ll See You in School A Multiple Proxy Analysis of the Role of Parental Involvement in K-12 Education and Improved Student Outcomes

BOSTON COLLEGE WORKING PAPER BC EC WP 1016
Version: 8/8/2020

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Abstract: We analyze the role of parental involvement on a child's academic by employing multiple proxies for direct and indirect parental involvement in his/her child's schooling using a large dataset of 11,913 observations from the 2016 National Household Education Survey (NHES (2016)). Our estimations of ordered logit grade models show that children of parents who volunteer in the school of

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involvement needs to be conceptualized differently to account for how different forms of engagement effect students in different ways (Harris and Robinson (2016)). The method through which parents get involved in their children's academic lives

d. Multiple Proxies

We use multiple proxies in our analysis, similar to the method used by Black and Smith (2006), to provide a more complete analysis of the impact of direct and indirect effect of parental involvement, within as well as outside of the school setting, on a student's grade. While the focus of Black and Smith's (2006) research was to estimate the returns of college quality, their usage of multiple proxies for quality allowed for an estimation of the reliability of each measure. Furthermore, the use of multiple proxies allows for a more holistic perspective **of** parental involvement. Finally, previous papers on the topic of parental involvement have either chosen

Caucasians, but students of all other minority races have a lower probability of making higher grades compared to their Caucasian peers. These differences are statistically significant for Asians, Hispanics, and African

Next, we investigate the grades of children whose parents are active in their education through attending

There are three possible reasons why parents helping their children on homework could result in lower grades: 1) Parents who help their students on homework are taking away from the independent learning of their child.

parents report having helped their children is 2.21, Hispanic parents at 2.12, parents of children of other races at 1.97, and Asian as well as Caucasian parents are at 1.94[12] The fact that the parents of children from the racial groups who are averaging the lowest grades report helping them more on homework continues to indicate that

<insert Table 26>
<insert Table 27>
<insert Table 28>
<insert Table 29>

4.3 Gender and Racial Differences

We calculate the differences in the weighted average grades between females and males by race in Table 30. As can be observed, the female-male grade gap is the largest for Other Races, second largest for African Americans, third largest for Caucasian students, fourth for Hispanics and the smallest for Asian students. T-tests on the gender differences show that these grade differences are all statistically significant.

<insert Table 30>

In Table 31 below, we investigate the gender differences in grades by race and level of schooling and conduct t-tests on these differences. The table of results reveal some interesting patterns: 1) The overall gender average grade differences at the elementary level is smaller than at other levels of schooling and appears to increase for older students. 2) The biggest increase in the overall average gender grade difference occurs between elementary and middle school. 3) In elementary school, the gender difference for students of other races is the smallest among all races and not statistically significant. This difference becomes larger and statistically significant in middle school. By middle school, the gender grade gap for students of other races is the largest among all races and this ranking continues in high school. 4) The average gender grade difference for African American elementary aged children is the second smallest among all races at only 0.12 and of lower statistical significance compared to this difference at middle school which increases to 0.35. By middle school, African American children have the second largest gender grade difference and this continues on to high school. 5) For Asian children on the other hand, the gender grade difference slightly falls between elementary and middle school and continues to stay small as they progress to high school. 6) Between elementary school and middle school is also where we start seeing larger overall racial grade differences between Caucasian students, our comparison group, and African American students.

Given the observations above, it can be seen that most of the decline of performance of the boys of Other Races and African American students seems

Rate/Sex W*nBT/F4 29 Cf( )]TJETBW0Q001 42 Tm0 g0 G[(se)7(em)15(s)]TJ/F5id7an

<insert Table 31>

Finally, in Table 32, we examine if any

has a parent with one less level of education. These estimates indicate that if parents with lower levels of education engage in indirect within school parental involvement activities, it could reduce educational inequality during the formative years of K-12 education.

