

# PISA2012\_wenchit

## Abstract

In this research, I want to explore the education resource distribution in Australia. For insatnce, comparing the education resources between remote and city areas and the discrepancies between private or public schools. Based on the PISA2012 mathematics literacy survey data. Also, I will break down the resource allocation within different states across Australia.

## Introduction

- PISA2012: the term PISA stands for Programme for International Student Assessment is a survey that randomly select 15 year-old students as samples for assessment. In 2012, a total of 65 OECD countries and economics and about half a million 15 year-old students participated in the PISA assessment. Generally, the assessed reaults lies in 5 categories: Level 5 are high performers, whereas students who lies below the international standard baseline level 2 are cosidered low performers. In 2012, 775 Australian schools and 14,481 studnets participated in this assessment. To ensure the authenticity, an amount of indigenious students were also sampled.
- Mathematic Lieteracy: in the mathematic literacy domain, the assessment focused on students' ability to solve mathematic problems described in a real-life situation. In PISA2012 framework(OECD2012, p25), it defined mathematic literacy as follows: Mathematic literacy is an individual's capacity to formulate, employ and interpret mathematics in a variety of contexts. It includes reasoning mathematically nd using mathematical concepts, procedures, facts and tools to describe, explain and predict phenomena. It assists individuals to recognise the role that Mathematics plays in the world and to make the well-founded judgments and decisions needed by constructive, engaged and reflective citizens.

## 6-levels of student performances

According to the technical manual released by PISA, on a performance level of 1~6, students are supposed to be able to:

Level6: conceptualise, generalise and use information.They are capable of advanced mathematical thinking and reasoning; have a mastery of symbolic and formal mathematical operations and relationships; and can formulate and precisely communicate their ndings, interpretations and arguments.

Level5: develop and work with models for complex situations; select, compare and evaluate appropriate problem-solving strategies for dealing with complex problems; work strategically using broad, well-developed thinking and reasoning skills; and re ect on their work and formulate and communicate their interpretations and reasoning.

Level4: work effectively with explicit models for complex, concrete situations; select and integrate different representations, including symbolic representations; utilise their skills and reason with insight; and construct and communicate explanations and arguments.

Level3: execute clearly described procedures, including those that require sequential decisions; select and apply simple problem-solving strategies; interpret and use representations; typically show some ability to handle percentages, fractions and decimal numbers, and to work with proportional relationships; and provide solutions that re ect that they have engaged in basic interpretation and reasoning.

Level2: interpret and recognise situations in contexts that require no more than direct inference; extract relevant information from a single source and make use of a single representational mode; employ basic

algorithms, formulas, procedures or conventions to solve problems involving whole numbers; and make literal interpretations of the results.

Level1: answer questions involving familiar contexts where all relevant information is present and the questions are clearly defined; identify information and carry out routine procedures; and perform actions that are almost always obvious and follow immediately from the given stimuli.

Below 1: not demonstrate even the most basic types of mathematical literacy that PISA measures. These students are likely to be seriously disadvantaged in their lives beyond school.

## Overview of Australian Education System:

### Methods

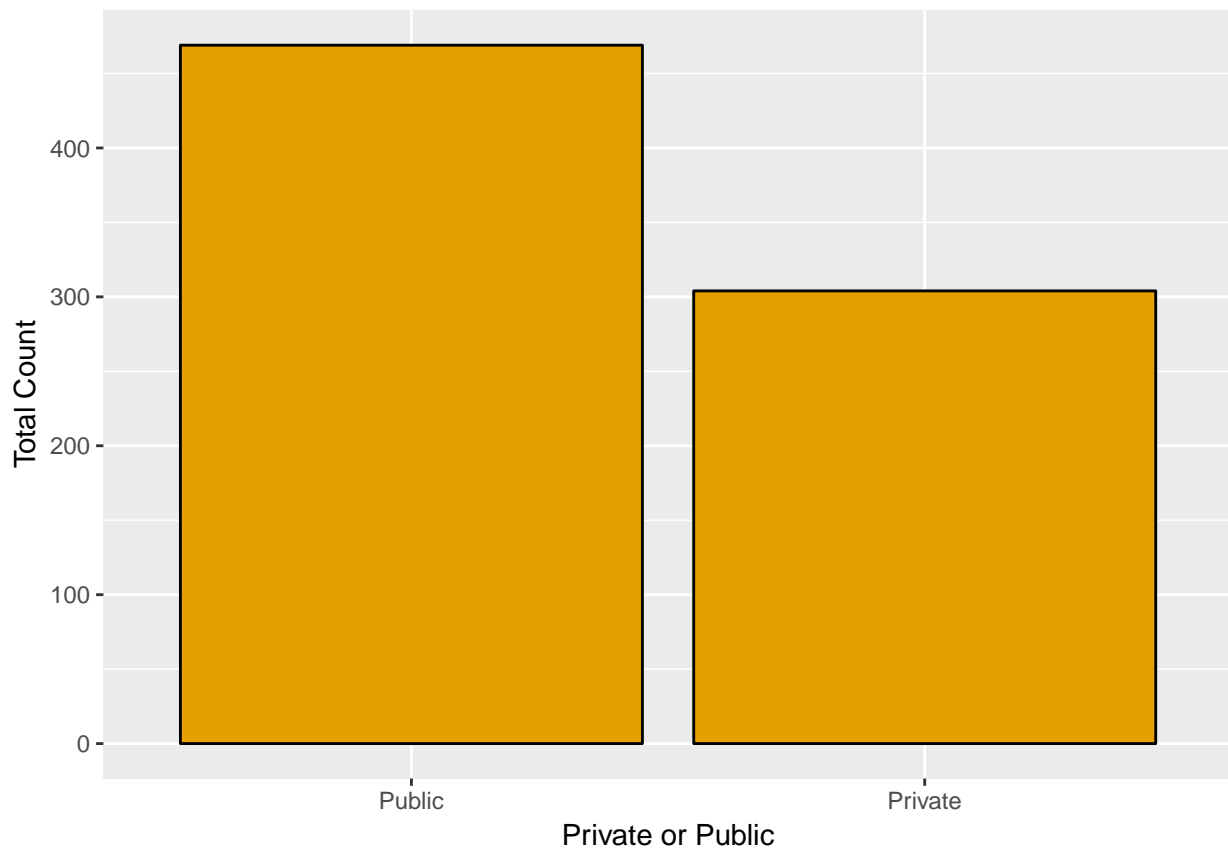
Linear Regression Model:

### Results

The following graph shows the amount of private and public schools in Australia that participated:

```
library(data.table)
library(ggplot2)
library(PISA2012lite)
data("school2012")
setDT(school2012)

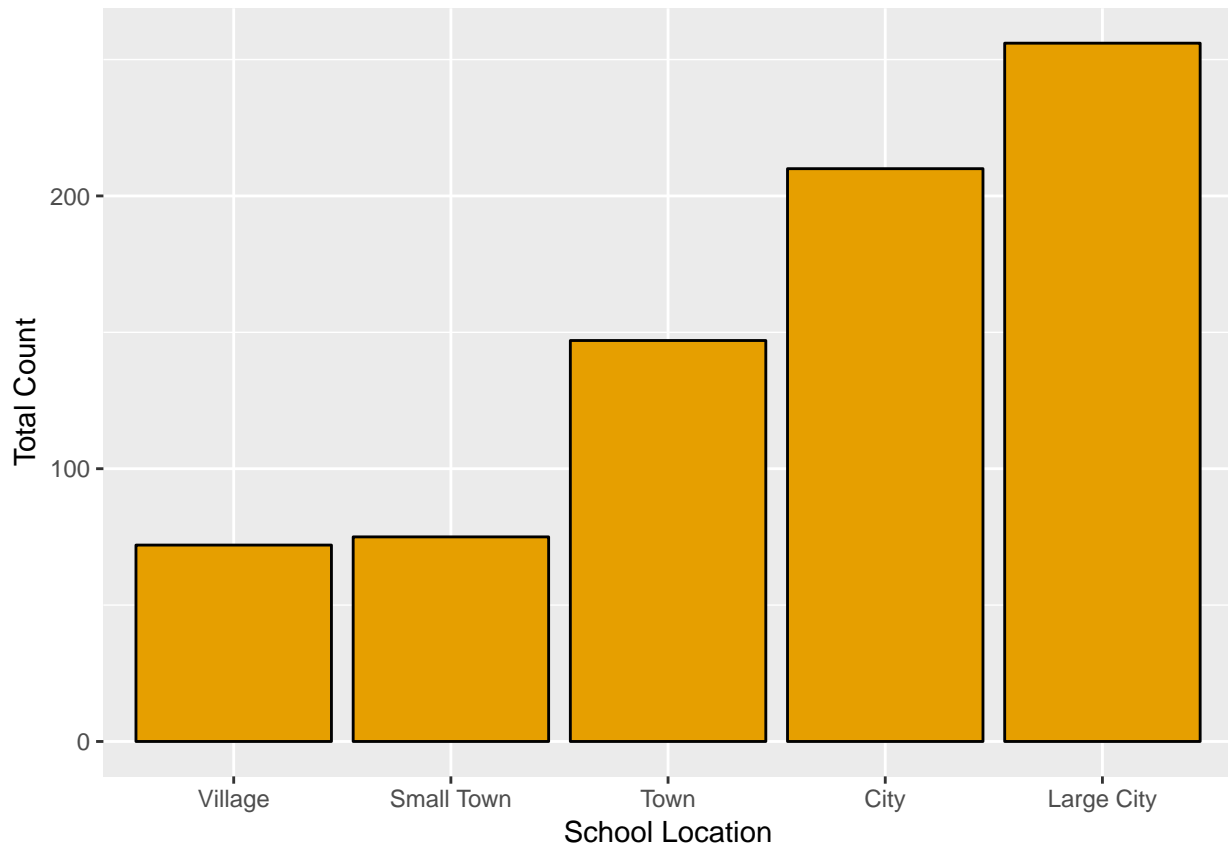
ggplot(school2012[NC == "Australia" & !is.na(SC01Q01)], aes(SC01Q01))+geom_bar(fill="#E69F00", colour="")
```



The following is a graph about the distribution of schools in Australia that participated:

```
library(data.table)
library(ggplot2)
library(PISA2012lite)
data("school2012")
setDT(school2012)

ggplot(school2012[NC == "Australia" & !is.na(SC03Q01)], aes(SC03Q01))+geom_bar(fill="#E69F00", colour="l
```



The following is a calculation of math literacy scores by schools participated all across Australia and summarise by its house weight and to obtain coefficient in the null model:

```
library(data.table)
library(ggplot2)
library(PISA2012lite)
library(dplyr)
```

```
##
## Attaching package: 'dplyr'
## The following objects are masked from 'package:data.table':
##
##   between, first, last
## The following objects are masked from 'package:stats':
##
##   filter, lag
## The following objects are masked from 'package:base':
##
##   intersect, setdiff, setequal, union
```

```
library(lme4)
```

```
## Loading required package: Matrix
```

```
data("computerStudent2012")
setDT(computerStudent2012)
```

```

n <- nrow(computerStudent2012)
computerStudent2012$W_HOUSEWHT <- n * computerStudent2012$W_FSTUWT / sum(computerStudent2012$W_FSTUWT)
#calculate the weighted average of math literacy scores
computerStudent2012[NC == "Australia"] %>%
  group_by(SCHOOLID) %>%
  summarise(avg1 = weighted.mean(PV1MATH, w = W_HOUSEWHT),
            avg2 = weighted.mean(PV2MATH, w = W_HOUSEWHT),
            avg3 = weighted.mean(PV3MATH, w = W_HOUSEWHT),
            avg4 = weighted.mean(PV4MATH, w = W_HOUSEWHT),
            avg5 = weighted.mean(PV5MATH, w = W_HOUSEWHT))

```

```

## # A tibble: 775 x 6
##   SCHOOLID      avg1      avg2      avg3      avg4      avg5
##   <fctr>      <dbl>      <dbl>      <dbl>      <dbl>      <dbl>
## 1 0000001 562.9773 563.0642 557.2236 550.6187 560.6689
## 2 0000002 480.2559 473.3907 481.8387 488.1247 487.0239
## 3 0000003 566.4070 569.7896 566.5811 566.5373 572.0523
## 4 0000004 429.4231 426.4171 428.7314 423.4471 429.4883
## 5 0000005 464.8072 463.8441 468.1523 462.1294 463.0331
## 6 0000006 500.0640 500.1979 500.1992 507.6422 492.1958
## 7 0000007 484.0204 487.3520 489.1637 490.5680 491.3420
## 8 0000008 554.4547 550.9288 552.8818 564.7380 562.3734
## 9 0000009 431.5852 424.3332 426.7728 421.0411 419.9937
## 10 0000010 600.4370 608.4486 614.2269 605.2695 607.1005
## # ... with 765 more rows

```

```

HLM0 <- lmer(PV1MATH ~ (1 | SCHOOLID), data = computerStudent2012[NC == "Australia"],
            weights = W_HOUSEWHT)
coef(HLM0)

```

```

## $SCHOOLID
##      (Intercept)
## 0000001    558.1452
## 0000002    481.6561
## 0000003    552.8444
## 0000004    439.4489
## 0000005    469.2032
## 0000006    499.6718
## 0000007    485.3505
## 0000008    513.9909
## 0000009    467.8384
## 0000010    591.2107
## 0000011    484.4234
## 0000012    471.7084
## 0000013    534.6055
## 0000014    527.8554
## 0000015    518.6116
## 0000016    475.9294
## 0000017    550.5328
## 0000018    534.0935
## 0000019    524.9475
## 0000020    477.9690
## 0000021    507.1664
## 0000022    481.5385

```

##	0000023	579.5697
##	0000024	456.5082
##	0000025	518.1436
##	0000026	468.6530
##	0000027	482.8007
##	0000028	475.5134
##	0000029	565.7531
##	0000030	514.8463
##	0000031	537.4165
##	0000032	519.0488
##	0000033	498.1309
##	0000034	526.5159
##	0000035	490.7847
##	0000036	585.7411
##	0000037	496.5786
##	0000038	526.2593
##	0000039	443.3144
##	0000040	588.7817
##	0000041	467.3735
##	0000042	485.5633
##	0000043	480.0238
##	0000044	489.9971
##	0000045	509.4229
##	0000046	468.8630
##	0000047	476.7685
##	0000048	485.3008
##	0000049	472.0048
##	0000050	503.7824
##	0000051	443.9200
##	0000052	522.6811
##	0000053	520.6505
##	0000054	465.2311
##	0000055	503.1370
##	0000056	457.3121
##	0000057	550.2018
##	0000058	389.3434
##	0000059	481.5072
##	0000060	490.6869
##	0000061	506.8762
##	0000062	482.8096
##	0000063	558.1961
##	0000064	472.0226
##	0000065	506.6900
##	0000066	504.5718
##	0000067	478.2891
##	0000068	434.4440
##	0000069	479.2346
##	0000070	509.4719
##	0000071	566.0858
##	0000072	543.7573
##	0000073	491.8434
##	0000074	418.6936
##	0000075	437.1864
##	0000076	457.8476

##	0000077	505.4514
##	0000078	544.2461
##	0000079	494.1511
##	0000080	452.8057
##	0000081	456.3481
##	0000082	483.8727
##	0000083	437.9389
##	0000084	461.3591
##	0000085	487.2761
##	0000086	512.5354
##	0000087	507.4641
##	0000088	519.3806
##	0000089	439.8106
##	0000090	585.6705
##	0000091	548.1725
##	0000092	396.7012
##	0000093	588.6899
##	0000094	462.7173
##	0000095	521.0223
##	0000096	502.8503
##	0000097	451.8081
##	0000098	508.6060
##	0000099	472.2096
##	0000100	442.8664
##	0000101	519.7749
##	0000102	490.1434
##	0000103	515.7622
##	0000104	486.6528
##	0000105	562.6331
##	0000106	417.0778
##	0000107	449.8446
##	0000108	551.6524
##	0000109	510.5784
##	0000110	527.1307
##	0000111	442.4468
##	0000112	504.1742
##	0000113	481.4880
##	0000114	475.4265
##	0000115	481.2968
##	0000116	499.4135
##	0000117	538.1326
##	0000118	476.1345
##	0000119	482.0227
##	0000120	499.1086
##	0000121	446.9551
##	0000122	413.8237
##	0000123	484.5421
##	0000124	541.0780
##	0000125	580.0117
##	0000126	477.4793
##	0000127	539.5544
##	0000128	518.2971
##	0000129	511.3565
##	0000130	490.0662

