Unraveling a secret: Vietnam's outstanding performance on the PISA tests

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Abstract

This paper presents an analyis of the factors that explain Vietnam's outstanding performance on the PISA assessment in 2012. The paper presents a comparative analytical perspective between Vietnam and Colombia, using an Oaxaca-Blinder decomposition of a test score production function. The findings reveal that a) b) and c).

Keywords: PISA;Vietnam;Colombia;Oaxaca-Blinder Decomposition; Economics of Education.

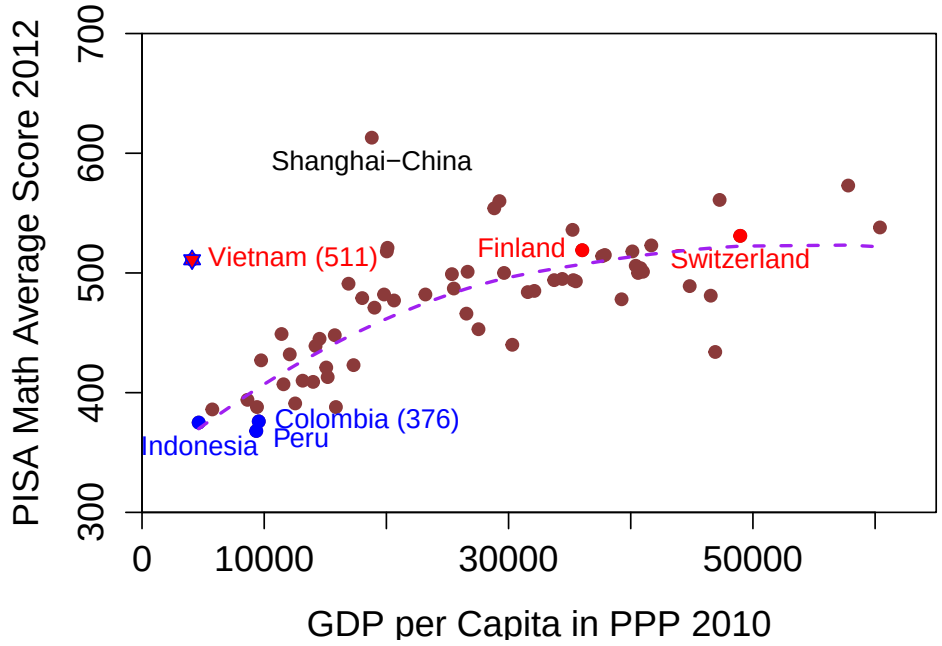
JEL Classification Numbers: I21 (Analysis of Education); I28(Government Policy); Z18(Public Policy).

*e-mail: *sparandekar@worldbank.org*. This paper has been written using open source software: R for the econometric analysis and graphics and LaTeX for typesetting. Thanks to all who make free software possible and to OECD for making the PISA data freely and easily available to anyone. The code used in writing this paper is freely available for download at http://economist-at-work-and-play.blogspot.com/2015/02/pisa20121a.html

1 Introduction

Vietnam participated in PISA for the first time in 2012 and its performance has been much higher than other developing countries that take part in this OECD led initiative. PISA scores are calibrated to an OECD mean of 500 and standard deviation of 100 points. Only a few developing countries take part in PISA, perhaps because most of them have results much lower than the OECD countries. As can be seen in Figure 1, there is a positive, albeit non-linear correlation between GDP per capita and PISA test scores that can be seen by the dashed line representing a loess regression. The figure shows that Vietnam's performance in PISA (mathematics mean score of 511) is closer to that of Finland and Switzerland rather than of Peru and Colombia. Vietnam, represented by a red star in Figure 1, lies much above the cluster of developing countries in the lower left hand corner of Figure 1.