The other two parental involvement proxies we employ, asking a child to read and homework help, capture parental

programs that give parents the opportunity to volunteer, attend school meetings and serve on school committees, while unders92 hile

REFERENCES

APPENDIX 1

Information on the Variables Used

Variable Codebook: https://nces.ed.gov/nhes/data/2016/pfi/cbook_pfi_pu.pdf

Questions Respondents were asked: https://nces.ed.gov/nhes/pdf/pfi/2016_pfie.pdf

Volunteer: "Since the beginning of this school year, has any adult in this child's household done any of the following things at this child's school? Served as a volunteer in this child's classroom or elsewhere in the school"
1- yes
0 - no

Committee: "Since the beginning of this school year, has any adult in this child's household done any of the following things at this child's school? Served on a school committee"
1 - yes
0 - no

AttendPTO: "Since the beginning of this school year, has any adult in this child's household done any of the following things at this child's school? Attended a meeting of the parent-teacher organization or association"
1 - yes
0 - no

Story: "In the past week, has anyone in your family done the following things with this child? Told him/her a story (Do not include reading to this child.)"
1 - yes
0 - no

HwHelp: "During this school

APPENDIX II

Tables

Table 1: Distribution of the Grade Variable

Grade	Frequency	Percent	Cumulative
Mostly Ds or lower	332	2.79	2.79
Mostly Cs	1,393	11.69	14.48
Mostly Bs	4,050	34.00	48.48
Mostly As	6,138	51.52	100.00
Total	*11,913*	*100.00*	

Table 2: Summary Statistics

Variable	Observations	Mean	Std. Dev.	Min	Max
Grade	11,913	3.342567	.7914176	1	4
Volunteer	13,523	.4228352	.494028	0	1
HwHelp	12,795	.8913638	.3111944	0	1
Story	14,075	.5677442			

P2Educ	10,432	5.659413	2.543701	1	11

Other -

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9: Committee Proxy - Predicted Probabilities using Column 5 from Table 8

Predicted Grade	Observations	Mean	Std. Dev.	Min	Max
Mostly Ds or lower	10,003	.0203607	.0179406	.0008072	.160222
Mostly Cs	10,003	.0958181	.06670.087t</		

Other	0.00067	0.00316	0.00674	-0.0106
	(0.0018)			

Hispanic			-0.562***	-0.241***	-0.275***
			(0.0435)	(0.0555)	(0.0558)
Other			-0.250***	-0.0395	-0.0407
			(0.0918)	(0.113)	(0.114)
P1Educ				0.137***	0.138***
				(0.0114)	(0.0114)
P2Educ				0.104***	0.106***
				(0.0109)	(0.0109)
YearInSchool					-0.0848***
					(0.00652)
/cut1	-3.496***	-3.863***	-4.119***	-3.006***	-3.966***
	(0.0576)	(0.0617)	(0.0645)	(0.101)	(0.126)
/cut2	-1.720***	-2.076***	-2.309***	-1.100***	-2.048***
	(0.0301)	(0.0369)	(0.0408)	(0.0776)	(0.107)
/cut3	-0.00324	-0.327***	-0.502***	0.820***	-0.0975
	(0.0241)	(0.0307)	(0.0340)	(0.0761)	(0.104)
Observations	11,913	11,913	11,913	8,737	8,737

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 12: *AttendPTO* Proxy - Predicted Probabilities using Column 5 from Table 11

Predicted Grade	Obs	Mean	Std. Dev.	Min	MF6qq2

Mostly As	10,003	.5704075	.1798996	.0990834	.9560454

Table 13: The Marginal Effects of Attending *PTO* Conferences on a Grade

	(1)	(2)	(3)	(4)
VARIABLES	Mostly Ds or lower	Mostly Cs	Mostly Bs	Mostly As
AttendPTO	-.00152**	-0.00714**	-0.0151**	0.0238**
	(0.0007)	(0.0033)	(0.0070)	(0.0110)
Gender	0.0113***	0.0531***	0.113***	-0.177***
	(0.0010)	(0.0035)	(0.0073)	(0.0108)
Asian	-0.00714***	-0.0336***	-0.0712***	0.112***
	(0.0014)	(0.0061)	(0.0129)	(0.0200)
AfricanAm	0.0111***	0.0521***	0.111***	-0.174***
	(0.0013)	(0.0054)	(0.0114)	(0.0175)
Hispanic	0.00432***	0.0203***	0.0431***	-0.0677***
	(0.0009)	(0.0041)	(0.0088)	(0.0137)
Other	0.000638	0.00300	0.00636	-0.0100
	(0.0018)	(0.0084)	(0.0179)	(0.0281)
P1Educ	-0.00217***	-0.0102***	-0.0216***	0.0340***
	(0.0002)	(0.0009)	(0.0018)	(0.0028)
P2Educ	-0.00166***	-0.00782***	-0.0166***	0.0261***
	(0.0002)	(0.0008)	(0.0017)	(0.0027)
YearInSchool	0.00133***	0.00623***	0.0133***	-0.0209***
	(0.0001)	(0.0005)	(0.0011)	(0.0016)