##	0000131	481.4483
##	0000132	554.4420
##	0000133	530.9804
##	0000134	537.7942
##	0000135	493.5051
##	0000136	356.4882
##	0000137	500.6695
##	0000138	502.4322
##	0000139	500.0389
##	0000140	509.6267
##	0000141	474.4023
##	0000142	532.3602
##	0000143	545.1839
##	0000144	511.3603
##	0000145	549.5130
##	0000146	554.5257
##	0000147	450.5420
##	0000148	412.9531
##	0000149	544.6707
##	0000150	534.7757
##	0000151	488.3771
##	0000152	457.0894
##	0000153	488.4839
##	0000154	470.6353
##	0000155	518.2707
##	0000156	568.2255
##	0000157	505.8860
##	0000158	519.0835
##	0000159	502.2341
##	0000160	569.8015
##	0000161	472.7555
##	0000162	495.7912
##	0000163	473.5971
##	0000164	492.3745
##	0000165	460.4067
##	0000166	422.6249
##	0000167	505.5081
##	0000168	482.8425
##	0000169	517.2701
##	0000170	445.4989
##	0000171	487.3492
##	0000172	547.1362
##	0000173	521.2790
##	0000174	468.8800
##	0000175	417.5754
##	0000176	485.4807
##	0000177	467.1566
##	0000178	472.1814
##	0000179	492.8271
##	0000180	495.1970
##	0000181	399.8707
##	0000182	477.9111
##	0000183	420.9657
##	0000184	477.7021



##	0000185	535.2200
##	0000186	565.2546
##	0000187	479.2314
##	0000188	566.9792
##	0000189	596.1796
##	0000190	483.0470
##	0000191	462.3609
##	0000192	495.7976
##	0000193	558.5009
##	0000194	465.9804
##	0000195	410.6564
##	0000196	508.2320
##	0000197	511.0318
##	0000198	468.1000
##	0000199	407.9439
##	0000200	482.1696
##	0000201	441.7080
##	0000202	436.0039
##	0000203	480.4504
##	0000204	510.8111
##	0000205	588.1564
##	0000206	512.6437
##	0000207	506.8383
##	0000208	454.4539
##	0000209	452.0835
##	0000210	461.6567
##	0000211	495.1524
##	0000212	559.0865
##	0000213	482.9897
##	0000214	556.4943
##	0000215	508.2861
##	0000216	478.1666
##	0000217	471.5752
##	0000218	496.1953
##	0000219	434.6070
##	0000220	436.0982
##	0000221	484.4709
##	0000222	475.0080
##	0000223	537.8533
##	0000224	487.3098
##	0000225	609.3984
##	0000226	487.7007
##	0000227	496.0213
##	0000228	499.1558
##	0000229	435.0184
##	0000230	448.1188
##	0000231	527.0961
##	0000232	482.3727
##	0000233	477.9291
##	0000234	497.6228
##	0000235	496.6685
##	0000236	506.8251
##	0000237	471.8039
##	0000238	469.5956

##	0000239	477.0794
##	0000240	504.2696
##	0000241	479.7485
##	0000242	495.3552
##	0000243	502.5310
##	0000244	362.8419
##	0000245	458.0492
##	0000246	643.7996
##	0000247	532.1894
##	0000248	498.0807
##	0000249	491.7492
##	0000250	523.3124
##	0000251	417.0811
##	0000252	473.1264
##	0000253	616.1499
##	0000254	433.5398
##	0000255	476.0439
##	0000256	422.8784
##	0000257	538.5366
##	0000258	496.4691
##	0000259	565.4047
##	0000260	640.6015
##	0000261	590.4398
##	0000262	533.3608
##	0000263	537.6626
##	0000264	579.4122
##	0000265	444.2296
##	0000266	515.8585
##	0000267	463.7064
##	0000268	498.8913
##	0000269	476.3519
##	0000270	461.8610
##	0000271	468.2004
##	0000272	528.6214
##	0000273	481.9493
##	0000274	486.4386
##	0000275	522.6649
##	0000276	474.4013
##	0000277	513.3607
##	0000278	354.9671
##	0000279	468.5287
##	0000280	498.6262
##	0000281	534.3491
##	0000282	426.4914
##	0000283	441.1767
##	0000284	534.3517
##	0000285	503.2484
##	0000286	515.6997
##	0000287	460.9688
##	0000288	516.0500
##	0000289	525.7421
##	0000290	467.6702
##	0000291	458.0856
##	0000292	478.6633

##	0000293	479.6077
##	0000294	513.5536
##	0000295	545.1892
##	0000296	535.8114
##	0000297	549.2445
##	0000298	446.9000
##	0000299	479.9890
##	0000300	497.7657
##	0000301	467.3927
##	0000302	481.7705
##	0000303	478.6482
##	0000304	523.9972
##	0000305	481.0934
##	0000306	653.6574
##	0000307	461.5037
##	0000308	490.5111
##	0000309	476.2189
##	0000310	588.5623
##	0000311	503.3354
##	0000312	490.5796
##	0000313	514.8705
##	0000314	518.7042
##	0000315	443.7140
##	0000316	525.4688
##	0000317	627.4869
##	0000318	429.7976
##	0000319	669.3292
##	0000320	545.3790
##	0000321	493.4618
##	0000322	427.4400
##	0000323	530.4459
##	0000324	439.5773
##	0000325	475.5619
##	0000326	501.8364
##	0000327	535.9171
##	0000328	533.4440
##	0000329	477.1041
##	0000330	472.2545
##	0000331	544.4644
##	0000332	454.9109
##	0000333	483.9835
##	0000334	510.3464
##	0000335	557.4305
##	0000336	572.5625
##	0000337	571.1090
##	0000338	490.6354
##	0000339	474.1884
##	0000340	498.6240
##	0000341	522.5573
##	0000342	440.3122
##	0000343	447.1615
##	0000344	514.1361
##	0000345	456.7862
##	0000346	536.9497

##	0000347	575.7971
##	0000348	430.0893
##	0000349	467.1594
##	0000350	481.1283
##	0000351	515.6388
##	0000352	566.3442
##	0000353	542.2360
##	0000354	427.9252
##	0000355	619.6104
##	0000356	545.3753
##	0000357	499.3457
##	0000358	486.5410
##	0000359	480.6017
##	0000360	480.0931
##	0000361	445.7366
##	0000362	498.9744
##	0000363	502.3372
##	0000364	496.4397
##	0000365	495.8849
##	0000366	479.9984
##	0000367	486.4202
##	0000368	485.4726
##	0000369	479.9607
##	0000370	494.1920
##	0000371	548.6865
##	0000372	499.1516
##	0000373	488.6412
##	0000374	544.4888
##	0000375	466.7152
##	0000376	520.1234
##	0000377	464.7514
##	0000378	556.8738
##	0000379	515.5542
##	0000380	456.3370
##	0000381	448.4242
##	0000382	479.6055
##	0000383	510.3599
##	0000384	504.6657
##	0000385	447.4982
##	0000386	502.0026
##	0000387	464.7534
##	0000388	520.1730
##	0000389	483.5506
##	0000390	470.3366
##	0000391	430.0398
##	0000392	517.1055
##	0000393	512.4075
##	0000394	484.3002
##	0000395	528.3363
##	0000396	500.5534
##	0000397	445.4404
##	0000398	476.9079
##	0000399	472.4609
##	0000400	432.0632

##	0000401	505.2876
##	0000402	497.0395
##	0000403	475.2429
##	0000404	474.0575
##	0000405	533.2342
##	0000406	512.0926
##	0000407	494.9639
##	0000408	438.3338
##	0000409	464.0891
##	0000410	439.9841
##	0000411	503.4937
##	0000412	502.0934
##	0000413	483.4331
##	0000414	492.6281
##	0000415	448.1043
##	0000416	459.4573
##	0000417	635.8693
##	0000418	360.8077
##	0000419	457.9308
##	0000420	486.2198
##	0000421	492.4922
##	0000422	488.0897
##	0000423	465.7307
##	0000424	405.6530
##	0000425	538.2370
##	0000426	550.8094
##	0000427	482.5809
##	0000428	505.6586
##	0000429	461.1312
##	0000430	427.6902
##	0000431	482.2431
##	0000432	542.8416
##	0000433	444.9024
##	0000434	512.0989
##	0000435	465.9533
##	0000436	485.4405
##	0000437	428.4920
##	0000438	648.2331
##	0000439	573.4123
##	0000440	478.9614
##	0000441	464.1847
##	0000442	466.6518
##	0000443	530.0897
##	0000444	492.4548
##	0000445	456.5929
##	0000446	469.2208
##	0000447	540.7844
##	0000448	714.1610
##	0000449	490.2053
##	0000450	472.7676
##	0000451	507.2011
##	0000452	484.9788
##	0000453	459.0310
##	0000454	414.0623

##	0000455	471.3660
##	0000456	572.3543
##	0000457	460.2897
##	0000458	465.1500
##	0000459	568.9318
##	0000460	470.3760
##	0000461	491.0592
##	0000462	504.7781
##	0000463	533.0466
##	0000464	472.6717
##	0000465	460.7122
##	0000466	569.6081
##	0000467	542.2187
##	0000468	567.3251
##	0000469	473.2479
##	0000470	478.9640
##	0000471	551.5380
##	0000472	552.4150
##	0000473	411.1087
##	0000474	505.3604
##	0000475	461.6199
##	0000476	545.6238
##	0000477	486.4910
##	0000478	518.4930
##	0000479	509.4761
##	0000480	538.7031
##	0000481	387.0037
##	0000482	541.9458
##	0000483	486.3804
##	0000484	578.2214
##	0000485	488.9641
##	0000486	460.4108
##	0000487	564.7195
##	0000488	458.4705
##	0000489	513.6732
##	0000490	546.4518
##	0000491	459.9710
##	0000492	485.0832
##	0000493	454.2646
##	0000494	518.2635
##	0000495	539.7022
##	0000496	549.4995
##	0000497	509.3330
##	0000498	559.9278
##	0000499	462.5961
##	0000500	473.1066
##	0000501	440.2341
##	0000502	463.4620
##	0000503	512.4918
##	0000504	490.2356
##	0000505	516.8193
##	0000506	518.4828
##	0000507	519.1894
##	0000508	532.7864

##	0000509	490.6318
##	0000510	465.8859
##	0000511	472.1970
##	0000512	494.6417
##	0000513	442.5864
##	0000514	523.6839
##	0000515	500.5843
##	0000516	572.6958
##	0000517	488.5486
##	0000518	500.4719
##	0000519	462.8273
##	0000520	453.0447
##	0000521	495.2216
##	0000522	585.1381
##	0000523	550.6624
##	0000524	573.6431
##	0000525	585.0034
##	0000526	423.0481
##	0000527	460.6019
##	0000528	449.9982
##	0000529	341.9924
##	0000530	443.4545
##	0000531	436.9276
##	0000532	525.3413
##	0000533	511.8604
##	0000534	597.4463
##	0000535	448.0037
##	0000536	535.1021
##	0000537	512.8836
##	0000538	497.6731
##	0000539	518.7000
##	0000540	452.2868
##	0000541	454.1031
##	0000542	558.5744
##	0000543	457.8699
##	0000544	530.6771
##	0000545	475.9267
##	0000546	473.8777
##	0000547	546.5300
##	0000548	555.2529
##	0000549	520.9002
##	0000550	547.8327
##	0000551	468.4760
##	0000552	510.1147
##	0000553	447.6166
##	0000554	416.7776
##	0000555	504.3238
##	0000556	534.0974
##	0000557	492.5027
##	0000558	491.3965
##	0000559	417.1179
##	0000560	518.8881
##	0000561	433.1740
##	0000562	499.7909

##	0000563	571.5384
##	0000564	551.0691
##	0000565	476.5331
##	0000566	505.6954
##	0000567	499.4513
##	0000568	552.5512
##	0000569	526.3341
##	0000570	538.3947
##	0000571	502.9933
##	0000572	454.0176
##	0000573	579.4916
##	0000574	522.7687
##	0000575	421.5011
##	0000576	439.7761
##	0000577	564.5585
##	0000578	504.2130
##	0000579	416.9023
##	0000580	532.2309
##	0000581	528.1231
##	0000582	480.3600
##	0000583	537.0674
##	0000584	473.3557
##	0000585	535.6618
##	0000586	501.0375
##	0000587	518.0218
##	0000588	491.1885
##	0000589	507.1078
##	0000590	446.1626
##	0000591	497.1359
##	0000592	468.5216
##	0000593	436.7245
##	0000594	573.7644
##	0000595	576.9077
##	0000596	492.0568
##	0000597	520.2211
##	0000598	458.9812
##	0000599	537.8347
##	0000600	437.8070
##	0000601	501.7553
##	0000602	519.9962
##	0000603	526.7304
##	0000604	565.0877
##	0000605	553.9802
##	0000606	489.6677
##	0000607	564.0991
##	0000608	520.5389
##	0000609	461.8599
##	0000610	691.2291
##	0000611	554.2488
##	0000612	512.2113
##	0000613	470.1019
##	0000614	484.1958
##	0000615	474.1339
##	0000616	441.2250



##	0000617	515.1010
##	0000618	482.7221
##	0000619	479.9185
##	0000620	497.9411
##	0000621	503.1109
##	0000622	502.4820
##	0000623	481.7162
##	0000624	369.7627
##	0000625	540.5293
##	0000626	484.4711
##	0000627	496.6360
##	0000628	488.2931
##	0000629	499.9069
##	0000630	525.1175
##	0000631	483.5046
##	0000632	443.9285
##	0000633	478.9309
##	0000634	504.0363
##	0000635	497.7724
##	0000636	622.5022
##	0000637	431.7881
##	0000638	513.4125
##	0000639	507.1808
##	0000640	441.3327
##	0000641	495.4311
##	0000642	500.5815
##	0000643	462.4135
##	0000644	491.9787
##	0000645	455.9126
##	0000646	468.7520
##	0000647	492.9258
##	0000648	516.7121
##	0000649	567.0359
##	0000650	466.1822
##	0000651	468.0797
##	0000652	442.1469
##	0000653	509.9985
##	0000654	444.3609
##	0000655	507.2056
##	0000656	491.1812
##	0000657	488.9637
##	0000658	512.0676
##	0000659	525.4506
##	0000660	524.0748
##	0000661	476.2396
##	0000662	513.0980
##	0000663	468.7676
##	0000664	575.5332
##	0000665	507.4099
##	0000666	483.4978
##	0000667	533.2792
##	0000668	520.5908
##	0000669	453.6883
##	0000670	481.7761

##	0000671	476.9569
##	0000672	524.5158
##	0000673	484.8538
##	0000674	552.7196
##	0000675	493.4270
##	0000676	540.8203
##	0000677	530.3659
##	0000678	541.6167
##	0000679	482.1808
##	0000680	478.1214
##	0000681	477.6234
##	0000682	488.6274
##	0000683	523.4213
##	0000684	485.1123
##	0000685	486.9420
##	0000686	517.8108
##	0000687	461.7189
##	0000688	501.3369
##	0000689	458.5718
##	0000690	427.0338
##	0000691	473.2848
##	0000692	456.4561
##	0000693	532.8810
##	0000694	486.9212
##	0000695	538.1597
##	0000696	568.1440
##	0000697	504.0285
##	0000698	589.6584
##	0000699	579.7931
##	0000700	482.4568
##	0000701	546.4230
##	0000702	525.9540
##	0000703	485.1911
##	0000704	435.9847
##	0000705	466.4350
##	0000706	437.1386
##	0000707	506.1049
##	0000708	559.6676
##	0000709	551.0327
##	0000710	467.0964
##	0000711	463.2124
##	0000712	463.6005
##	0000713	523.4729
##	0000714	472.8172
##	0000715	499.7686
##	0000716	526.4884
##	0000717	520.6023
##	0000718	474.5505
##	0000719	441.5942
##	0000720	577.9338
##	0000721	477.4387
##	0000722	487.2230
##	0000723	523.9967
##	0000724	504.4243

```

## 0000725    536.7743
## 0000726    581.4611
## 0000727    447.4198
## 0000728    522.9297
## 0000729    519.8927
## 0000730    534.5170
## 0000731    491.1171
## 0000732    535.3480
## 0000733    485.5769
## 0000734    479.0053
## 0000735    494.4312
## 0000736    530.0695
## 0000737    497.9100
## 0000738    522.8790
## 0000739    503.5093
## 0000740    507.2024
## 0000741    476.3648
## 0000742    496.3255
## 0000743    417.2078
## 0000744    486.2262
## 0000745    566.9701
## 0000746    482.4958
## 0000747    553.4471
## 0000748    470.5234
## 0000749    501.5386
## 0000750    475.6493
## 0000751    591.1865
## 0000752    558.0972
## 0000753    485.9380
## 0000754    555.6515
## 0000755    553.1252
## 0000756    652.9831
## 0000757    503.1890
## 0000758    424.3233
## 0000759    487.1205
## 0000760    441.9002
## 0000761    469.3007
## 0000762    461.2432
## 0000763    495.7598
## 0000764    491.4668
## 0000765    602.0774
## 0000766    459.3922
## 0000767    560.7471
## 0000768    455.0321
## 0000769    552.5088
## 0000770    469.8200
## 0000771    533.1218
## 0000772    512.9737
## 0000773    470.1954
## 0000774    522.2981
## 0000775    449.2193
##
## attr(,"class")
## [1] "coef.mer"

