	5.4390008	2.044606e+00	2.343991e+00
Round	.	.	.	.	.
age	.	.	0.2517696	4.457688e-01	4.480951e-01
Free_education	.	.	.	2.032089e-02	3.802927e-02
Gender	.	.	.	.	-1.391909e-01
Institution_type	.	.	.	.	-4.910898e-02
Medium_instruction	.	.	.	.	.
Scholarship	.	.	.	.	-4.607681e-02
Religion	.	.	.	.	-1.146294e-02
Social_group	.	.	.	.	3.171969e-02
Course_type	.	.	.	.	1.836485e-01
Sector	.	.	.	.	5.350764e-03
Tution_fee_wav	.	.	.	.	-5.200878e-02
Textbooks	.	.	.	1.482825e-02	3.262364e-02
Stationary	.	.	.	.	.
Midday_meal	.	.	.	7.100981e-02	1.448929e-01
Transport_mode	.	.	.	1.855184e-03	3.851462e-02
HH_Computer	.	.	.	.	-4.422359e-02
Internet	.	.	.	-1.102375e-02	-6.852676e-02
Present_class	.	.	.	.	6.042515e-02
Dist_inst	.	.	.	6.661974e-02	7.626935e-02
Private_coaching	.	.	.	.	1.861487e-01
Distance_primary	.	.	.	.	.
Distance_upper	.	.	.	.	-4.453140e-03
Distance_secondary	.	.	.	.	-2.317766e-02
state_district	.	.	.	.	1.892437e-05
psrl_no	.	.	.	.	-7.727022e-03
other_exp	.	.	.	.	1.498946e-06
tot_exp	.	.	.	8.050463e-07	1.686716e-06
age_entry	.	.	.	-2.813405e-02	-1.181893e-01
acad_session	.	.	.	.	.
hh_cons_exp	.	.	.	.	-1.048561e-06
Change_insttn_365days	.	.	.	.	-4.181424e-02
Marital_status	.	.	.	.	-1.198289e-01