YearInSchool					-0.0848***	
					(0.00663)	
/cut1	-3.374***	-3.741***	-4.022***	-2.985***	-3.973***	-3.454***
	(0.0582)	(0.0622)	(0.0656)	(0.102)	(0.128)	(0.214)
/cut2	-1.594***	-1.949***	-2.208***	-1.080***	-2.055***	-1.511***
	(0.0314)	(0.0379)	(0.0426)	(0.0782)	(0.110)	(0.153)
/cut3	0.131***	-0.191***	-0.394***	0.841***	-0.105	0.501***
	(0.0264)	(0.0324)	(0.0365)	(0.0768)	(0.107)	(0.146)
Observations	11,913	11,913	11,913	8,737	8,737	2,752

Story	-.000980	-0.00460	-0.00976	0.0153
	(0.0007)	(0.0033)	(0.0070)	(0.0111)
Gender	0.0113***	0.0532***	0.113***	-0.177***
	(0.0010)	(0.0035)	(0.0073)	(0.0108)
Asian	-0.00721***	-0.0339***	-0.0718***	0.113***
	(0.0014)	(0.0061)	(0.0128)	(0.0200)
AfricanAm	0.0109***	0.0511***	0.108***	-0.170***
	(0.0013)	(0.0054)	(0.0114)	

Story	-0.00248**	-0.0128***	-0.0377***	0.0529***
	(0.0010)	(0.0049)	(0.0144)	(0.0202)
Gender	0.00513***	0.0264***	0.0781***	-0.110***
	(0.0012)	(0.0047)		

Asian	0.579***

Asia0.0000091

Predicted Grade	Observations	Mean	Std. Dev.	Min	Max
Mostly Ds or lower	9,503	.0165503	.0146354	.0007512	.1366654
Mostly Cs	9,503	.0914861	.0647196	.0050181	.4132792
Mostly Bs	9,503	.3133716	.1059105	.0352535	.4616629
Mostly As	9,503	.578592	.1777948	.0999179	.9589773

Table 19: The Marginal Effects of a Parent Helping his/her Child on Homework on a Grade

	(1)	(2)	(3)	(4)
VARIABLES	Mostly Ds or Lower	Mostly Cs	Mostly Bs	Mostly As
HwHelp	0.00609***	0.0337***	0.0773***	-0.117***
	(0.00105)	(0.00524)	(0.0120)	(0.0180)
Gender	0.00918***	0.0509***	0.117***	-0.177***
	(0.000919)	(0.0034)	(0.00773)	(0.0111)
Asian	-0.00506***	-0.0280***	-0.0641***	0.0972***
	(0.00112)	(0.00587)	(0.0134)	(0.0202)
AfricanAm	0.00903***	0.0500***	0.115***	-0.174***
	(0.00116)	(0.00530)	(0.0121)	(0.0179)
Hispan/F4 12 T				

	(0.0962)	(0.376)	(0.210)	(0.131)
Observations	8,363	2,684	2,175	3,504

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 22(a): The Marginal Effects of a Parent Helping his/her Elementary School Aged Child with Homework on a Grade

	(1)	(2)	(3)	(4)
VARIABLES	Mostly Ds or Lower	Mostly Cs	Mostly Bs	Mostly As
HwHelp	0.00203	0.0113	0.0335	-0.0468
	(0.0036)	(0.0201)	(0.0597)	(0.0835)
Gender	0.00479***	0.0267***	0.0792***	-0.111***
	(0.0011)	(0.0048)	(0.0138)	(0.0188)
Asian	-0.00158	-0.00879	-0.0261	0.0364
	(0.0014)	(0.0079)	(0.0235)	(0.0329)
AfricanAm	0.00637**	0.0355***	0.105***	-0.147***
	(0.0017)	(0.0074)	(0.0215)	(0.0296)
Hispanic	0.00301***	0.0168***	0.0497***	-0.0695***
	(0.0011)	(0.0056)	(0.0165)	(0.0229)
Other	0.00147	0.00817	0.0243	-0.0339
	(0.0021)	(0.0116)	(0.0344)	(0.0481)
P1Educ	-0.00116***	-0.00648***	-0.0192***	0.0269***
	(0.0003)	(0.0012)	(0.0036)	(0.0050)
P2Educ	-0.00103***	-0.00575***	-0.0171***	0.0238***