Figure 1: PISA 2012 results compared with GDP per capita

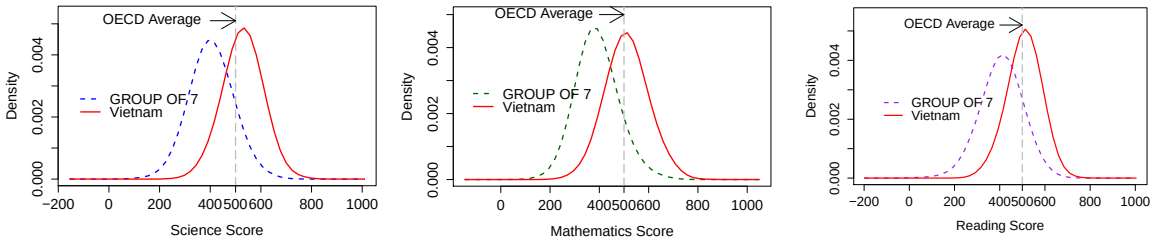


Source:OECD-PISA database

In the OECD-PISA database, there are seven countries other than Vietnam with a per capita GDP (in PPP dollars) below US$ 10,000 - Albania, Colombia, Indonesia, Jordan, Peru, Thailand and Tunisia. Their collective weighted average performance in mathematics was a mean score of 383. It is helpful to understand the significance of the 128 point difference with Vietnam. According to a recent OECD publication ([OECD (2013a)]) *"An entire proficiency level in mathematics spans about 70 score points –a large difference in the skills and knowledge students at that level possess. Such a gap represents the equivalent of about two years of schooling in the typical OECD country."*. Applying this heuristic would

imply a nearly 3 year difference in attainment between Vietnam and the group of 7 developing countries in the PISA database. It should be noted at the outset that cross-section data from one instalment of PISA does not permit causal inference, but correlations can still provide useful insights. The difference is not only for mathematics and not just in the mean score, but spanning the entire test distribution, as can be seen in Figure 2.

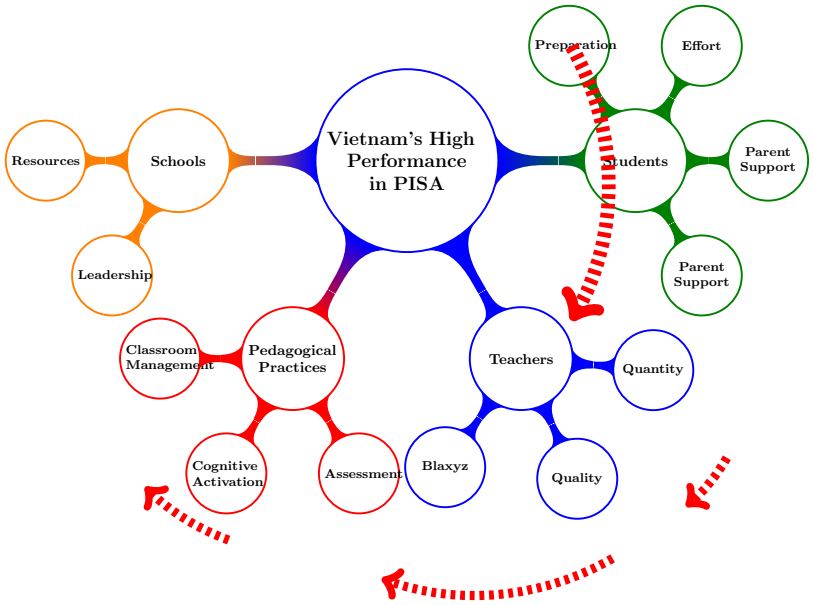
Figure 2: Kernel Density comparison between Vietnam and other Developing Countries



(a) Science (b) Mathematics (c) Reading

A range of alternative classifications are possible to organize the possible explanatory factors available in the OECD-PISA database. Figure 3 presents four sets of factors, starting clockwise from the right.

Figure 3: Conceptual Scheme



The structure of the paper is as follows. Student related variables, including the student's home environment are considered first in Section 2. Teachers related factors, together with teaching/pedagogical practices are discussed in Section 3. Section 4 considers the last factors, school type and resources and school leadership. These sections of this paper presents a descriptive and analytical comparison of these factors in a comparative context, comparing

the 7 countries (henceforth, Dev7) with Vietnam. Section 5 presents some conclusions from the study, including directions for further research.

2 What student related factors explain the achivevement gap of Vietnam ?

The OECD-PISA initiative includes questionnaires administered to students and to school authorities. These questionnaires are fairly detailed and are described in the OECD-PISA documentation. In addition to the questionnaire items, the OECD-PISA team has also generated a range of indices from the underlying questions. These indices are sometime simple numerical compilations and sometimes the result of analysis such as principal-components analysis to combine different items. The constructed indices are carefully checked for validity and reliability against the whole database, including OECD and non-OECD countries. The availability of the constructed variables greatly facilitates the analysis of OECD-PISA data. An example is the case of the measure of the student's household material well-being termed as WEALTH, which is comprised from student's reported family ownership of durables and the condition of the student's dwelling. Bath room room?
It is possible that Vietnamese students, raised under a culture with high values for discipline and respect for authority, are better performers.Dalton and Ong, 2005([Dalton and Ong (2005)]).