Figure 1: Plot of the Lasso coefficients

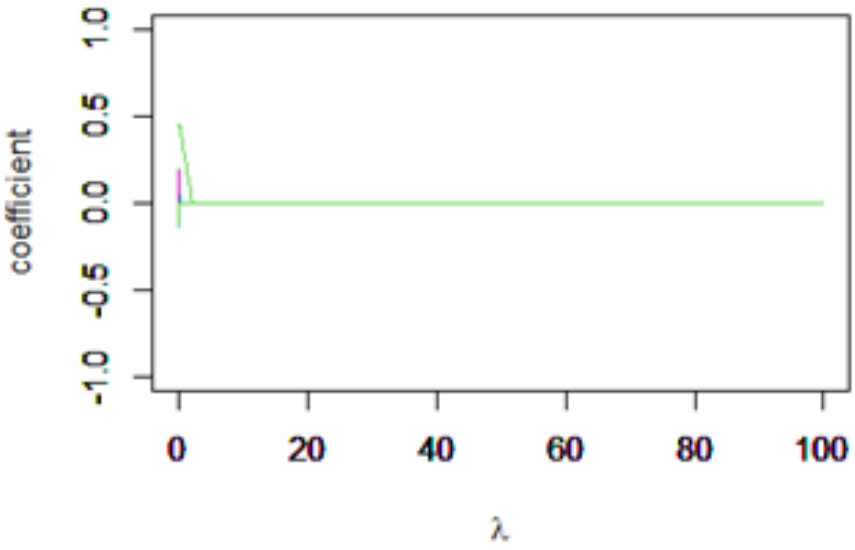

Figure 2: Plots of cross validation for Lasso coefficients

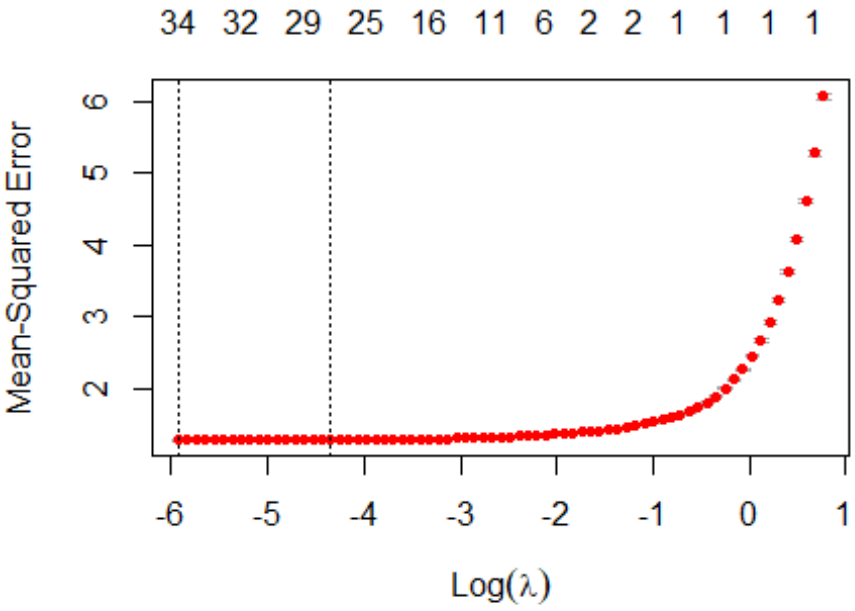

Table 8: The Lasso estimate under the best lambda

(Intercept)	2.466030e+00
Round	1.329012e-01
age	4.464263e-01
Free_education	7.761301e-02
Gender	-1.609082e-01
Institution_type	-6.888279e-02
Medium_instruction	-6.701214e-03
Scholarship	-7.412213e-02
Religion	-1.635394e-02
Social_group	4.009982e-02
Course_type	2.922897e-01
Sector	1.725656e-02
Tution_fee_wav	-4.287444e-02
Textbooks	4.024599e-02
Stationary	-1.731717e-02
Midday_meal	1.535241e-01
Transport_mode	4.139732e-02
HH_Computer	-6.145468e-02
Internet	-7.672385e-02
Present_class	9.522090e-02
Dist_inst	7.793046e-02
Private_coaching	2.078214e-01
Sector.1	1.253611e-03
Distance_primary	-1.085026e-02
Distance_upper	-1.113255e-02
Distance_secondary	-2.573745e-02
state_district	2.337565e-05
psrl_no	-9.897880e-03
other_exp	2.537568e-06
tot_exp	1.877695e-06
age_entry	-1.258530e-01
acad_session	-3.432810e-03
hh_cons_exp	-3.038819e-06
Change_insttn_365days	-7.261893e-02
Marital_status	-1.913800e-01

Table 9: DML results

```
------------------ Data summary      ------------------
Outcome variable: gen_edu
Treatment variable(s): Institution_type
Covariates: IID, Round, age, Free_education, Gender, Medium_instruction, Scholarship, Religion, Social_gro
up, Course_type, Sector, Tution_fee_wav, Textbooks, Stationary, Midday_meal, Transport_mode, HH_Computer,
 Internet, Present_class, Dist_inst, Private_coaching, Sector.1, Distance_primary, Distance_upper, Distanc
e_secondary, state_district, psrl_no, other_exp, tot_exp, age_entry, acad_session, hh_cons_exp, Change_ins
ttn_365days, Marital_status
Instrument(s):
No. Observations: 92368

------------------ Score & algorithm ------------------
Score function: partialling out
DML algorithm: dml2

------------------ Machine learner   ------------------
ml_l: regr.cv_glmnet
ml_m: regr.cv_glmnet

------------------ Resampling        ------------------
No. folds: 5
No. repeated sample splits: 1
Apply cross-fitting: TRUE

------------------ Fit summary       ------------------
 Estimates and significance testing of the effect of target variables
                 Estimate. Std. Error t value Pr(>|t|)
Institution_type -0.073851   0.005803  -12.72   <2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

8 References

1. *Muralidharan, K., Das, J., Holla, A., & Mohpal, A. (2017). The fiscal cost of weak governance: Evidence from teacher absence in India. Journal of Public Economics, 145, 116–135. https://doi.org/10.1016/j.jpubeco.2016.11.005*

2. *Muralidharan, K. (n.d.). Reforming the Indian School Education System.*

3. *Kingdon, G. G. (2007). The progress of school education in India. Oxford Review of Economic Policy, 23(2), 168–195. https://doi.org/10.1093/icb/grm015*

4. *Dey, P., & Bandyopadhyay, S. (2019). Blended learning to improve quality of primary education among underprivileged school children in India. Education and Information Technologies, 24(3), 1995–2016. https://doi.org/10.1007/s10639-018-9832-1*

5. *Aithal, P. S., & Aithal, S. (2020). Analysis of the Indian National Education Policy 2020 towards Achieving its Objectives. https://ssrn.com/abstract=3676074*