	(0.0003)	(0.0012)	(0.0035)	(0.0048)
Observations	2,684	2,684	2,684	2,684

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 22(b): The Marginal Effects of a Parent Helping his/her Middle School Aged Child with Homework on a Grade

	(1)	(2)	(3)	(4)
VARIABLES	Mostly Ds or Lower	Mostly Cs	Mostly Bs	Mostly As
HwHelp	0.00739**	0.0261**	0.0746***	-0.108***
	(0.0030)	(0.0101)	(0.0287)	(0.0414)
Gender	0.0113***	0.0399***	0.114***	-0.165***
	(0.0021)	(0.0057)	(0.0157)	(0.0217)
Asian	-0.0108***	-0.0380***	-0.109***	0.157***
	(0.0033)	(0.0106)	(0.0299)	(0.0429)
AfricanAm				

Table 23:

/cut2	-2.496***	-2.710***	-2.580***
	(0.126)	(0.117)	(0.113)
/cut3	-0.498***	-0.694***	-0.568***
	(0.122)	(0.112)	(0.108)
Prob>Chi2	0.0000		
Pseudo R2	0.0742		
Observations	8,363	8,363	

	(0.0008)	(0.0041)	(0.0093)	(0.0141)
Other	0.000618	0.00342	0.00784	-0.0119
	(0.0015)	(0.0083)	(0.019)	(0.0288)
P1Educ	-0.00174***	-0.00964***	-0.0221***	0.0335***
	(0.0002)	(0.0009)	(0.0020)	(0.0029)
P2Educ	-0.00139***	-0.00770***	-0.0176***	0.0267***
	(0.0002)	(0.0008)	(0.0018)	(0.0027)
YearInSchool	0.00121***	0.00670***	0.0154***	-0.0233***
	(0.0001)	(0.0005)	(0.0012)	(0.0017)
Observations	8,363	8,363	8,363	8,363

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 23(b): The Marginal Effects of a Parent Helping his/her Child with Homework on a Grade Based on the Number of Days a Week that a Parent Reports Having Helped His / Her Child

(0: Never through Less than once a week; 1:1 **or**

AfricanAm	0.00819***	0.0459***	0.108***	-0.162***
	(0.0011)	(0.0052)	(0.0121)	(0.0179)
Hispanic	0.00273***	0.0153***	0.0359***	-0.0539***
	(0.0007)	(0.0040)	(0.0094)	(0.0141)
Other	0.000994	0.00557	0.0131	-0.0196
	(0.0015)	(0.0082)	(0.0192)	(0.0289)
P1EDUC	-0.00168***	-0.00942***	-0.0221***	0.0332***
	(0.0002)	(0.0008)	(0.0020)	(0.0029)
P2EDUC	-0.00133***	-0.00746***	-0.0175***	0.0263***
	(0.0002)	(0.0008)	(0.0019)	(0.0027)
YearInSchool	0.00157***	0.00881***	0.0207***	-0.0310***
	(0.0002)	(0.0006)	(0.0013)	(0.0019)
Observations	8,363	8,363	8,363	8,363

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 23 (c): The Marginal Effects of a Parent Helping his/her Child with Homework on a Grade Based on the Number of Days a Week that a Parent Reports Having Helped His / Her Child

(0: Never through 1 or 2 times a week;
1: 3 or more times a week)

	(1)	(2)	(3)	(4)
VARIABLES	Mostly Ds or Lower	Mostly Cs	Mostly Bs	Mostly As
HwHelp	0.00828***	0.0463***		

HwHelp	0.00153	0.0125*	0.0634*	-0.0774*
	(0.0012)	(0.0076)	(0.0371)	(0.0452)
Gender	0.00297*	0.0243***	0.123***	-0.150***

	(0.0007)	(0.0027)	(0.0025)	(0.0050)
Observations	794	794	794	794

Standard errors in parentheses
***

Race

References