2.1 Student Characteristics and Background

Table 1: Summary statistics - student characteristics and background

		Dev7 countries		Vietnam	
Variable	Description	MS	Valid N	MS	Valid N
FEMALE	Sex of student	0.5265	41394	0.5336	4882
		(0.4993)		(0.4989)	
PRESCHOOL	Attend Preschool	0.7888	40114	0.912	4866
	(ISCED 0)	(0.4082)		(0.2833)	
REPEAT	Grade repeating	0.1915	40343	0.0679	4860
		(0.3935)		(0.2516)	
ST08Q01	Times late	1.5131	40663	1.1872	4873
	for school	(0.7648)		(0.4685)	
ST09Q01	Days unexcused	1.2192	40650	1.0999	4875
	absence	(0.5276)		(0.3527)	
ST115Q01	Times skipped	1.2585	40632	1.0764	4880
	classes	(0.545)		(0.3216)	
HISEI	Highest parental	40.4196	32814	26.6023	4860
	occupational status	(22.5168)		(19.855)	
MISCED	Educational level	3.1193	40486	2.1744	4844
	of mother (ISCED)	(1.9853)		(1.6059)	
WEALTH	Family wealth	-1.4606	40821	-2.1343	4881
	possessions	(1.2267)		(1.1656)	
CULTPOS	Cultural possessions	-0.1424	39905	-0.2361	4809
		(0.9678)		(1.0173)	
HEDRES	Home educational	-0.7427	40579	-1.0743	4874
	resources	(1.1473)		(0.9364)	
BOOK_N	Number of books	53.6393	39631	50.786	4841
	in family home	(94.5556)		(75.4031)	

Notes: The variables relate to the questionnaires administered to students in the general (non-rotated) booklet. For a more detailed description of variables, please see Table xx. Items marked with *(r)* are taken from the rotated student questionnaire. The variable means of Dev7 and Vietnam are statistically different at the 5% significance level, except FEMALE.

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2.2 Student Effort

Table 2: Summary statistics - student effort

		Dev7 countries		Vietnam	
Variable	Description	MS	Valid N	MS	Valid N
MATWKETH *(r)*	Mathematics	0.4514	26140	-0.0014	3217
	work ethic	(0.9782)		(0.6915)	
OUTMATH_NONE *(r)*	Weekly out-of-school	0.4024	23603	0.1745	3227
	lessons in math	(0.4904)		(0.3796)	
OUTMATH_LESS2 *(r)*	Weekly out-of-school	0.222	23603	0.1701	3227
	lessons in math	(0.4156)		(0.3758)	
OUTMATH_2TO4 *(r)*	Weekly out-of-school	0.2041	23603	0.2993	3227
	lessons in math	(0.4031)		(0.458)	
OUTMATH_4TO6 *(r)*	Weekly out-of-school	0.1034	23603	0.2151	3227
	lessons in math	(0.3045)		(0.4109)	
OUTREAD_NONE *(r)*	Weekly out-of-school	0.554	23531	0.4732	3223
	lessons in reading	(0.4971)		(0.4994)	
OUTREAD_LESS2 *(r)*	Weekly out-of-school	0.1886	23531	0.2119	3223
	lessons in reading	(0.3912)		(0.4087)	
OUTREAD_2TO4 *(r)*	Weekly out-of-school	0.1419	23531	0.2023	3223
	lessons in reading	(0.349)		(0.4018)	
OUTREAD_4TO6 *(r)*	Weekly out-of-school	0.0673	23531	0.0794	3223
	lessons in reading	(0.2506)		(0.2704)	
OUTSCIE_NONE *(r)*	Weekly out-of-school	0.4679	23298	0.327	3205
	lessons in science	(0.499)		(0.4692)	
OUTSCIE_LESS2 *(r)*	Weekly out-of-school	0.211	23298	0.2387	3205
	lessons in science	(0.408)		(0.4263)	
OUTSCIE_2TO4 *(r)*	Weekly out-of-school	0.181	23298	0.2293	3205
	lessons in science	(0.385)		(0.4205)	
OUTSCIE_4TO6 *(r)*	Weekly out-of-school	0.0867	23298	0.1345	3205
	lessons in science	(0.2815)		(0.3412)	
ST57Q01 *(r)*	Out-of-school time	5.0953	23696	5.8145	3164
	homework	(5.0319)		(5.7196)	
ST57Q02 *(r)*	Out-of-school time	2.551	19355	2.8814	2285
	guided homework	(2.9296)		(3.2384)	
ST57Q03 *(r)*	Out-of-school time	1.7276	20367	1.5749	3049
	personal tutor	(2.7884)		(2.938)	
ST57Q04 *(r)*	Out-of-school time	1.892	19517	4.878	3091
	classes by company	(3.3487)		(4.8058)	
ST57Q05 *(r)*	Out-of-school time	2.1354	21542	1.7646	3092
	parent/family member	(3.055)		(3.2442)	
ST57Q06 *(r)*	Out-of-school time	2.588	21338	1.8029	3079
	learn on computer	(3.5519)		(3.0496)	