```

```
summary(HLM0)
```

```
## Linear mixed model fit by REML ['lmerMod']
## Formula: PV1MATH ~ (1 | SCHOOLID)
## Data: computerStudent2012[NC == "Australia"]
## Weights: W_HOUSEWHT
##
## REML criterion at convergence: 174059.9
##
## Scaled residuals:
##      Min       1Q   Median       3Q      Max
## -4.5983 -0.6028 -0.0587  0.5508  4.5737
##
## Random effects:
##   Groups   Name      Variance Std.Dev.
## SCHOOLID (Intercept) 2598     50.97
## Residual             1850     43.01
## Number of obs: 14481, groups: SCHOOLID, 775
##
## Fixed effects:
##              Estimate Std. Error t value
## (Intercept)  498.342     2.019    246.8
```

The following considering the socio-economic state of the student

```
library(data.table)
library(ggplot2)
library(PISA2012lite)
library(dplyr)
library(lme4)
data("computerStudent2012")
setDT(computerStudent2012)
n <- nrow(computerStudent2012)
computerStudent2012$W_HOUSEWHT <- n * computerStudent2012$W_FSTUWT / sum(computerStudent2012$W_FSTUWT)
HLM1 <- lmer(PV1MATH ~ ESCS + (1 + ESCS | SCHOOLID), data = computerStudent2012[NC == "Australia"],
             weights = W_HOUSEWHT)
coef(HLM1)
```

```
## $SCHOOLID
##      (Intercept)      ESCS
## 0000001    544.9697 17.143818
## 0000002    472.0703 28.736946
## 0000003    530.0582 30.924173
## 0000004    443.3514 31.296095
## 0000005    473.8890 32.783435
## 0000006    491.5708 34.275076
## 0000007    482.9950 28.996088
## 0000008    502.6270 29.814832
## 0000009    476.5791 30.152791
## 0000010    566.3867 23.815401
## 0000011    495.4427 32.746754
## 0000012    465.9500 36.874991
## 0000013    511.7825 29.812434
## 0000014    518.4852 29.049712
## 0000015    494.7104 35.177435
```

## 0000016	480.8657	26.742745
## 0000017	530.3024	26.397292
## 0000018	512.8186	30.976486
## 0000019	514.8354	26.298626
## 0000020	480.3690	25.491488
## 0000021	501.1339	39.841445
## 0000022	487.4740	26.435158
## 0000023	562.8046	23.152410
## 0000024	453.0265	28.200282
## 0000025	527.3138	37.516772
## 0000026	468.9539	19.386600
## 0000027	472.7759	32.096893
## 0000028	479.9996	25.334324
## 0000029	554.0275	28.548961
## 0000030	504.2324	32.447251
## 0000031	518.5912	34.823752
## 0000032	508.9338	32.310906
## 0000033	510.0798	30.969376
## 0000034	508.7048	28.735596
## 0000035	480.3725	24.796603
## 0000036	551.2801	31.585017
## 0000037	482.3658	36.592044
## 0000038	503.9028	33.549852
## 0000039	463.4019	33.643525
## 0000040	558.6205	25.301088
## 0000041	462.0696	29.990682
## 0000042	483.8584	40.739694
## 0000043	482.3689	28.421407
## 0000044	481.4071	26.539487
## 0000045	515.8987	27.992597
## 0000046	475.3069	27.400953
## 0000047	478.4422	27.023564
## 0000048	468.4737	30.562106
## 0000049	477.5787	28.033388
## 0000050	507.0144	21.016564
## 0000051	446.7365	9.665503
## 0000052	526.0389	39.156063
## 0000053	508.0667	34.184903
## 0000054	471.1676	27.893168
## 0000055	498.0379	19.260060
## 0000056	468.6008	23.454652
## 0000057	529.6076	36.231930
## 0000058	429.3811	36.587545
## 0000059	486.6369	21.564604
## 0000060	484.2420	29.325828
## 0000061	500.7591	27.696445
## 0000062	487.9267	33.290991
## 0000063	536.7404	29.563168
## 0000064	487.1258	32.463954
## 0000065	507.0343	16.764372
## 0000066	500.5080	29.105675
## 0000067	482.3940	29.207974
## 0000068	437.9206	26.424813
## 0000069	466.2830	35.821814

## 0000070	504.3105	28.259690
## 0000071	535.3861	30.723738
## 0000072	527.5878	18.995474
## 0000073	500.5142	27.212630
## 0000074	420.0730	27.865631
## 0000075	448.1019	26.954657
## 0000076	458.5713	19.597689
## 0000077	498.6064	28.943857
## 0000078	524.8400	26.405540
## 0000079	500.9694	23.802481
## 0000080	456.5119	28.166060
## 0000081	451.3875	26.200971
## 0000082	500.6523	20.710103
## 0000083	440.9157	24.554273
## 0000084	466.9097	26.408785
## 0000085	481.5481	36.411758
## 0000086	505.0950	29.668910
## 0000087	494.9202	27.157985
## 0000088	523.0677	33.553999
## 0000089	439.1068	31.243457
## 0000090	567.8707	22.645000
## 0000091	517.4604	36.408286
## 0000092	416.8159	29.204850
## 0000093	553.6419	34.684969
## 0000094	464.6771	24.460057
## 0000095	508.4451	22.110337
## 0000096	498.4107	22.525593
## 0000097	469.5042	28.378036
## 0000098	506.6238	22.610735
## 0000099	477.2740	29.958050
## 0000100	456.9076	31.176333
## 0000101	508.7527	19.983012
## 0000102	485.3091	23.005991
## 0000103	502.8738	27.570813
## 0000104	478.0440	25.024390
## 0000105	540.6159	29.694735
## 0000106	438.3042	32.699908
## 0000107	455.2782	20.720862
## 0000108	523.0883	28.815840
## 0000109	514.3898	41.257214
## 0000110	507.9511	38.983281
## 0000111	456.6189	34.048957
## 0000112	493.0538	27.903854
## 0000113	490.1461	28.682625
## 0000114	477.1677	30.678190
## 0000115	484.5041	23.232037
## 0000116	491.9939	25.393748
## 0000117	524.5980	29.064976
## 0000118	477.3635	16.756907
## 0000119	477.6985	15.802389
## 0000120	503.5483	28.782106
## 0000121	456.9927	28.583060
## 0000122	429.2298	28.557654
## 0000123	496.7134	41.033407

## 0000124	531.2783	22.945548
## 0000125	547.3781	32.520434
## 0000126	470.2423	22.831769
## 0000127	527.1714	36.048874
## 0000128	504.6060	25.054713
## 0000129	500.3462	32.932475
## 0000130	500.2291	35.095821
## 0000131	471.6495	31.507992
## 0000132	550.5167	43.076858
## 0000133	521.3756	29.983306
## 0000134	524.8112	24.970691
## 0000135	492.5357	25.919612
## 0000136	410.4977	34.071020
## 0000137	496.0703	28.714496
## 0000138	486.4253	27.304881
## 0000139	480.1920	29.241179
## 0000140	494.2709	35.085091
## 0000141	485.9849	28.640970
## 0000142	509.4928	25.255037
## 0000143	534.7255	31.623130
## 0000144	512.6666	27.830344
## 0000145	523.8165	44.423053
## 0000146	532.6453	32.130036
## 0000147	461.0557	34.475865
## 0000148	436.7850	32.460090
## 0000149	526.3960	34.474142
## 0000150	524.6193	33.642889
## 0000151	487.2262	38.485447
## 0000152	451.0341	30.573980
## 0000153	474.4127	22.789704
## 0000154	463.7919	36.825343
## 0000155	511.4688	17.045048
## 0000156	541.1166	33.957241
## 0000157	497.0561	34.936895
## 0000158	503.2402	29.334940
## 0000159	502.9446	24.296669
## 0000160	568.9067	10.841089
## 0000161	472.4107	37.501676
## 0000162	488.5972	29.696165
## 0000163	477.1785	30.976664
## 0000164	494.1845	32.251560
## 0000165	458.1842	24.927896
## 0000166	446.8605	26.656044
## 0000167	495.0789	22.760397
## 0000168	481.6993	24.914096
## 0000169	503.9843	32.809955
## 0000170	452.3938	27.663194
## 0000171	496.4645	29.748607
## 0000172	536.6469	34.209521
## 0000173	510.7290	18.994281
## 0000174	474.9922	33.968698
## 0000175	428.6081	35.792896
## 0000176	489.4156	30.962995
## 0000177	489.0959	32.420706

## 0000178	468.5279	20.040704
## 0000179	491.5388	12.224280
## 0000180	497.3254	30.679236
## 0000181	418.8660	32.474409
## 0000182	473.1447	21.316673
## 0000183	443.7663	35.599199
## 0000184	474.1361	27.716799
## 0000185	523.5849	19.327443
## 0000186	529.8089	33.506796
## 0000187	478.5580	20.090290
## 0000188	561.1290	31.542907
## 0000189	568.6474	29.494531
## 0000190	482.6319	33.285091
## 0000191	454.5727	24.253394
## 0000192	486.1018	22.785569
## 0000193	535.0581	29.925461
## 0000194	472.0099	11.774498
## 0000195	446.2884	33.868007
## 0000196	513.1489	23.363478
## 0000197	503.2552	27.144276
## 0000198	465.7555	12.788843
## 0000199	439.8276	25.918148
## 0000200	489.3222	32.290600
## 0000201	457.9788	32.532660
## 0000202	451.0109	32.257290
## 0000203	481.9490	10.052747
## 0000204	499.4646	28.981363
## 0000205	556.6106	30.000537
## 0000206	513.9509	24.277513
## 0000207	502.8360	12.009942
## 0000208	451.5471	18.756361
## 0000209	466.5740	29.597813
## 0000210	487.0939	32.290955
## 0000211	489.1123	32.412891
## 0000212	540.9717	26.474979
## 0000213	478.3805	17.960340
## 0000214	551.0378	5.889766
## 0000215	508.9665	16.156239
## 0000216	485.9178	29.634289
## 0000217	479.2307	28.311851
## 0000218	498.5713	27.874960
## 0000219	437.7001	34.109926
## 0000220	452.3712	29.045657
## 0000221	470.9480	31.746032
## 0000222	483.3735	28.670213
## 0000223	525.0075	34.145674
## 0000224	484.4825	31.734670
## 0000225	603.0053	21.284075
## 0000226	487.4029	27.812174
## 0000227	475.4904	35.560130
## 0000228	486.2146	22.692682
## 0000229	437.1572	17.122598
## 0000230	459.5155	29.950855
## 0000231	522.6481	35.475846



## 0000232	486.0598	32.724345
## 0000233	472.8283	35.721950
## 0000234	501.9230	21.637754
## 0000235	485.6759	28.694495
## 0000236	506.7082	34.705704
## 0000237	485.3222	40.743642
## 0000238	490.3907	29.262812
## 0000239	472.7095	17.912513
## 0000240	504.5939	40.888141
## 0000241	487.3106	30.047481
## 0000242	501.7138	31.925557
## 0000243	500.2422	41.445915
## 0000244	403.8610	37.788287
## 0000245	458.6155	27.498423
## 0000246	628.1994	34.796518
## 0000247	518.9814	32.637451
## 0000248	500.9525	20.085329
## 0000249	491.3892	20.540981
## 0000250	516.3788	26.682476
## 0000251	415.5093	32.006416
## 0000252	480.9251	29.758881
## 0000253	574.7362	33.965741
## 0000254	446.9829	29.354544
## 0000255	476.7523	44.096933
## 0000256	435.7362	13.623496
## 0000257	522.3858	29.672888
## 0000258	496.6324	32.992131
## 0000259	543.2252	26.607740
## 0000260	614.1916	34.594683
## 0000261	571.4079	31.765564
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## 0000263	527.1173	19.287626
## 0000264	550.3891	28.921809
## 0000265	456.3735	34.502371
## 0000266	503.5109	29.555707
## 0000267	469.3902	26.603021
## 0000268	484.7055	20.262495
## 0000269	477.5598	28.484011
## 0000270	469.4040	31.915268
## 0000271	471.7735	23.795910
## 0000272	502.2801	32.788684
## 0000273	470.8172	37.897196
## 0000274	476.8587	34.529344
## 0000275	513.5368	23.689140
## 0000276	465.0093	33.065604
## 0000277	500.0705	29.852996
## 0000278	372.1882	29.704941
## 0000279	473.0466	25.927658
## 0000280	507.6343	38.038813
## 0000281	521.8278	30.667772
## 0000282	438.2486	24.300447
## 0000283	468.1313	34.168299
## 0000284	521.3176	27.827434
## 0000285	500.7017	30.021960

## 0000286	510.1218	19.016812
## 0000287	467.7342	28.584441
## 0000288	519.1367	25.826532
## 0000289	515.3481	14.885475
## 0000290	479.2918	29.383447
## 0000291	464.8258	25.411311
## 0000292	478.1168	30.272210
## 0000293	487.1024	27.925948
## 0000294	497.2395	29.911685
## 0000295	523.4837	27.687398
## 0000296	520.1073	29.995608
## 0000297	538.1878	26.857686
## 0000298	455.8840	38.465514
## 0000299	482.6013	28.632243
## 0000300	485.5990	35.998246
## 0000301	463.0360	24.970664
## 0000302	479.4567	24.756555
## 0000303	478.9413	22.024560
## 0000304	511.5955	24.552108
## 0000305	484.8899	36.752420
## 0000306	641.9215	17.441079
## 0000307	468.4241	24.531629
## 0000308	488.0097	29.256834
## 0000309	482.0885	28.787370
## 0000310	560.6621	30.955197
## 0000311	496.3007	13.674412
## 0000312	490.7962	31.918959
## 0000313	506.3608	39.916444
## 0000314	497.0838	32.279439
## 0000315	455.9415	37.779015
## 0000316	516.3224	16.767397
## 0000317	592.7887	36.335412
## 0000318	448.8161	31.502189
## 0000319	636.1593	38.422622
## 0000320	518.1293	30.445864
## 0000321	493.3307	27.351273
## 0000322	450.2347	28.814927
## 0000323	528.6459	17.484531
## 0000324	442.2310	28.527122
## 0000325	477.8366	37.498723
## 0000326	498.9655	30.709187
## 0000327	521.7960	23.528485
## 0000328	525.5036	26.995036
## 0000329	480.3441	30.318550
## 0000330	472.1285	30.271928
## 0000331	510.7906	38.142869
## 0000332	468.6113	43.852196
## 0000333	477.4452	30.828657
## 0000334	496.1094	38.567023
## 0000335	537.5615	30.232271
## 0000336	537.1828	35.214931
## 0000337	545.8467	33.677138
## 0000338	493.7659	28.688040
## 0000339	476.5825	27.006202

## 0000340	495.7907	40.986159
## 0000341	517.2326	24.335387
## 0000342	466.8309	28.149759
## 0000343	443.5311	27.842319
## 0000344	495.7321	31.334483
## 0000345	461.3357	7.803200
## 0000346	530.7611	17.915191
## 0000347	540.7673	33.429974
## 0000348	437.2841	32.249587
## 0000349	468.4656	24.385631
## 0000350	485.1666	30.521494
## 0000351	493.6935	42.690729
## 0000352	561.5678	10.679415
## 0000353	514.5378	37.471731
## 0000354	430.1243	28.022880
## 0000355	603.2084	25.484641
## 0000356	528.2363	25.853530
## 0000357	493.1816	29.796015
## 0000358	496.8449	27.946575
## 0000359	490.6033	30.865366
## 0000360	495.3039	31.062204
## 0000361	455.8352	30.197799
## 0000362	495.0937	20.237431
## 0000363	497.4784	27.004085
## 0000364	478.8362	18.786290
## 0000365	501.7211	21.094233
## 0000366	465.5260	38.214917
## 0000367	479.2458	25.885163
## 0000368	488.6182	28.894675
## 0000369	471.5997	25.458876
## 0000370	481.7883	39.714619
## 0000371	534.9309	25.016259
## 0000372	499.5494	22.804818
## 0000373	492.8177	15.697011
## 0000374	528.1014	29.316929
## 0000375	471.9259	26.981457
## 0000376	507.0477	29.548137
## 0000377	473.8034	25.796206
## 0000378	537.0658	28.588786
## 0000379	509.4875	19.041953
## 0000380	464.9982	32.810978
## 0000381	456.9954	30.608383
## 0000382	480.0151	37.141995
## 0000383	501.6644	25.233052
## 0000384	496.6999	30.025384
## 0000385	460.6707	29.979763
## 0000386	490.9455	34.571656
## 0000387	489.0442	27.589544
## 0000388	509.7852	30.391187
## 0000389	486.5678	27.294558
## 0000390	469.7194	10.926101
## 0000391	441.1951	18.995312
## 0000392	512.5058	25.210001
## 0000393	508.0689	26.965219