Notes: The variables relate to the questionnaires administered to students in the rotated booklet. For a more detailed description of variables, please see Table xx. Items marked with *(r)* are taken from the rotated student questionnaire. The variable means of Dev7 and Vietnam are statistically different at the 5% significance level.

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2.3 Student Attitude

Table 3: Summary statistics - student attitude

		Dev7 countries		Vietnam	
Variable	Description	MS	Valid N	MS	Valid N
INSTMOT *(r)*	Instrumental motivation for math	0.4253 (0.8558)	26566	0.3683 (0.7289)	3220
INTMAT *(r)*	Interest in mathematics	0.7212 (0.8533)	26634	0.6927 (0.6636)	3219
SUBNORM *(r)*	Subjective norms in mathematics	0.716 (1.165)	26509	-0.0923 (0.8395)	3220
MATHEFF *(r)*	Self-Efficacy in mathemtatics	-0.2269 (0.8516)	26457	-0.2655 (0.6363)	3217
FAILMAT *(r)*	Attributions to failure in math	0.083 (1.0312)	26155	0.0895 (0.6319)	3214
MATINTFC *(r)*	Mathematics intentions	0.092 (0.9837)	24827	0.3285 (1.0964)	3181
MATBEH *(r)*	Mathematics behaviour	0.8764 (0.9697)	25899	0.6757 (0.6408)	3211
PERSEV *(r)*	Perseverance in problem solving	0.3387 (0.9605)	25710	0.4475 (0.8767)	3211
OPENPS *(r)*	Openness to problem solving	0.1949 (0.9787)	25612	-0.6125 (0.8708)	3207
SCMAT *(r)*	Self-concept of own math skills	0.1673 (0.8101)	26222	-0.1896 (0.5903)	3249
ANXMAT *(r)*	Mathematics Anxiety	0.3995 (0.7724)	26275	0.2115 (0.6354)	3248
BELONG *(r)*	Sense of belonging to school	0.0511 (0.9428)	25785	-0.2574 (0.7032)	3253
ATSCHL *(r)*	Attitude - school learning is useful	0.1616 (0.9986)	25563	0.143 (0.8648)	3246
ATTLNACT *(r)*	Attitude - Trying hard at school pays off	0.1233 (0.964)	25368	-0.535 (0.8212)	3248
ATT_CONTROL *(r)*	Perceived control over grades	0.8507 (0.3564)	25106	0.6608 (0.4735)	3228

Notes: The variables relate to the questionnaires administered to students in the rotated booklet. For a more detailed description of variables, please see Table xx. Items marked with *(r)* are taken from the rotated student questionnaire. The variable means of Dev7 and Vietnam are statistically different at the 5% significance level, except FAILMAT and ATTSCHL.

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2.4 Student Experience in Mathematics

These are all student self-reported items, asked in rotational part 2.