## 0000394	495.3280	23.054212
## 0000395	517.4518	41.420608
## 0000396	492.8786	27.504059
## 0000397	456.0462	28.985895
## 0000398	482.5704	31.519179
## 0000399	481.9996	33.066637
## 0000400	450.8139	21.527030
## 0000401	506.2000	31.837698
## 0000402	487.3484	26.846285
## 0000403	469.6973	34.747430
## 0000404	469.8416	22.593327
## 0000405	523.1352	21.453325
## 0000406	519.1414	25.539994
## 0000407	477.2379	36.583688
## 0000408	451.3483	39.228485
## 0000409	465.0830	26.545813
## 0000410	451.0340	36.181498
## 0000411	508.5521	36.996464
## 0000412	495.8674	28.874986
## 0000413	470.6894	29.739135
## 0000414	492.5011	26.360984
## 0000415	452.0093	33.294418
## 0000416	468.9683	29.172715
## 0000417	603.4060	34.184500
## 0000418	402.9347	37.174811
## 0000419	463.1258	29.627195
## 0000420	478.9996	35.988311
## 0000421	484.4335	30.296487
## 0000422	478.3713	30.028943
## 0000423	468.2070	33.782619
## 0000424	419.5190	32.410833
## 0000425	513.8079	31.756254
## 0000426	536.3147	34.075979
## 0000427	477.0356	28.790030
## 0000428	499.9005	28.438413
## 0000429	463.2852	35.305408
## 0000430	434.6131	32.777534
## 0000431	492.1548	27.128700
## 0000432	531.2673	33.627541
## 0000433	448.8028	21.659184
## 0000434	497.8849	28.969992
## 0000435	467.3443	15.479081
## 0000436	486.4389	29.371820
## 0000437	445.7176	25.975893
## 0000438	634.4186	16.471985
## 0000439	530.8714	45.021527
## 0000440	479.3696	28.387533
## 0000441	471.4135	22.475236
## 0000442	474.0874	35.261728
## 0000443	513.4209	25.030594
## 0000444	497.6747	15.507474
## 0000445	475.4097	33.193405
## 0000446	491.6223	31.485099
## 0000447	526.3118	25.773508

## 0000448	688.3135	37.580415
## 0000449	491.6117	31.780852
## 0000450	483.7295	30.264599
## 0000451	507.5883	27.207167
## 0000452	482.1249	19.031489
## 0000454	431.7395	35.967816
## 0000455	475.0434	24.173838
## 0000456	554.2233	31.675080
## 0000457	465.4095	30.082440
## 0000458	466.8889	15.053389
## 0000459	551.5726	24.706270
## 0000460	473.1641	28.443823
## 0000461	487.4494	38.502553
## 0000462	518.8492	41.240529
## 0000463	504.4173	37.752646
## 0000464	482.5328	27.507977
## 0000465	464.4511	26.152705
## 0000466	543.6892	38.671005
## 0000467	533.2795	29.692160
## 0000468	549.0076	40.732912
## 0000469	478.2579	29.007002
## 0000470	497.0999	35.682714
## 0000471	537.7777	46.882075
## 0000472	535.4532	27.122040
## 0000473	443.3631	33.044684
## 0000474	507.2078	23.176093
## 0000475	462.6447	32.130499
## 0000476	527.9733	28.459490
## 0000477	490.2654	18.405603
## 0000478	510.1276	29.059434
## 0000479	502.5167	30.320284
## 0000480	524.7512	40.855612
## 0000481	405.6531	32.708894
## 0000482	507.4782	41.170187
## 0000483	473.4872	32.378517
## 0000484	545.6382	32.673876
## 0000485	489.2394	31.964043
## 0000486	457.6512	29.603439
## 0000487	533.1039	33.624498
## 0000488	465.5200	32.671644
## 0000489	503.7000	29.090753
## 0000490	531.1638	32.037782
## 0000491	460.3430	30.766997
## 0000492	491.8604	38.768717
## 0000493	479.6900	31.938622
## 0000494	513.1667	17.636081
## 0000495	531.5612	22.158782
## 0000496	544.8394	35.345026
## 0000497	503.2171	34.981729
## 0000498	534.9938	32.524570
## 0000499	469.8019	28.113962
## 0000500	470.9080	31.564796
## 0000501	459.0141	21.962198
## 0000502	458.1213	26.843352

## 0000503	501.7903	30.393929
## 0000504	485.5444	26.915313
## 0000505	508.2712	31.607894
## 0000506	526.1086	21.062201
## 0000507	501.9606	29.709958
## 0000508	520.3719	25.001815
## 0000509	492.8130	26.894920
## 0000510	466.6799	22.295656
## 0000511	479.5840	30.204232
## 0000512	491.7086	28.337029
## 0000513	457.5395	40.803681
## 0000514	532.4566	27.363792
## 0000515	501.1227	40.680075
## 0000516	534.8718	37.786290
## 0000517	490.6302	37.313852
## 0000518	481.3282	44.433930
## 0000519	461.0893	27.881381
## 0000520	445.8860	37.878375
## 0000521	488.8934	21.841122
## 0000522	557.0296	38.077825
## 0000523	531.4229	27.578473
## 0000524	557.4186	29.617357
## 0000525	546.1693	36.797118
## 0000526	443.4367	37.227081
## 0000527	466.9809	21.477010
## 0000528	462.1463	27.300610
## 0000529	391.9263	44.973326
## 0000530	469.0024	28.918662
## 0000531	453.1935	29.557327
## 0000532	508.1826	30.038887
## 0000533	502.1962	19.834514
## 0000534	559.9484	34.714563
## 0000535	452.1916	24.400947
## 0000536	520.3681	35.333327
## 0000537	499.7230	21.427401
## 0000538	493.7385	30.070826
## 0000539	511.5835	30.606529
## 0000540	453.3406	15.896551
## 0000541	459.4749	27.071032
## 0000542	543.1894	25.330317
## 0000543	466.1591	22.492829
## 0000544	521.0583	29.501039
## 0000545	486.9781	31.601168
## 0000546	464.1189	32.165477
## 0000547	529.2403	39.162759
## 0000548	529.2881	34.107595
## 0000549	506.2990	30.308051
## 0000550	523.1999	22.778022
## 0000551	469.8997	28.629068
## 0000552	500.2641	30.244506
## 0000553	438.9695	12.978650
## 0000554	438.2045	32.966246
## 0000555	520.8491	29.917260
## 0000556	528.8337	16.537554

##	0000557	480.2564	26.320726
##	0000558	497.3964	19.030440
##	0000559	426.5762	21.939177
##	0000560	525.0561	37.030384
##	0000561	448.7099	27.374029
##	0000562	487.8202	33.144577
##	0000563	539.5658	31.302803
##	0000564	523.9954	33.676545
##	0000565	483.1255	22.407457
##	0000566	495.6268	29.421076
##	0000567	491.9156	27.881664
##	0000568	526.7778	40.228747
##	0000569	518.0824	31.515441
##	0000570	518.1610	37.030151
##	0000571	501.3750	31.335386
##	0000572	457.2634	12.667238
##	0000573	563.9935	20.623578
##	0000574	505.2199	41.495579
##	0000575	425.1042	28.136795
##	0000576	445.6968	26.254854
##	0000577	544.2741	35.851824
##	0000578	498.1914	25.497275
##	0000579	436.4241	42.522744
##	0000580	511.2379	20.680633
##	0000581	515.7338	25.865682
##	0000582	482.2124	19.425029
##	0000583	520.4176	28.532341
##	0000584	473.2135	20.278995
##	0000585	519.5341	33.571765
##	0000586	499.3422	31.821248
##	0000587	503.2288	28.244284
##	0000588	489.0599	32.728654
##	0000589	492.2796	33.081795
##	0000590	450.0051	25.600518
##	0000591	492.5908	35.104427
##	0000592	475.8733	36.402846
##	0000593	441.2448	24.005764
##	0000594	556.5314	27.578204
##	0000595	536.1364	36.797205
##	0000596	503.6596	22.289465
##	0000597	511.5621	30.497847
##	0000598	465.7397	29.060837
##	0000599	524.4346	22.275174
##	0000600	456.6464	31.227352
##	0000601	494.3412	29.051205
##	0000602	504.7519	34.372779
##	0000603	517.1590	25.717389
##	0000604	562.2820	19.405662
##	0000605	536.1817	29.069392
##	0000606	494.2496	32.898358
##	0000607	517.6168	37.245663
##	0000608	518.5218	30.090385
##	0000609	462.4484	25.543516
##	0000610	688.7922	21.748881

## 0000611	543.0681	26.412055
## 0000612	507.4581	19.897414
## 0000613	468.5410	34.677514
## 0000614	489.0139	26.123251
## 0000615	479.0142	27.384708
## 0000616	440.8906	18.264345
## 0000617	511.1249	23.821692
## 0000618	501.2362	21.338526
## 0000619	483.5081	33.711167
## 0000620	494.0867	24.281856
## 0000621	483.1486	31.623703
## 0000622	483.2033	27.528886
## 0000623	485.9354	32.232750
## 0000624	444.4439	34.698399
## 0000625	534.5344	33.288847
## 0000626	485.2820	26.978687
## 0000627	489.6829	28.718715
## 0000628	490.8206	31.466669
## 0000629	505.3332	19.711211
## 0000630	513.2392	36.431236
## 0000631	485.3044	32.303170
## 0000632	465.8384	30.772209
## 0000633	482.4036	29.871915
## 0000634	506.8234	27.190038
## 0000635	491.7222	28.618542
## 0000636	588.0858	31.641476
## 0000637	441.1448	26.624766
## 0000638	513.8554	23.666042
## 0000639	500.8262	23.001788
## 0000640	439.0621	12.958709
## 0000641	483.5376	24.708464
## 0000642	498.1369	29.026345
## 0000643	475.2316	36.675100
## 0000644	491.9344	29.264258
## 0000645	465.6230	29.959868
## 0000646	474.1067	29.863339
## 0000647	493.9418	23.189784
## 0000648	509.7149	16.717620
## 0000649	537.1877	34.347379
## 0000650	460.1557	29.647696
## 0000651	462.9122	31.921361
## 0000652	450.0802	31.876570
## 0000653	494.7128	28.797830
## 0000654	455.3613	24.928679
## 0000655	497.3594	31.976618
## 0000656	488.8042	20.768606
## 0000657	480.2780	27.656324
## 0000658	519.0853	27.512454
## 0000659	508.0020	25.949772
## 0000660	502.7137	30.824227
## 0000661	479.6490	30.818657
## 0000662	512.6372	26.370532
## 0000663	473.1646	33.728962
## 0000664	549.2588	30.778658



##	0000665	499.4199	27.648952
##	0000666	471.0943	28.227353
##	0000667	523.9413	26.464390
##	0000668	515.2893	28.851840
##	0000669	466.3698	31.594059
##	0000670	474.2755	23.856759
##	0000671	474.4130	11.664626
##	0000672	515.2186	22.641972
##	0000673	486.5575	32.706781
##	0000674	546.1556	15.687114
##	0000675	499.8247	28.295252
##	0000676	515.3124	33.284493
##	0000677	513.8832	26.508351
##	0000678	521.6923	31.720702
##	0000679	485.7746	30.975872
##	0000680	461.8610	24.811048
##	0000681	471.8540	28.952555
##	0000682	487.6076	33.412710
##	0000683	507.4545	26.138821
##	0000684	469.9134	29.159719
##	0000685	487.4433	22.051712
##	0000686	511.8011	26.252214
##	0000687	472.6682	30.913727
##	0000688	500.7240	27.691086
##	0000689	456.0544	24.646901
##	0000690	445.1280	18.362531
##	0000691	477.8553	27.601630
##	0000692	455.3372	25.103764
##	0000693	512.1937	29.125003
##	0000694	484.3812	22.172954
##	0000695	525.0466	21.339951
##	0000696	543.1632	29.918521
##	0000697	498.2212	28.961647
##	0000698	567.6031	30.768491
##	0000699	567.6413	29.933082
##	0000700	474.5902	27.164684
##	0000701	526.8467	32.306816
##	0000702	516.1163	32.333241
##	0000703	486.0184	29.873256
##	0000704	456.5854	26.649280
##	0000705	470.3063	31.428587
##	0000706	440.6612	30.284923
##	0000707	501.6320	19.042035
##	0000708	544.1594	26.212614
##	0000709	523.0967	33.590656
##	0000710	469.9482	30.640144
##	0000711	463.1300	7.057319
##	0000712	469.8703	26.470232
##	0000713	499.1274	27.453639
##	0000714	481.0994	24.702287
##	0000715	485.2289	30.991238
##	0000716	518.6441	35.283868
##	0000717	525.2995	26.265927
##	0000718	479.6586	24.012845

## 0000719	457.0519	28.481243
## 0000720	558.3508	29.573476
## 0000721	485.2527	23.100183
## 0000722	506.1849	20.564868
## 0000723	503.7368	26.718417
## 0000724	485.8174	30.251234
## 0000725	526.1114	31.722044
## 0000726	551.3948	30.857559
## 0000727	458.9071	25.906684
## 0000728	510.5294	23.086500
## 0000729	513.2353	14.326123
## 0000730	510.3161	39.329714
## 0000731	477.1681	39.577622
## 0000732	518.1455	25.161473
## 0000733	490.3668	24.065875
## 0000734	484.7072	27.091674
## 0000735	486.5719	27.163066
## 0000736	509.6759	25.487966
## 0000737	499.1539	27.743362
## 0000738	526.6153	33.302555
## 0000739	512.0163	22.268579
## 0000740	497.3410	25.445507
## 0000741	471.2989	36.976212
## 0000742	496.6022	30.257562
## 0000743	417.8602	23.661058
## 0000744	483.2758	21.937946
## 0000745	547.9157	21.483436
## 0000746	481.5921	32.565751
## 0000747	547.3808	20.249727
## 0000748	484.2975	30.253401
## 0000749	493.5259	23.327128
## 0000750	474.6474	28.575140
## 0000751	576.9182	24.409857
## 0000752	532.2483	31.453933
## 0000753	488.5454	27.076483
## 0000754	515.5973	41.705744
## 0000755	537.1718	34.486135
## 0000756	637.0544	28.578441
## 0000757	496.1406	13.792014
## 0000758	439.4555	21.026574
## 0000759	486.6696	22.208905
## 0000760	475.0068	32.116266
## 0000761	472.3878	23.691365
## 0000762	461.3977	20.154730
## 0000763	495.2198	25.499244
## 0000764	489.8667	28.370345
## 0000765	581.1908	20.240166
## 0000766	466.2026	27.944622
## 0000767	539.0947	36.520536
## 0000768	452.2436	18.576462
## 0000769	528.1987	34.784020
## 0000770	458.0387	20.361281
## 0000771	518.7165	28.573860
## 0000772	489.9013	28.585894

```
## 0000773    491.6758 23.961891
## 0000774    502.7953 32.086526
## 0000775    465.0047 30.110457
##
## attr(,"class")
## [1] "coef.mer"
```

```
summary(HLM1)
```

```
## Linear mixed model fit by REML ['lmerMod']
## Formula: PV1MATH ~ ESCS + (1 + ESCS | SCHOOLID)
## Data: computerStudent2012[NC == "Australia"]
## Weights: W_HOUSEWHT
##
## REML criterion at convergence: 168523.8
##
## Scaled residuals:
##      Min       1Q   Median       3Q      Max
## -4.8205 -0.5928 -0.0549  0.5316  4.9702
##
## Random effects:
## Groups Name Variance Std.Dev. Corr
## SCHOOLID (Intercept) 1714.0  41.40
## ESCS 195.1 13.97 -0.04
## Residual 1729.9 41.59
## Number of obs: 14110, groups: SCHOOLID, 774
##
## Fixed effects:
## Estimate Std. Error t value
## (Intercept) 494.664 1.719 287.80
## ESCS 28.661 1.112 25.79
##
## Correlation of Fixed Effects:
## (Intr)
## ESCS -0.131
```

```
library(data.table)
library(PISA2012lite)
library(dplyr)
library(lme4)
data("computerStudent2012")
setDT(computerStudent2012)
```

```
math.lm <- lm(PV1MATH ~ SCHOOLID, data=computerStudent2012[NC == "Australia"])
summary(math.lm)
```

```
##
## Call:
## lm(formula = PV1MATH ~ SCHOOLID, data = computerStudent2012[NC ==
## "Australia"])
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -294.615  -54.972   -0.779   54.233  289.765
##
```

```

## Coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)    562.96054   20.78261  27.088 < 2e-16 ***
## SCHOOLID0000002 -81.23054   27.88279  -2.913 0.003582 **
## SCHOOLID0000003   2.62444   26.61472   0.099 0.921450
## SCHOOLID0000004 -148.86469   29.39104  -5.065 4.14e-07 ***
## SCHOOLID0000005  -97.39410   28.20702  -3.453 0.000556 ***
## SCHOOLID0000006  -65.28135   28.20702  -2.314 0.020662 *
## SCHOOLID0000007  -82.95915   28.20702  -2.941 0.003276 **
## SCHOOLID0000008   -5.74629   31.74596  -0.181 0.856364
## SCHOOLID0000009 -131.96203   28.95560  -4.557 5.22e-06 ***
## SCHOOLID0000010   35.97690   28.95560   1.242 0.214079
## SCHOOLID0000011 -101.39537   28.20702  -3.595 0.000326 ***
## SCHOOLID0000012 -102.33584   26.61472  -3.845 0.000121 ***
## SCHOOLID0000013   20.97451   26.83023   0.782 0.434375
## SCHOOLID0000014  -27.44878   27.88279  -0.984 0.324919
## SCHOOLID0000015  -42.23691   27.88279  -1.515 0.129846
## SCHOOLID0000016  -92.01578   28.56296  -3.222 0.001278 **
## SCHOOLID0000017   -9.00928   28.20702  -0.319 0.749429
## SCHOOLID0000018  -26.07870   28.56296  -0.913 0.361245
## SCHOOLID0000019  -39.90788   27.88279  -1.431 0.152375
## SCHOOLID0000020  -85.19402   29.87688  -2.852 0.004358 **
## SCHOOLID0000021  -79.86737   27.88279  -2.864 0.004184 **
## SCHOOLID0000022 -107.31206   25.32451  -4.237 2.28e-05 ***
## SCHOOLID0000023   29.99397   29.39104   1.021 0.307503
## SCHOOLID0000024 -136.62466   26.61472  -5.133 2.88e-07 ***
## SCHOOLID0000025  -39.35094   31.04040  -1.268 0.204915
## SCHOOLID0000026  -97.95300   29.87688  -3.279 0.001046 **
## SCHOOLID0000027 -134.25622   25.32451  -5.301 1.17e-07 ***
## SCHOOLID0000028  -99.75199   27.58616  -3.616 0.000300 ***
## SCHOOLID0000029   7.72968   28.20702   0.274 0.784063
## SCHOOLID0000030  -41.30571   27.58616  -1.497 0.134329
## SCHOOLID0000031  -22.95863   28.56296  -0.804 0.421532
## SCHOOLID0000032  -39.14205   27.31370  -1.433 0.151865
## SCHOOLID0000033  -70.87994   31.04040  -2.283 0.022418 *
## SCHOOLID0000034  -25.71954   27.06253  -0.950 0.341939
## SCHOOLID0000035  -74.28834   28.20702  -2.634 0.008456 **
## SCHOOLID0000036   40.27697   28.20702   1.428 0.153342
## SCHOOLID0000037  -65.65613   28.95560  -2.267 0.023377 *
## SCHOOLID0000038  -43.24210   27.31370  -1.583 0.113407
## SCHOOLID0000039 -132.76504   26.83023  -4.948 7.57e-07 ***
## SCHOOLID0000040   32.60490   26.41423   1.234 0.217087
## SCHOOLID0000041  -99.11275   28.56296  -3.470 0.000522 ***
## SCHOOLID0000042  -89.24514   26.83023  -3.326 0.000882 ***
## SCHOOLID0000043 -170.10340   42.59167  -3.994 6.54e-05 ***
## SCHOOLID0000044  -80.92396   26.05238  -3.106 0.001899 **
## SCHOOLID0000045  -48.96822   29.87688  -1.639 0.101236
## SCHOOLID0000046 -107.63039   27.58616  -3.902 9.60e-05 ***
## SCHOOLID0000047 -111.70310   37.67167  -2.965 0.003030 **
## SCHOOLID0000048  -75.14312   30.42262  -2.470 0.013524 *
## SCHOOLID0000049 -110.41875   28.20702  -3.915 9.10e-05 ***
## SCHOOLID0000050  -61.58528   28.56296  -2.156 0.031091 *
## SCHOOLID0000051 -126.75112   27.06253  -4.684 2.85e-06 ***
## SCHOOLID0000052  -42.05125   28.56296  -1.472 0.140982

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## SCHOOLID0000053	-40.34799	27.88279	-1.447	0.147904	
## SCHOOLID0000054	-112.85079	27.31370	-4.132	3.62e-05	***
## SCHOOLID0000055	-61.27803	28.56296	-2.145	0.031941	*
## SCHOOLID0000056	-111.66232	29.87688	-3.737	0.000187	***
## SCHOOLID0000057	-0.26289	29.39104	-0.009	0.992864	
## SCHOOLID0000058	-219.36989	31.74596	-6.910	5.05e-12	***
## SCHOOLID0000059	-85.40174	26.61472	-3.209	0.001336	**
## SCHOOLID0000060	-74.21528	28.95560	-2.563	0.010386	*
## SCHOOLID0000061	-59.75912	28.20702	-2.119	0.034143	*
## SCHOOLID0000062	-88.90251	27.58616	-3.223	0.001273	**
## SCHOOLID0000063	0.61264	28.20702	0.022	0.982672	
## SCHOOLID0000064	-102.35402	28.56296	-3.583	0.000340	***
## SCHOOLID0000065	-55.54799	29.39104	-1.890	0.058784	.
## SCHOOLID0000066	-58.42193	28.56296	-2.045	0.040837	*
## SCHOOLID0000067	-113.82256	29.87688	-3.810	0.000140	***
## SCHOOLID0000068	-137.71878	31.04040	-4.437	9.20e-06	***
## SCHOOLID0000069	-84.27401	28.56296	-2.950	0.003178	**
## SCHOOLID0000070	-40.14934	46.47132	-0.864	0.387625	
## SCHOOLID0000071	10.36258	28.56296	0.363	0.716761	
## SCHOOLID0000072	-14.36755	28.20702	-0.509	0.610507	
## SCHOOLID0000073	-93.16876	27.06253	-3.443	0.000578	***
## SCHOOLID0000074	-149.18114	26.61472	-5.605	2.12e-08	***
## SCHOOLID0000075	-133.24018	27.88279	-4.779	1.78e-06	***
## SCHOOLID0000076	-117.55627	28.56296	-4.116	3.88e-05	***
## SCHOOLID0000077	-71.57170	27.88279	-2.567	0.010272	*
## SCHOOLID0000078	-22.69337	27.88279	-0.814	0.415725	
## SCHOOLID0000079	-80.10106	27.88279	-2.873	0.004075	**
## SCHOOLID0000080	-124.11420	27.58616	-4.499	6.88e-06	***
## SCHOOLID0000081	-112.85056	28.95560	-3.897	9.77e-05	***
## SCHOOLID0000082	-99.10519	29.39104	-3.372	0.000748	***
## SCHOOLID0000083	-148.78388	33.51095	-4.440	9.07e-06	***
## SCHOOLID0000084	-110.97426	27.88279	-3.980	6.93e-05	***
## SCHOOLID0000085	-90.68292	27.58616	-3.287	0.001014	**
## SCHOOLID0000086	30.09912	42.59167	0.707	0.479771	
## SCHOOLID0000087	-50.44106	26.83023	-1.880	0.060128	.
## SCHOOLID0000088	-42.17589	29.87688	-1.412	0.158074	
## SCHOOLID0000089	-126.31376	27.58616	-4.579	4.72e-06	***
## SCHOOLID0000090	30.63270	27.88279	1.099	0.271952	
## SCHOOLID0000091	-18.56686	27.06253	-0.686	0.492679	
## SCHOOLID0000092	-182.00489	27.06253	-6.725	1.82e-11	***
## SCHOOLID0000093	32.12214	27.58616	1.164	0.244270	
## SCHOOLID0000094	-99.90945	27.88279	-3.583	0.000341	***
## SCHOOLID0000095	-43.67962	27.58616	-1.583	0.113356	
## SCHOOLID0000096	-58.68320	29.39104	-1.997	0.045885	*
## SCHOOLID0000097	-114.51354	29.39104	-3.896	9.82e-05	***
## SCHOOLID0000098	-55.28801	27.88279	-1.983	0.047402	*
## SCHOOLID0000099	-95.42277	27.88279	-3.422	0.000623	***
## SCHOOLID0000100	-140.80367	27.88279	-5.050	4.48e-07	***
## SCHOOLID0000101	-39.95462	29.39104	-1.359	0.174038	
## SCHOOLID0000102	-84.83052	29.87688	-2.839	0.004527	**
## SCHOOLID0000103	-37.85264	28.95560	-1.307	0.191145	
## SCHOOLID0000104	-79.83737	28.95560	-2.757	0.005837	**
## SCHOOLID0000105	7.90460	28.56296	0.277	0.781982	
## SCHOOLID0000106	-196.23638	27.58616	-7.114	1.19e-12	***

##	SCHOOLID0000107	-122.84440	28.56296	-4.301	1.71e-05	***
##	SCHOOLID0000108	-3.13554	29.87688	-0.105	0.916418	
##	SCHOOLID0000109	-62.10370	27.88279	-2.227	0.025943	*
##	SCHOOLID0000110	-35.75409	28.95560	-1.235	0.216930	
##	SCHOOLID0000111	-132.40566	27.31370	-4.848	1.26e-06	***
##	SCHOOLID0000112	-57.56893	28.95560	-1.988	0.046812	*
##	SCHOOLID0000113	-107.82820	34.63768	-3.113	0.001856	**
##	SCHOOLID0000114	-88.41102	26.83023	-3.295	0.000986	***
##	SCHOOLID0000115	-82.43788	27.88279	-2.957	0.003116	**
##	SCHOOLID0000116	-55.15421	28.95560	-1.905	0.056829	.
##	SCHOOLID0000117	-19.21974	28.56296	-0.673	0.501028	
##	SCHOOLID0000118	-82.88576	27.88279	-2.973	0.002958	**
##	SCHOOLID0000119	-82.68955	27.58616	-2.998	0.002727	**
##	SCHOOLID0000120	-62.86968	29.87688	-2.104	0.035371	*
##	SCHOOLID0000121	-127.29732	28.56296	-4.457	8.39e-06	***
##	SCHOOLID0000122	-158.54480	28.20702	-5.621	1.94e-08	***
##	SCHOOLID0000123	-87.46059	28.20702	-3.101	0.001935	**
##	SCHOOLID0000124	-16.87244	28.20702	-0.598	0.549740	
##	SCHOOLID0000125	24.84990	28.20702	0.881	0.378343	
##	SCHOOLID0000126	-89.26729	27.06253	-3.299	0.000974	***
##	SCHOOLID0000127	-35.15116	26.83023	-1.310	0.190173	
##	SCHOOLID0000128	-42.79496	30.42262	-1.407	0.159544	
##	SCHOOLID0000129	-62.02361	30.42262	-2.039	0.041496	*
##	SCHOOLID0000130	-92.80404	31.04040	-2.990	0.002797	**
##	SCHOOLID0000131	-89.86828	26.83023	-3.350	0.000812	***
##	SCHOOLID0000132	-19.80285	26.83023	-0.738	0.460479	
##	SCHOOLID0000133	-34.73398	27.31370	-1.272	0.203512	
##	SCHOOLID0000134	-23.10394	28.20702	-0.819	0.412752	
##	SCHOOLID0000135	-117.48325	25.45339	-4.616	3.95e-06	***
##	SCHOOLID0000136	-229.44091	35.99653	-6.374	1.90e-10	***
##	SCHOOLID0000137	0.29696	85.68888	0.003	0.997235	
##	SCHOOLID0000138	-59.93048	29.87688	-2.006	0.044885	*
##	SCHOOLID0000139	-62.08727	26.22723	-2.367	0.017933	*
##	SCHOOLID0000140	-53.23654	28.20702	-1.887	0.059134	.
##	SCHOOLID0000141	-102.76827	25.32451	-4.058	4.98e-05	***
##	SCHOOLID0000142	-27.38811	28.20702	-0.971	0.331581	
##	SCHOOLID0000143	-15.76026	27.58616	-0.571	0.567799	
##	SCHOOLID0000144	-50.77841	28.95560	-1.754	0.079510	.
##	SCHOOLID0000145	-16.93238	27.58616	-0.614	0.539358	
##	SCHOOLID0000146	2.90497	26.22723	0.111	0.911807	
##	SCHOOLID0000147	-126.44971	27.06253	-4.673	3.00e-06	***
##	SCHOOLID0000148	-158.99088	29.39104	-5.410	6.43e-08	***
##	SCHOOLID0000149	-11.84625	28.20702	-0.420	0.674510	
##	SCHOOLID0000150	-31.72602	28.56296	-1.111	0.266700	
##	SCHOOLID0000151	-75.42442	28.56296	-2.641	0.008284	**
##	SCHOOLID0000152	-115.36295	28.20702	-4.090	4.34e-05	***
##	SCHOOLID0000153	-74.98963	28.95560	-2.590	0.009613	**
##	SCHOOLID0000154	-94.88054	28.56296	-3.322	0.000897	***
##	SCHOOLID0000155	-41.65780	31.04040	-1.342	0.179602	
##	SCHOOLID0000156	0.83481	27.58616	0.030	0.975859	
##	SCHOOLID0000157	-64.93676	28.95560	-2.243	0.024936	*
##	SCHOOLID0000158	-45.04498	27.88279	-1.616	0.106223	
##	SCHOOLID0000159	-59.93654	28.56296	-2.098	0.035888	*
##	SCHOOLID0000160	14.06469	27.88279	0.504	0.613973	

##	SCHOOLID0000161	-94.89273	27.31370	-3.474	0.000514	***
##	SCHOOLID0000162	-67.46352	27.31370	-2.470	0.013525	*
##	SCHOOLID0000163	-107.69764	27.06253	-3.980	6.94e-05	***
##	SCHOOLID0000164	-93.65351	27.31370	-3.429	0.000608	***
##	SCHOOLID0000165	-121.17219	28.20702	-4.296	1.75e-05	***
##	SCHOOLID0000166	-153.59984	32.56009	-4.717	2.41e-06	***
##	SCHOOLID0000167	-62.28040	28.20702	-2.208	0.027263	*
##	SCHOOLID0000168	-82.18212	29.87688	-2.751	0.005955	**
##	SCHOOLID0000169	-56.14321	28.20702	-1.990	0.046567	*
##	SCHOOLID0000170	-136.31669	26.41423	-5.161	2.49e-07	***
##	SCHOOLID0000171	-78.35624	27.88279	-2.810	0.004958	**
##	SCHOOLID0000172	-2.17512	28.20702	-0.077	0.938535	
##	SCHOOLID0000173	-35.79812	28.56296	-1.253	0.210116	
##	SCHOOLID0000174	-98.33989	27.88279	-3.527	0.000422	***
##	SCHOOLID0000175	-153.91598	30.42262	-5.059	4.26e-07	***
##	SCHOOLID0000176	-90.03058	26.83023	-3.356	0.000794	***
##	SCHOOLID0000177	-105.45404	28.20702	-3.739	0.000186	***
##	SCHOOLID0000178	-101.43227	28.20702	-3.596	0.000324	***
##	SCHOOLID0000179	-92.12541	26.22723	-3.513	0.000445	***
##	SCHOOLID0000180	-83.98408	28.20702	-2.977	0.002912	**
##	SCHOOLID0000181	-183.27464	31.04040	-5.904	3.62e-09	***
##	SCHOOLID0000182	-87.25040	29.87688	-2.920	0.003502	**
##	SCHOOLID0000183	-176.40801	31.04040	-5.683	1.35e-08	***
##	SCHOOLID0000184	-113.24095	27.88279	-4.061	4.91e-05	***
##	SCHOOLID0000185	-25.48197	27.88279	-0.914	0.360788	
##	SCHOOLID0000186	8.74491	32.56009	0.269	0.788259	
##	SCHOOLID0000187	-88.28463	28.20702	-3.130	0.001752	**
##	SCHOOLID0000188	-20.79493	28.56296	-0.728	0.466603	
##	SCHOOLID0000189	47.18252	31.74596	1.486	0.137235	
##	SCHOOLID0000190	-84.30539	29.39104	-2.868	0.004132	**
##	SCHOOLID0000191	-107.24682	28.95560	-3.704	0.000213	***
##	SCHOOLID0000192	-65.73960	28.56296	-2.302	0.021374	*
##	SCHOOLID0000193	4.50323	28.95560	0.156	0.876412	
##	SCHOOLID0000194	-100.98655	28.56296	-3.536	0.000408	***
##	SCHOOLID0000195	-171.65051	31.04040	-5.530	3.26e-08	***
##	SCHOOLID0000196	-64.89551	28.95560	-2.241	0.025029	*
##	SCHOOLID0000197	-49.61561	34.63768	-1.432	0.152047	
##	SCHOOLID0000198	-99.97663	29.39104	-3.402	0.000672	***
##	SCHOOLID0000199	-166.38746	28.20702	-5.899	3.75e-09	***
##	SCHOOLID0000200	-87.18744	26.83023	-3.250	0.001158	**
##	SCHOOLID0000201	-141.38202	26.83023	-5.270	1.39e-07	***
##	SCHOOLID0000202	-353.62628	52.30175	-6.761	1.42e-11	***
##	SCHOOLID0000203	-85.55424	28.20702	-3.033	0.002425	**
##	SCHOOLID0000204	-31.56154	85.68888	-0.368	0.712635	
##	SCHOOLID0000205	23.78701	27.06253	0.879	0.379436	
##	SCHOOLID0000206	-57.97126	27.58616	-2.101	0.035619	*
##	SCHOOLID0000207	-60.53806	29.39104	-2.060	0.039442	*
##	SCHOOLID0000208	-111.44648	29.39104	-3.792	0.000150	***
##	SCHOOLID0000209	-130.32486	26.41423	-4.934	8.16e-07	***
##	SCHOOLID0000210	-118.61563	27.88279	-4.254	2.11e-05	***
##	SCHOOLID0000211	-73.11282	27.06253	-2.702	0.006909	**
##	SCHOOLID0000212	9.45177	28.95560	0.326	0.744109	
##	SCHOOLID0000213	-82.10232	28.20702	-2.911	0.003612	**
##	SCHOOLID0000214	-4.36368	28.56296	-0.153	0.878579	

##	SCHOOLID0000215	-71.04308	27.31370	-2.601	0.009305	**
##	SCHOOLID0000216	-106.56916	28.20702	-3.778	0.000159	***
##	SCHOOLID0000217	-105.95401	27.88279	-3.800	0.000145	***
##	SCHOOLID0000218	-72.11084	30.42262	-2.370	0.017787	*
##	SCHOOLID0000219	-141.08019	37.67167	-3.745	0.000181	***
##	SCHOOLID0000220	-149.18113	26.83023	-5.560	2.75e-08	***
##	SCHOOLID0000221	-81.83970	28.95560	-2.826	0.004714	**
##	SCHOOLID0000222	-141.35282	35.99653	-3.927	8.65e-05	***
##	SCHOOLID0000223	-21.78980	27.88279	-0.781	0.434535	
##	SCHOOLID0000224	-104.05112	25.88852	-4.019	5.87e-05	***
##	SCHOOLID0000225	57.30352	27.88279	2.055	0.039883	*
##	SCHOOLID0000226	-93.67039	28.95560	-3.235	0.001219	**
##	SCHOOLID0000227	-67.36521	28.95560	-2.327	0.020006	*
##	SCHOOLID0000228	-73.89913	28.95560	-2.552	0.010717	*
##	SCHOOLID0000229	-143.32180	28.56296	-5.018	5.29e-07	***
##	SCHOOLID0000230	-126.62115	29.39104	-4.308	1.66e-05	***
##	SCHOOLID0000231	-48.09842	27.88279	-1.725	0.084546	.
##	SCHOOLID0000232	-81.00073	33.51095	-2.417	0.015656	*
##	SCHOOLID0000233	-91.61246	29.87688	-3.066	0.002171	**
##	SCHOOLID0000234	-62.42698	31.74596	-1.966	0.049266	*
##	SCHOOLID0000235	-64.83952	28.56296	-2.270	0.023220	*
##	SCHOOLID0000236	-59.41787	27.58616	-2.154	0.031265	*
##	SCHOOLID0000237	-94.05460	30.42262	-3.092	0.001995	**
##	SCHOOLID0000238	-98.41172	34.63768	-2.841	0.004501	**
##	SCHOOLID0000239	-97.56540	26.05238	-3.745	0.000181	***
##	SCHOOLID0000240	-68.23599	27.06253	-2.521	0.011699	*
##	SCHOOLID0000241	-85.90663	27.31370	-3.145	0.001663	**
##	SCHOOLID0000242	-64.94462	30.42262	-2.135	0.032799	*
##	SCHOOLID0000243	-69.29904	28.20702	-2.457	0.014030	*
##	SCHOOLID0000244	-289.99142	28.56296	-10.153	< 2e-16	***
##	SCHOOLID0000245	-109.68900	27.88279	-3.934	8.40e-05	***
##	SCHOOLID0000246	92.12592	27.88279	3.304	0.000955	***
##	SCHOOLID0000247	-26.69754	28.56296	-0.935	0.349964	
##	SCHOOLID0000248	-64.62747	28.56296	-2.263	0.023674	*
##	SCHOOLID0000249	-75.37422	29.87688	-2.523	0.011653	*
##	SCHOOLID0000250	-37.62268	29.39104	-1.280	0.200541	
##	SCHOOLID0000251	-156.63297	27.58616	-5.678	1.39e-08	***
##	SCHOOLID0000252	-162.96834	35.99653	-4.527	6.02e-06	***
##	SCHOOLID0000253	64.63721	28.20702	2.292	0.021948	*
##	SCHOOLID0000254	-152.81619	27.58616	-5.540	3.09e-08	***
##	SCHOOLID0000255	-138.39604	23.34965	-5.927	3.16e-09	***
##	SCHOOLID0000256	-153.71947	28.20702	-5.450	5.13e-08	***
##	SCHOOLID0000257	-10.61301	29.39104	-0.361	0.718033	
##	SCHOOLID0000258	-72.63753	28.56296	-2.543	0.010999	*
##	SCHOOLID0000259	9.10716	28.20702	0.323	0.746800	
##	SCHOOLID0000260	90.06747	28.20702	3.193	0.001411	**
##	SCHOOLID0000261	40.69923	28.20702	1.443	0.149078	
##	SCHOOLID0000262	-32.41450	27.88279	-1.163	0.245042	
##	SCHOOLID0000263	-27.24200	27.31370	-0.997	0.318600	
##	SCHOOLID0000264	24.99319	27.88279	0.896	0.370073	
##	SCHOOLID0000265	-129.00666	26.83023	-4.808	1.54e-06	***
##	SCHOOLID0000266	-46.03249	28.56296	-1.612	0.107069	
##	SCHOOLID0000267	-107.06658	28.56296	-3.748	0.000179	***
##	SCHOOLID0000268	-63.98178	28.20702	-2.268	0.023327	*



##	SCHOOLID0000269	-121.24454	27.88279	-4.348	1.38e-05	***
##	SCHOOLID0000270	-111.09109	27.06253	-4.105	4.07e-05	***
##	SCHOOLID0000271	-98.06451	28.95560	-3.387	0.000709	***
##	SCHOOLID0000272	-31.69789	29.39104	-1.078	0.280835	
##	SCHOOLID0000273	-88.04184	25.45339	-3.459	0.000544	***
##	SCHOOLID0000274	-83.78579	27.31370	-3.068	0.002163	**
##	SCHOOLID0000275	-36.78045	28.20702	-1.304	0.192274	
##	SCHOOLID0000276	-90.48820	27.88279	-3.245	0.001176	**
##	SCHOOLID0000277	-31.68141	26.41423	-1.199	0.230390	
##	SCHOOLID0000278	-225.07675	27.06253	-8.317	< 2e-16	***
##	SCHOOLID0000279	-104.11404	37.67167	-2.764	0.005722	**
##	SCHOOLID0000280	-73.32746	27.58616	-2.658	0.007867	**
##	SCHOOLID0000281	-44.70336	30.42262	-1.469	0.141744	
##	SCHOOLID0000282	-152.94998	31.04040	-4.927	8.43e-07	***
##	SCHOOLID0000283	-127.54500	28.95560	-4.405	1.07e-05	***
##	SCHOOLID0000284	-23.12445	28.20702	-0.820	0.412338	
##	SCHOOLID0000285	-61.78844	28.20702	-2.191	0.028502	*
##	SCHOOLID0000286	-49.54392	27.58616	-1.796	0.072521	.
##	SCHOOLID0000287	-115.41605	27.58616	-4.184	2.88e-05	***
##	SCHOOLID0000288	-44.58357	28.95560	-1.540	0.123651	
##	SCHOOLID0000289	-35.53006	28.20702	-1.260	0.207829	
##	SCHOOLID0000290	-108.39264	30.42262	-3.563	0.000368	***
##	SCHOOLID0000291	-139.32271	29.39104	-4.740	2.16e-06	***
##	SCHOOLID0000292	-101.99877	27.31370	-3.734	0.000189	***
##	SCHOOLID0000293	-125.52741	39.79566	-3.154	0.001612	**
##	SCHOOLID0000294	-47.25512	28.20702	-1.675	0.093899	.
##	SCHOOLID0000295	-12.07438	28.95560	-0.417	0.676688	
##	SCHOOLID0000296	-20.97775	29.39104	-0.714	0.475396	
##	SCHOOLID0000297	-3.62980	28.95560	-0.125	0.900242	
##	SCHOOLID0000298	-124.70172	29.87688	-4.174	3.01e-05	***
##	SCHOOLID0000299	-137.73074	35.99653	-3.826	0.000131	***
##	SCHOOLID0000300	-69.69544	29.39104	-2.371	0.017739	*
##	SCHOOLID0000301	-116.97694	25.45339	-4.596	4.35e-06	***
##	SCHOOLID0000302	-90.84579	27.31370	-3.326	0.000883	***
##	SCHOOLID0000303	-100.51145	26.05238	-3.858	0.000115	***
##	SCHOOLID0000304	-52.68190	27.58616	-1.910	0.056190	.
##	SCHOOLID0000305	-83.95379	28.56296	-2.939	0.003296	**
##	SCHOOLID0000306	104.51881	28.20702	3.705	0.000212	***
##	SCHOOLID0000307	-106.90281	31.04040	-3.444	0.000575	***
##	SCHOOLID0000308	-80.57837	28.56296	-2.821	0.004793	**
##	SCHOOLID0000309	-111.14029	28.20702	-3.940	8.18e-05	***
##	SCHOOLID0000310	22.59796	27.88279	0.810	0.417689	
##	SCHOOLID0000311	-51.51350	37.67167	-1.367	0.171512	
##	SCHOOLID0000312	-82.58551	27.31370	-3.024	0.002503	**
##	SCHOOLID0000313	-48.44991	29.39104	-1.648	0.099282	.
##	SCHOOLID0000314	-55.56978	27.06253	-2.053	0.040054	*
##	SCHOOLID0000315	-132.99277	27.06253	-4.914	9.01e-07	***
##	SCHOOLID0000316	-30.15948	28.95560	-1.042	0.297626	
##	SCHOOLID0000317	73.35018	27.58616	2.659	0.007848	**
##	SCHOOLID0000318	-162.82738	27.58616	-5.903	3.66e-09	***
##	SCHOOLID0000319	120.85425	27.58616	4.381	1.19e-05	***
##	SCHOOLID0000320	-33.46768	28.95560	-1.156	0.247772	
##	SCHOOLID0000321	-74.69246	37.67167	-1.983	0.047418	*
##	SCHOOLID0000322	-168.94019	27.58616	-6.124	9.37e-10	***

##	SCHOOLID0000323	-31.07781	28.20702	-1.102	0.270579	
##	SCHOOLID0000324	-135.07457	27.88279	-4.844	1.28e-06	***
##	SCHOOLID0000325	-102.95986	28.56296	-3.605	0.000314	***
##	SCHOOLID0000326	-55.85330	27.58616	-2.025	0.042919	*
##	SCHOOLID0000327	-21.56196	29.39104	-0.734	0.463191	
##	SCHOOLID0000328	-14.42085	28.20702	-0.511	0.609184	
##	SCHOOLID0000329	-114.56709	29.39104	-3.898	9.74e-05	***
##	SCHOOLID0000330	-85.06227	28.20702	-3.016	0.002569	**
##	SCHOOLID0000331	-14.87590	28.20702	-0.527	0.597936	
##	SCHOOLID0000332	-112.65175	26.05238	-4.324	1.54e-05	***
##	SCHOOLID0000333	-86.93695	27.31370	-3.183	0.001461	**
##	SCHOOLID0000334	-71.20130	28.20702	-2.524	0.011606	*
##	SCHOOLID0000335	4.79256	27.58616	0.174	0.862080	
##	SCHOOLID0000336	28.27019	26.61472	1.062	0.288163	
##	SCHOOLID0000337	18.48702	27.58616	0.670	0.502770	
##	SCHOOLID0000338	-160.34594	52.30175	-3.066	0.002175	**
##	SCHOOLID0000339	-86.32547	28.95560	-2.981	0.002875	**
##	SCHOOLID0000340	-62.85323	28.56296	-2.201	0.027787	*
##	SCHOOLID0000341	-39.03936	28.20702	-1.384	0.166372	
##	SCHOOLID0000342	-134.35137	31.04040	-4.328	1.51e-05	***
##	SCHOOLID0000343	-121.67090	28.95560	-4.202	2.66e-05	***
##	SCHOOLID0000344	-47.81387	28.95560	-1.651	0.098704	.
##	SCHOOLID0000345	-110.46794	28.20702	-3.916	9.03e-05	***
##	SCHOOLID0000346	-26.53928	27.58616	-0.962	0.336041	
##	SCHOOLID0000347	36.41046	26.83023	1.357	0.174782	
##	SCHOOLID0000348	-140.82054	26.22723	-5.369	8.04e-08	***
##	SCHOOLID0000349	-101.18560	26.83023	-3.771	0.000163	***
##	SCHOOLID0000350	-127.08528	52.30175	-2.430	0.015118	*
##	SCHOOLID0000351	-50.23382	27.58616	-1.821	0.068632	.
##	SCHOOLID0000352	9.42166	37.67167	0.250	0.802514	
##	SCHOOLID0000353	-16.82111	27.58616	-0.610	0.542027	
##	SCHOOLID0000354	-143.87520	28.95560	-4.969	6.82e-07	***
##	SCHOOLID0000355	67.12523	28.95560	2.318	0.020452	*
##	SCHOOLID0000356	-7.08068	27.58616	-0.257	0.797434	
##	SCHOOLID0000357	-63.86152	31.74596	-2.012	0.044277	*
##	SCHOOLID0000358	-74.78091	27.88279	-2.682	0.007328	**
##	SCHOOLID0000359	-89.29381	39.79566	-2.244	0.024861	*
##	SCHOOLID0000360	-86.39488	27.88279	-3.099	0.001949	**
##	SCHOOLID0000361	-176.25700	42.59167	-4.138	3.52e-05	***
##	SCHOOLID0000362	-58.40284	28.95560	-2.017	0.043717	*
##	SCHOOLID0000363	-59.75913	32.56009	-1.835	0.066476	.
##	SCHOOLID0000364	-67.36061	28.95560	-2.326	0.020015	*
##	SCHOOLID0000365	-70.84228	27.58616	-2.568	0.010238	*
##	SCHOOLID0000366	-83.95126	28.20702	-2.976	0.002923	**
##	SCHOOLID0000367	-77.17022	27.58616	-2.797	0.005158	**
##	SCHOOLID0000368	-138.23707	46.47132	-2.975	0.002938	**
##	SCHOOLID0000369	-86.92734	26.05238	-3.337	0.000850	***
##	SCHOOLID0000370	-68.63034	28.56296	-2.403	0.016284	*
##	SCHOOLID0000371	-7.87074	30.42262	-0.259	0.795860	
##	SCHOOLID0000372	-62.35420	28.20702	-2.211	0.027081	*
##	SCHOOLID0000373	-91.77345	27.88279	-3.291	0.000999	***
##	SCHOOLID0000374	-10.99762	27.88279	-0.394	0.693275	
##	SCHOOLID0000375	-100.97603	27.58616	-3.660	0.000253	***
##	SCHOOLID0000376	-17.00606	27.31370	-0.623	0.533545	

##	SCHOOLID0000377	-106.15412	27.58616	-3.848	0.000120	***
##	SCHOOLID0000378	21.96604	29.39104	0.747	0.454852	
##	SCHOOLID0000379	-36.09053	27.58616	-1.308	0.190799	
##	SCHOOLID0000380	-116.69486	28.95560	-4.030	5.60e-05	***
##	SCHOOLID0000381	-153.93533	25.88852	-5.946	2.81e-09	***
##	SCHOOLID0000382	-89.45433	27.31370	-3.275	0.001059	**
##	SCHOOLID0000383	-53.25888	27.88279	-1.910	0.056141	.
##	SCHOOLID0000384	-57.93065	28.20702	-2.054	0.040017	*
##	SCHOOLID0000385	-137.63237	28.20702	-4.879	1.08e-06	***
##	SCHOOLID0000386	-47.13574	28.95560	-1.628	0.103577	
##	SCHOOLID0000387	-111.61038	31.74596	-3.516	0.000440	***
##	SCHOOLID0000388	31.38632	35.99653	0.872	0.383264	
##	SCHOOLID0000389	-82.75334	29.87688	-2.770	0.005616	**
##	SCHOOLID0000390	-95.85507	27.88279	-3.438	0.000588	***
##	SCHOOLID0000391	-147.92706	27.88279	-5.305	1.14e-07	***
##	SCHOOLID0000392	-43.72120	28.20702	-1.550	0.121162	
##	SCHOOLID0000393	-50.21918	28.20702	-1.780	0.075036	.
##	SCHOOLID0000394	-75.56042	27.58616	-2.739	0.006169	**
##	SCHOOLID0000395	-27.66686	28.20702	-0.981	0.326684	
##	SCHOOLID0000396	-79.96976	26.05238	-3.070	0.002148	**
##	SCHOOLID0000397	-128.34685	28.95560	-4.433	9.39e-06	***
##	SCHOOLID0000398	-91.62322	30.42262	-3.012	0.002603	**
##	SCHOOLID0000399	-95.15566	28.20702	-3.373	0.000744	***
##	SCHOOLID0000400	-140.69071	31.04040	-4.533	5.88e-06	***
##	SCHOOLID0000401	-57.28274	26.83023	-2.135	0.032778	*
##	SCHOOLID0000402	-66.03124	27.06253	-2.440	0.014702	*
##	SCHOOLID0000403	-90.51546	27.88279	-3.246	0.001172	**
##	SCHOOLID0000404	-89.66114	28.95560	-3.097	0.001962	**
##	SCHOOLID0000405	-22.74226	28.56296	-0.796	0.425921	
##	SCHOOLID0000406	-58.84386	27.88279	-2.110	0.034842	*
##	SCHOOLID0000407	-77.74769	29.39104	-2.645	0.008172	**
##	SCHOOLID0000408	-135.23816	28.56296	-4.735	2.22e-06	***
##	SCHOOLID0000409	-103.14594	28.56296	-3.611	0.000306	***
##	SCHOOLID0000410	-147.00365	27.31370	-5.382	7.49e-08	***
##	SCHOOLID0000411	-54.19176	28.20702	-1.921	0.054725	.
##	SCHOOLID0000412	-27.48514	52.30175	-0.526	0.599236	
##	SCHOOLID0000413	-96.04530	28.20702	-3.405	0.000664	***
##	SCHOOLID0000414	-69.57782	28.20702	-2.467	0.013649	*
##	SCHOOLID0000415	-136.39618	29.87688	-4.565	5.03e-06	***
##	SCHOOLID0000416	-126.88321	27.06253	-4.689	2.78e-06	***
##	SCHOOLID0000417	72.21515	27.58616	2.618	0.008859	**
##	SCHOOLID0000418	-227.26962	30.42262	-7.470	8.48e-14	***
##	SCHOOLID0000419	-122.14810	27.88279	-4.381	1.19e-05	***
##	SCHOOLID0000420	-79.10597	26.83023	-2.948	0.003200	**
##	SCHOOLID0000421	-71.20517	28.56296	-2.493	0.012681	*
##	SCHOOLID0000422	-78.76062	28.95560	-2.720	0.006535	**
##	SCHOOLID0000423	-111.10263	26.22723	-4.236	2.29e-05	***
##	SCHOOLID0000424	-161.83888	28.56296	-5.666	1.49e-08	***
##	SCHOOLID0000425	-20.99400	26.83023	-0.782	0.433949	
##	SCHOOLID0000426	-26.41704	27.31370	-0.967	0.333475	
##	SCHOOLID0000427	-91.80054	27.06253	-3.392	0.000695	***
##	SCHOOLID0000428	-21.63011	39.79566	-0.544	0.586774	
##	SCHOOLID0000429	-114.42105	29.39104	-3.893	9.95e-05	***
##	SCHOOLID0000430	-139.31342	27.31370	-5.100	3.43e-07	***

##	SCHOOLID0000431	-94.36342	26.83023	-3.517	0.000438	***
##	SCHOOLID0000432	-14.38045	27.58616	-0.521	0.602172	
##	SCHOOLID0000433	-120.93910	27.58616	-4.384	1.17e-05	***
##	SCHOOLID0000434	-38.26344	26.41423	-1.449	0.147475	
##	SCHOOLID0000435	-113.30901	28.20702	-4.017	5.92e-05	***
##	SCHOOLID0000436	-254.76614	62.34782	-4.086	4.41e-05	***
##	SCHOOLID0000437	-142.66098	28.95560	-4.927	8.45e-07	***
##	SCHOOLID0000438	98.46907	28.56296	3.447	0.000568	***
##	SCHOOLID0000439	16.71308	27.88279	0.599	0.548913	
##	SCHOOLID0000440	-98.85529	26.83023	-3.684	0.000230	***
##	SCHOOLID0000441	-106.99142	28.20702	-3.793	0.000149	***
##	SCHOOLID0000442	-106.26558	27.88279	-3.811	0.000139	***
##	SCHOOLID0000443	-40.56015	27.58616	-1.470	0.141501	
##	SCHOOLID0000444	-87.48221	27.31370	-3.203	0.001364	**
##	SCHOOLID0000445	-114.84297	28.56296	-4.021	5.83e-05	***
##	SCHOOLID0000446	-105.39743	27.58616	-3.821	0.000134	***
##	SCHOOLID0000447	-22.75958	28.20702	-0.807	0.419752	
##	SCHOOLID0000448	169.67693	27.88279	6.085	1.19e-09	***
##	SCHOOLID0000449	-84.14562	26.22723	-3.208	0.001338	**
##	SCHOOLID0000450	-143.94100	32.56009	-4.421	9.91e-06	***
##	SCHOOLID0000451	-65.98087	29.39104	-2.245	0.024788	*
##	SCHOOLID0000452	-80.30359	29.39104	-2.732	0.006298	**
##	SCHOOLID0000453	-123.73084	26.41423	-4.684	2.84e-06	***
##	SCHOOLID0000454	-169.45083	28.56296	-5.933	3.05e-09	***
##	SCHOOLID0000455	-103.34683	28.20702	-3.664	0.000249	***
##	SCHOOLID0000456	18.11825	28.20702	0.642	0.520669	
##	SCHOOLID0000457	-121.66094	27.06253	-4.496	7.00e-06	***
##	SCHOOLID0000458	-102.50228	28.20702	-3.634	0.000280	***
##	SCHOOLID0000459	15.93988	28.95560	0.550	0.581990	
##	SCHOOLID0000460	-216.52028	39.79566	-5.441	5.40e-08	***
##	SCHOOLID0000461	-75.19938	28.56296	-2.633	0.008479	**
##	SCHOOLID0000462	-65.65308	28.56296	-2.299	0.021546	*
##	SCHOOLID0000463	-25.21938	28.20702	-0.894	0.371294	
##	SCHOOLID0000464	-111.51394	30.42262	-3.665	0.000248	***
##	SCHOOLID0000465	-115.30222	29.39104	-3.923	8.79e-05	***
##	SCHOOLID0000466	-5.06352	27.31370	-0.185	0.852931	
##	SCHOOLID0000467	-4.30361	29.39104	-0.146	0.883587	
##	SCHOOLID0000468	9.54174	28.20702	0.338	0.735161	
##	SCHOOLID0000469	-121.24936	28.95560	-4.187	2.84e-05	***
##	SCHOOLID0000470	-119.90283	29.39104	-4.080	4.54e-05	***
##	SCHOOLID0000471	-5.18897	27.58616	-0.188	0.850801	
##	SCHOOLID0000472	-2.47312	29.39104	-0.084	0.932942	
##	SCHOOLID0000473	-242.36284	29.87688	-8.112	5.40e-16	***
##	SCHOOLID0000474	-56.47937	28.20702	-2.002	0.045270	*
##	SCHOOLID0000475	-115.20884	27.31370	-4.218	2.48e-05	***
##	SCHOOLID0000476	-4.43404	28.20702	-0.157	0.875092	
##	SCHOOLID0000477	-78.40167	28.56296	-2.745	0.006061	**
##	SCHOOLID0000478	-45.93854	27.58616	-1.665	0.095881	.
##	SCHOOLID0000479	-50.43235	28.20702	-1.788	0.073808	.
##	SCHOOLID0000480	-38.02676	31.04040	-1.225	0.220569	
##	SCHOOLID0000481	-201.52576	35.99653	-5.598	2.20e-08	***
##	SCHOOLID0000482	-40.75015	26.22723	-1.554	0.120271	
##	SCHOOLID0000483	-75.86828	27.58616	-2.750	0.005963	**
##	SCHOOLID0000484	2.50170	27.06253	0.092	0.926349	

##	SCHOOLID0000485	-74.91431	29.39104	-2.549	0.010818	*
##	SCHOOLID0000486	-111.63356	26.05238	-4.285	1.84e-05	***
##	SCHOOLID0000487	10.72696	27.88279	0.385	0.700454	
##	SCHOOLID0000488	-131.42425	26.22723	-5.011	5.48e-07	***
##	SCHOOLID0000489	-3.07370	32.56009	-0.094	0.924792	
##	SCHOOLID0000490	5.20782	27.31370	0.191	0.848789	
##	SCHOOLID0000491	-153.58891	24.12776	-6.366	2.01e-10	***
##	SCHOOLID0000492	-78.81100	28.95560	-2.722	0.006501	**
##	SCHOOLID0000493	-130.50609	46.47132	-2.808	0.004987	**
##	SCHOOLID0000494	-42.93407	27.88279	-1.540	0.123631	
##	SCHOOLID0000495	-29.64537	27.88279	-1.063	0.287704	
##	SCHOOLID0000496	-9.54793	28.56296	-0.334	0.738176	
##	SCHOOLID0000497	-73.27967	26.41423	-2.774	0.005540	**
##	SCHOOLID0000498	-8.52273	27.31370	-0.312	0.755022	
##	SCHOOLID0000499	-109.85677	31.04040	-3.539	0.000403	***
##	SCHOOLID0000500	-95.50196	29.87688	-3.197	0.001394	**
##	SCHOOLID0000501	-145.39032	25.32451	-5.741	9.61e-09	***
##	SCHOOLID0000502	-102.83436	29.39104	-3.499	0.000469	***
##	SCHOOLID0000503	-42.27196	29.39104	-1.438	0.150383	
##	SCHOOLID0000504	-72.11392	28.56296	-2.525	0.011590	*
##	SCHOOLID0000505	-50.74939	27.58616	-1.840	0.065839	.
##	SCHOOLID0000506	-55.96086	27.58616	-2.029	0.042520	*
##	SCHOOLID0000507	-29.94138	29.87688	-1.002	0.316285	
##	SCHOOLID0000508	-32.07813	28.20702	-1.137	0.255458	
##	SCHOOLID0000509	-87.96152	29.39104	-2.993	0.002769	**
##	SCHOOLID0000510	-99.40294	28.20702	-3.524	0.000426	***
##	SCHOOLID0000511	-103.46571	28.20702	-3.668	0.000245	***
##	SCHOOLID0000512	-75.47633	34.63768	-2.179	0.029347	*
##	SCHOOLID0000513	-123.91018	27.58616	-4.492	7.12e-06	***
##	SCHOOLID0000514	-34.95200	28.20702	-1.239	0.215321	
##	SCHOOLID0000515	-62.08728	28.56296	-2.174	0.029745	*
##	SCHOOLID0000516	18.28610	28.56296	0.640	0.522051	
##	SCHOOLID0000517	-84.95618	26.61472	-3.192	0.001416	**
##	SCHOOLID0000518	-64.86602	29.39104	-2.207	0.027331	*
##	SCHOOLID0000519	-111.43262	31.04040	-3.590	0.000332	***
##	SCHOOLID0000520	-113.25751	29.39104	-3.853	0.000117	***
##	SCHOOLID0000521	-68.61676	27.58616	-2.487	0.012881	*
##	SCHOOLID0000522	19.58735	27.88279	0.702	0.482386	
##	SCHOOLID0000523	-10.25578	27.58616	-0.372	0.710068	
##	SCHOOLID0000524	18.25354	28.20702	0.647	0.517560	
##	SCHOOLID0000525	7.87993	27.88279	0.283	0.777481	
##	SCHOOLID0000526	-154.32567	27.31370	-5.650	1.64e-08	***
##	SCHOOLID0000527	-112.77749	27.88279	-4.045	5.27e-05	***
##	SCHOOLID0000528	-128.69098	28.20702	-4.562	5.10e-06	***
##	SCHOOLID0000529	-399.46934	33.51095	-11.921	< 2e-16	***
##	SCHOOLID0000530	-307.44179	46.47132	-6.616	3.83e-11	***
##	SCHOOLID0000531	-117.70867	27.06253	-4.350	1.37e-05	***
##	SCHOOLID0000532	-45.05991	26.83023	-1.679	0.093088	.
##	SCHOOLID0000533	-55.41561	27.58616	-2.009	0.044576	*
##	SCHOOLID0000534	45.05308	28.20702	1.597	0.110238	
##	SCHOOLID0000535	-116.43389	27.31370	-4.263	2.03e-05	***
##	SCHOOLID0000536	-23.00966	28.20702	-0.816	0.414662	
##	SCHOOLID0000537	-48.45993	28.95560	-1.674	0.094233	.
##	SCHOOLID0000538	-66.73449	27.88279	-2.393	0.016707	*

## SCHOOLID0000539	-39.27305	29.39104	-1.336	0.181498	
## SCHOOLID0000540	-113.28852	28.20702	-4.016	5.94e-05	***
## SCHOOLID0000541	-128.14573	28.20702	-4.543	5.59e-06	***
## SCHOOLID0000542	4.10511	28.56296	0.144	0.885722	
## SCHOOLID0000543	-126.03557	24.42246	-5.161	2.50e-07	***
## SCHOOLID0000544	-28.71411	28.56296	-1.005	0.314774	
## SCHOOLID0000545	-124.83581	32.56009	-3.834	0.000127	***
## SCHOOLID0000546	-90.33013	28.95560	-3.120	0.001815	**
## SCHOOLID0000547	-13.68681	27.58616	-0.496	0.619798	
## SCHOOLID0000548	-1.79318	28.56296	-0.063	0.949943	
## SCHOOLID0000549	-29.71044	28.95560	-1.026	0.304877	
## SCHOOLID0000550	-10.08122	28.95560	-0.348	0.727724	
## SCHOOLID0000551	-109.29952	42.59167	-2.566	0.010292	*
## SCHOOLID0000552	-51.13340	28.20702	-1.813	0.069886	.
## SCHOOLID0000553	-114.83433	28.56296	-4.020	5.84e-05	***
## SCHOOLID0000554	-201.76401	28.95560	-6.968	3.36e-12	***
## SCHOOLID0000555	-66.66050	26.61472	-2.505	0.012269	*
## SCHOOLID0000556	-24.30262	27.58616	-0.881	0.378349	
## SCHOOLID0000557	-84.85599	25.58987	-3.316	0.000916	***
## SCHOOLID0000558	-82.24916	32.56009	-2.526	0.011546	*
## SCHOOLID0000559	-153.41659	29.39104	-5.220	1.82e-07	***
## SCHOOLID0000560	-39.61059	28.56296	-1.387	0.165531	
## SCHOOLID0000561	-148.04938	28.95560	-5.113	3.21e-07	***
## SCHOOLID0000562	-61.85814	28.20702	-2.193	0.028324	*
## SCHOOLID0000563	11.55651	27.88279	0.414	0.678538	
## SCHOOLID0000564	-7.46514	27.88279	-0.268	0.788909	
## SCHOOLID0000565	-97.02694	28.56296	-3.397	0.000683	***
## SCHOOLID0000566	-35.27051	31.04040	-1.136	0.255860	
## SCHOOLID0000567	-72.39413	26.83023	-2.698	0.006979	**
## SCHOOLID0000568	-8.07939	26.05238	-0.310	0.756474	
## SCHOOLID0000569	-52.70265	27.31370	-1.930	0.053685	.
## SCHOOLID0000570	-12.74049	29.39104	-0.433	0.664671	
## SCHOOLID0000571	-55.35197	28.20702	-1.962	0.049742	*
## SCHOOLID0000572	-118.40662	26.83023	-4.413	1.03e-05	***
## SCHOOLID0000573	25.66164	28.20702	0.910	0.362965	
## SCHOOLID0000574	-38.25586	28.95560	-1.321	0.186460	
## SCHOOLID0000575	-133.90840	30.42262	-4.402	1.08e-05	***
## SCHOOLID0000576	-139.31298	29.39104	-4.740	2.16e-06	***
## SCHOOLID0000577	-21.57284	28.95560	-0.745	0.456265	
## SCHOOLID0000578	-60.67652	28.56296	-2.124	0.033662	*
## SCHOOLID0000579	-153.32180	28.20702	-5.436	5.55e-08	***
## SCHOOLID0000580	-26.52283	29.39104	-0.902	0.366854	
## SCHOOLID0000581	-36.29455	27.58616	-1.316	0.188304	
## SCHOOLID0000582	-90.69228	26.61472	-3.408	0.000657	***
## SCHOOLID0000583	-19.93810	28.56296	-0.698	0.485164	
## SCHOOLID0000584	-94.59060	28.56296	-3.312	0.000930	***
## SCHOOLID0000585	-32.38454	27.06253	-1.197	0.231461	
## SCHOOLID0000586	-95.35404	25.58987	-3.726	0.000195	***
## SCHOOLID0000587	-36.64544	29.87688	-1.227	0.220013	
## SCHOOLID0000588	-72.62326	27.88279	-2.605	0.009208	**
## SCHOOLID0000589	-60.02619	27.58616	-2.176	0.029576	*
## SCHOOLID0000590	-152.84735	29.87688	-5.116	3.16e-07	***
## SCHOOLID0000591	-66.07717	34.63768	-1.908	0.056455	.
## SCHOOLID0000592	-95.63785	28.56296	-3.348	0.000815	***

##	SCHOOLID0000593	-127.77149	27.58616	-4.632	3.66e-06	***
##	SCHOOLID0000594	30.41727	28.20702	1.078	0.280893	
##	SCHOOLID0000595	21.78266	28.56296	0.763	0.445704	
##	SCHOOLID0000596	-84.51636	31.74596	-2.662	0.007771	**
##	SCHOOLID0000597	-39.11339	27.88279	-1.403	0.160705	
##	SCHOOLID0000598	-116.55231	26.22723	-4.444	8.90e-06	***
##	SCHOOLID0000599	-14.24046	28.20702	-0.505	0.613669	
##	SCHOOLID0000600	-155.55663	25.32451	-6.143	8.35e-10	***
##	SCHOOLID0000601	-51.29464	34.63768	-1.481	0.138658	
##	SCHOOLID0000602	-44.04188	28.56296	-1.542	0.123115	
##	SCHOOLID0000603	-34.88505	28.56296	-1.221	0.221979	
##	SCHOOLID0000604	7.69278	28.20702	0.273	0.785068	
##	SCHOOLID0000605	-2.79282	28.56296	-0.098	0.922110	
##	SCHOOLID0000606	-87.12209	27.58616	-3.158	0.001591	**
##	SCHOOLID0000607	4.61804	28.20702	0.164	0.869954	
##	SCHOOLID0000608	-60.67825	27.88279	-2.176	0.029558	*
##	SCHOOLID0000609	-126.93691	27.58616	-4.601	4.23e-06	***
##	SCHOOLID0000610	146.10629	27.88279	5.240	1.63e-07	***
##	SCHOOLID0000611	1.05300	28.95560	0.036	0.970991	
##	SCHOOLID0000612	-49.44684	28.56296	-1.731	0.083447	.
##	SCHOOLID0000613	-102.14195	28.56296	-3.576	0.000350	***
##	SCHOOLID0000614	-76.93469	26.83023	-2.867	0.004144	**
##	SCHOOLID0000615	-90.62359	27.58616	-3.285	0.001022	**
##	SCHOOLID0000616	-130.50498	28.95560	-4.507	6.63e-06	***
##	SCHOOLID0000617	-46.13230	28.95560	-1.593	0.111137	
##	SCHOOLID0000618	-81.65213	29.39104	-2.778	0.005475	**
##	SCHOOLID0000619	-86.77594	28.20702	-3.076	0.002099	**
##	SCHOOLID0000620	-63.57589	27.88279	-2.280	0.022616	*
##	SCHOOLID0000621	-58.17959	28.56296	-2.037	0.041680	*
##	SCHOOLID0000622	-58.88281	29.39104	-2.003	0.045151	*
##	SCHOOLID0000623	-91.32232	26.83023	-3.404	0.000667	***
##	SCHOOLID0000624	-229.13906	39.79566	-5.758	8.70e-09	***
##	SCHOOLID0000625	-17.07333	28.95560	-0.590	0.555443	
##	SCHOOLID0000626	-84.06196	28.20702	-2.980	0.002886	**
##	SCHOOLID0000627	-65.81751	28.56296	-2.304	0.021221	*
##	SCHOOLID0000628	-82.98208	27.31370	-3.038	0.002385	**
##	SCHOOLID0000629	-62.20130	28.95560	-2.148	0.031718	*
##	SCHOOLID0000630	-49.93827	26.61472	-1.876	0.060630	.
##	SCHOOLID0000631	-95.24128	26.61472	-3.579	0.000347	***
##	SCHOOLID0000632	-146.02402	25.45339	-5.737	9.85e-09	***
##	SCHOOLID0000633	-230.37238	52.30175	-4.405	1.07e-05	***
##	SCHOOLID0000634	-62.23874	28.56296	-2.179	0.029349	*
##	SCHOOLID0000635	-70.30938	28.56296	-2.462	0.013846	*
##	SCHOOLID0000636	62.26351	28.20702	2.207	0.027304	*
##	SCHOOLID0000637	-136.09499	25.73465	-5.288	1.25e-07	***
##	SCHOOLID0000638	-47.04944	28.56296	-1.647	0.099536	.
##	SCHOOLID0000639	-61.19507	27.06253	-2.261	0.023760	*
##	SCHOOLID0000640	-126.37775	27.88279	-4.532	5.88e-06	***
##	SCHOOLID0000641	-61.72769	27.31370	-2.260	0.023840	*
##	SCHOOLID0000642	-61.41128	28.20702	-2.177	0.029485	*
##	SCHOOLID0000643	-120.64732	24.50448	-4.923	8.60e-07	***
##	SCHOOLID0000644	-99.54334	46.47132	-2.142	0.032208	*
##	SCHOOLID0000645	-167.90809	31.74596	-5.289	1.25e-07	***
##	SCHOOLID0000646	-169.54255	33.51095	-5.059	4.26e-07	***

## SCHOOLID0000647	-74.78741	29.87688	-2.503	0.012320	*
## SCHOOLID0000648	-44.16661	28.95560	-1.525	0.127202	
## SCHOOLID0000649	22.75134	26.41423	0.861	0.389072	
## SCHOOLID0000650	-115.46611	31.74596	-3.637	0.000277	***
## SCHOOLID0000651	-98.58914	28.56296	-3.452	0.000559	***
## SCHOOLID0000652	-150.57488	26.05238	-5.780	7.65e-09	***
## SCHOOLID0000653	-52.10900	25.32451	-2.058	0.039643	*
## SCHOOLID0000654	-130.59792	27.58616	-4.734	2.22e-06	***
## SCHOOLID0000655	-52.97005	28.20702	-1.878	0.060416	.
## SCHOOLID0000656	-83.95411	26.41423	-3.178	0.001484	**
## SCHOOLID0000657	-74.33898	28.95560	-2.567	0.010259	*
## SCHOOLID0000658	-54.64149	27.88279	-1.960	0.050053	.
## SCHOOLID0000659	-34.95775	27.88279	-1.254	0.209958	
## SCHOOLID0000660	-33.07563	29.39104	-1.125	0.260454	
## SCHOOLID0000661	-105.53585	27.31370	-3.864	0.000112	***
## SCHOOLID0000662	-50.11090	27.31370	-1.835	0.066580	.
## SCHOOLID0000663	-97.33798	29.39104	-3.312	0.000929	***
## SCHOOLID0000664	24.02341	29.87688	0.804	0.421365	
## SCHOOLID0000665	-49.99903	27.88279	-1.793	0.072965	.
## SCHOOLID0000666	-80.76294	28.95560	-2.789	0.005291	**
## SCHOOLID0000667	-27.03553	28.20702	-0.958	0.337844	
## SCHOOLID0000668	-39.45480	29.87688	-1.321	0.186664	
## SCHOOLID0000669	-141.02665	29.39104	-4.798	1.62e-06	***
## SCHOOLID0000670	-82.49977	28.56296	-2.888	0.003879	**
## SCHOOLID0000671	-89.11797	27.31370	-3.263	0.001106	**
## SCHOOLID0000672	-54.21381	27.58616	-1.965	0.049405	*
## SCHOOLID0000673	-96.36460	28.95560	-3.328	0.000877	***
## SCHOOLID0000674	-5.38441	29.39104	-0.183	0.854645	
## SCHOOLID0000675	-84.33024	34.63768	-2.435	0.014919	*
## SCHOOLID0000676	-15.34410	29.87688	-0.514	0.607555	
## SCHOOLID0000677	-29.06464	28.56296	-1.018	0.308903	
## SCHOOLID0000678	-20.30106	29.39104	-0.691	0.489752	
## SCHOOLID0000679	-99.68355	27.88279	-3.575	0.000351	***
## SCHOOLID0000680	-92.56468	28.20702	-3.282	0.001035	**
## SCHOOLID0000681	-84.06585	27.88279	-3.015	0.002575	**
## SCHOOLID0000682	-89.42105	27.88279	-3.207	0.001344	**
## SCHOOLID0000683	-25.06432	28.95560	-0.866	0.386718	
## SCHOOLID0000684	-78.12787	27.31370	-2.860	0.004238	**
## SCHOOLID0000685	-105.46092	26.61472	-3.963	7.45e-05	***
## SCHOOLID0000686	-42.81721	28.56296	-1.499	0.133885	
## SCHOOLID0000687	-145.09378	28.20702	-5.144	2.73e-07	***
## SCHOOLID0000688	-61.73853	28.95560	-2.132	0.033010	*
## SCHOOLID0000689	-119.06742	26.61472	-4.474	7.75e-06	***
## SCHOOLID0000690	-128.22773	29.39104	-4.363	1.29e-05	***
## SCHOOLID0000691	-114.72750	28.20702	-4.067	4.78e-05	***
## SCHOOLID0000692	-114.41457	28.56296	-4.006	6.22e-05	***
## SCHOOLID0000693	-14.42953	28.95560	-0.498	0.618257	
## SCHOOLID0000694	-80.12146	28.95560	-2.767	0.005664	**
## SCHOOLID0000695	-21.31625	28.95560	-0.736	0.461640	
## SCHOOLID0000696	2.51694	27.88279	0.090	0.928075	
## SCHOOLID0000697	-13.47074	46.47132	-0.290	0.771918	
## SCHOOLID0000698	28.15698	27.58616	1.021	0.307418	
## SCHOOLID0000699	29.22151	31.74596	0.920	0.357338	
## SCHOOLID0000700	-71.86973	27.58616	-2.605	0.009190	**



## SCHOOLID0000701	-9.05847	28.20702	-0.321	0.748107	
## SCHOOLID0000702	-23.52391	29.39104	-0.800	0.423506	
## SCHOOLID0000703	-86.08097	26.61472	-3.234	0.001222	**
## SCHOOLID0000704	-152.24237	27.88279	-5.460	4.84e-08	***
## SCHOOLID0000705	-102.49250	28.56296	-3.588	0.000334	***
## SCHOOLID0000706	-158.12694	31.04040	-5.094	3.55e-07	***
## SCHOOLID0000707	-55.63074	28.20702	-1.972	0.048603	*
## SCHOOLID0000708	-3.98348	27.58616	-0.144	0.885186	
## SCHOOLID0000709	-16.38527	28.56296	-0.574	0.566211	
## SCHOOLID0000710	-107.89746	28.95560	-3.726	0.000195	***
## SCHOOLID0000711	-102.26451	28.20702	-3.625	0.000289	***
## SCHOOLID0000712	-106.23572	28.56296	-3.719	0.000201	***
## SCHOOLID0000713	-35.26639	29.39104	-1.200	0.230198	
## SCHOOLID0000714	-99.95229	29.87688	-3.345	0.000824	***
## SCHOOLID0000715	-68.56544	28.56296	-2.401	0.016386	*
## SCHOOLID0000716	-45.31690	27.31370	-1.659	0.097113	.
## SCHOOLID0000717	-46.49640	29.87688	-1.556	0.119668	
## SCHOOLID0000718	-94.29063	28.20702	-3.343	0.000832	***
## SCHOOLID0000719	-154.35209	31.04040	-4.973	6.69e-07	***
## SCHOOLID0000720	23.98038	27.58616	0.869	0.384704	
## SCHOOLID0000721	-113.45906	29.87688	-3.798	0.000147	***
## SCHOOLID0000722	-80.72292	29.87688	-2.702	0.006904	**
## SCHOOLID0000723	-39.53400	27.88279	-1.418	0.156253	
## SCHOOLID0000724	-60.80418	26.83023	-2.266	0.023451	*
## SCHOOLID0000725	-21.69632	27.88279	-0.778	0.436508	
## SCHOOLID0000726	26.34098	28.95560	0.910	0.362995	
## SCHOOLID0000727	-119.75501	27.31370	-4.384	1.17e-05	***
## SCHOOLID0000728	-36.62467	28.56296	-1.282	0.199779	
## SCHOOLID0000729	-41.01269	28.56296	-1.436	0.151062	
## SCHOOLID0000730	-24.34081	27.88279	-0.873	0.382695	
## SCHOOLID0000731	-77.17344	27.06253	-2.852	0.004356	**
## SCHOOLID0000732	-23.99475	27.58616	-0.870	0.384419	
## SCHOOLID0000733	-78.87230	29.39104	-2.684	0.007293	**
## SCHOOLID0000734	-99.30965	26.05238	-3.812	0.000138	***
## SCHOOLID0000735	-69.13604	27.58616	-2.506	0.012216	*
## SCHOOLID0000736	-30.85642	28.20702	-1.094	0.274006	
## SCHOOLID0000737	-64.83237	27.06253	-2.396	0.016604	*
## SCHOOLID0000738	-27.72353	27.31370	-1.015	0.310121	
## SCHOOLID0000739	-60.32514	29.87688	-2.019	0.043494	*
## SCHOOLID0000740	-55.55284	27.88279	-1.992	0.046350	*
## SCHOOLID0000741	-90.61733	28.20702	-3.213	0.001319	**
## SCHOOLID0000742	-70.78264	26.61472	-2.660	0.007834	**
## SCHOOLID0000743	-156.94975	29.87688	-5.253	1.52e-07	***
## SCHOOLID0000744	-84.97815	27.58616	-3.080	0.002071	**
## SCHOOLID0000745	7.64647	28.95560	0.264	0.791725	
## SCHOOLID0000746	-95.68483	26.05238	-3.673	0.000241	***
## SCHOOLID0000747	-4.73150	28.56296	-0.166	0.868433	
## SCHOOLID0000748	-115.91712	27.06253	-4.283	1.85e-05	***
## SCHOOLID0000749	-61.58571	27.88279	-2.209	0.027210	*
## SCHOOLID0000750	-109.76690	27.31370	-4.019	5.88e-05	***
## SCHOOLID0000751	36.91093	27.88279	1.324	0.185595	
## SCHOOLID0000752	23.99224	27.88279	0.860	0.389546	
## SCHOOLID0000753	-86.23649	31.74596	-2.716	0.006607	**
## SCHOOLID0000754	-19.32112	27.58616	-0.700	0.483695	

```
## SCHOOLID0000755    -4.70554    28.56296    -0.165    0.869149
## SCHOOLID0000756    103.30942    28.20702     3.663    0.000251 ***
## SCHOOLID0000757    -64.65267    28.95560    -2.233    0.025577 *
## SCHOOLID0000758   -149.86865    27.06253    -5.538    3.12e-08 ***
## SCHOOLID0000759    -78.51853    28.56296    -2.749    0.005986 **
## SCHOOLID0000760   -200.21129    35.99653    -5.562    2.72e-08 ***
## SCHOOLID0000761    -98.65288    27.31370    -3.612    0.000305 ***
## SCHOOLID0000762   -105.75537    27.88279    -3.793    0.000150 ***
## SCHOOLID0000763    -85.87811    28.20702    -3.045    0.002335 **
## SCHOOLID0000764    -82.75722    46.47132    -1.781    0.074963 .
## SCHOOLID0000765     48.55648    28.56296     1.700    0.089157 .
## SCHOOLID0000766   -116.29327    30.42262    -3.823    0.000133 ***
## SCHOOLID0000767     -0.05355    28.56296    -0.002    0.998504
## SCHOOLID0000768   -116.48431    27.58616    -4.223    2.43e-05 ***
## SCHOOLID0000769     -3.73187    28.56296    -0.131    0.896051
## SCHOOLID0000770   -101.73707    27.06253    -3.759    0.000171 ***
## SCHOOLID0000771    -24.96810    28.95560    -0.862    0.388544
## SCHOOLID0000772    -47.09166    29.39104    -1.602    0.109124
## SCHOOLID0000773    -99.81111    29.39104    -3.396    0.000686 ***
## SCHOOLID0000774    -36.85377    28.95560    -1.273    0.203122
## SCHOOLID0000775   -154.02471    27.31370    -5.639    1.74e-08 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 83.13 on 13706 degrees of freedom
## Multiple R-squared:  0.3263, Adjusted R-squared:  0.2882
## F-statistic: 8.576 on 774 and 13706 DF,  p-value: < 2.2e-16
```

A few points can be concluded according to the analysis result: 1. Students from private/ independent schools significantly outperform public/government students. 2. 1/4 of students from public/government schools falls in low performance in mathematic literacy whereas only 9% of students from private schools falls in this category. 3. Students from private schools have an average of ## scores whereas students from public schools have an average of ## scores in mathematic literacy. 4. The standard deviation of private school student is ## while the standard deviation of public schools is ##. 5. According to the regression model,

## Discussion

As we can see from the

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