Table 4: Summary statistics - student experience in mathematics

		Dev7 countries		Vietnam	
Variable	Description	MS	Valid N	MS	Valid N
EXAPPLM *(r)*	Experience with applied math tasks	0.1111 (1.06)	26133	-0.2418 (0.7624)	3243
EXPUREM *(r)*	Experience with pure math tasks	-0.1384 (0.9809)	25973	0.1587 (0.8076)	3244
FAMCONC *(r)*	Familiarity with math concepts	-0.5441 (0.8768)	25832	0.4297 (0.9057)	3231

Notes: The variables relate to the questionnaires administered to students in the rotated booklet. For a more detailed description of variables, please see Table xx. Items marked with *(r)* are taken from the rotated student questionnaire. The variable means of Dev7 and Vietnam are statistically different at the 5% significance level.

2.5 Home Support

Table 5: Summary statistics - student experience in mathematics

		Dev7 countries		Vietnam	
Variable	Description	MS	Valid N	MS	Valid N
PARPRESSURE	Parental achievement pressure	0.2665 (0.4421)	40372	0.3837 (0.4863)	4866
TIGERMOM	Parent initiates - progress discussion	52.4472 (38.097)	41394	62.4183 (41.3743)	4882
VOLUMOM	Parent Participation - Volunteering	35.2134 (38.8428)	41394	38.3623 (39.9773)	4882
TEACHMOM	Parent Participation - Teaching Assistance	12.1764 (23.4241)	41394	38.2821 (41.5357)	4882
FUNDMOM	Parent Participation - Fundraising	23.0784 (35.2134)	41394	59.6022 (44.0376)	4882
COUNCILMOM	Parent Participation - School government	36.4546 (37.2252)	41394	23.1174 (36.4406)	4882
BKGR_FAMPROB *(r)*	Home problems - deter effort in school	0.4705 (0.4991)	25038	0.264 (0.4409)	3231

Notes: The variables relate to the questionnaires administered to students in the rotated booklet and the general (non-rotated) booklet. For a more detailed description of variables, please see Table xx. Items marked with *(r)* are taken from the rotated student questionnaire. The variable means of Dev7 and Vietnam are statistically different at the 5% significance level.

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3 What teacher and teaching/pedagogical practices related factors explains the achivevement gap of Vietnam ?

3.1 Teachers - Characteristics and Quantitative Measures

Table 6: Summary statistics - teacher characteristics and quantitative measures

		Dev7 countries		Vietnam	
Variable	Description	MS	Valid N	MS	Valid N
STRATIO	Student-teacher ratio	19.715	33742	18.9656	4743
		(9.4135)		(5.5255)	
PROPCERT	Proportion of	0.6757	35130	0.7961	4586
	certified teacher	(0.4042)		(0.3978)	
PROPQUAL	Proportion of teachers	0.8756	36319	0.8775	4708
	with ISCED 5A	(0.2181)		(0.2758)	
SMRATIO	Mathematics	188.1791	33985	120.9773	4777
	teacher-student ratio	(158.6256)		(43.6092)	
TCSHORT	Shortage of	0.4846	41077	0.4249	4882
	teaching staff	(1.2627)		(1.1636)	
LHRS *(r)*	Taught hours of	3.599	22177	3.2207	2870
	'test language'	(1.9887)		(1.1576)	
SHRS *(r)*	Taught hours of	3.7566	21701	3.9597	2473
	science	(2.5078)		(2.5484)	
MHRS *(r)*	Taught hours of	3.896	21913	3.7878	2850
	mathematics	(2.0335)		(1.3764)	

Notes: The variables relate to the questionnaires administered to principals (schools) and students in the rotated booklet. For a more detailed description of variables, please see Table xx. Items marked with *(r)* are taken from the rotated student questionnaire. The variable means of Dev7 and Vietnam are statistically different at the 5% significance level, except PROPQUAL.

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3.2 Teachers - Quality

Table 7: Summary statistics - teacher quality

		Dev7 countries		Vietnam	
Variable	Description	MS	Valid N	MS	Valid N
TCFOCST	Teacher focus	0.4975	41370	0.1402	4882
		(1.0056)		(0.8377)	
SC35Q02	Professional development	40.5068	39550	49.0086	4762
	in math in last 3 months	(40.8546)		(45.1706)	
TCH_MENT	Teacher mentoring	0.8566	40734	0.9859	4882
	as quality assurance	(0.3505)		(0.1181)	
MTSUP *(r)*	Mathematics supportive	0.4778	25918	0.3685	3247
	teaching style	(0.9613)		(0.774)	
STUDREL *(r)*	Teacher student	0.3794	25870	0.0186	3253
	relations	(1.0178)		(0.8883)	
TCHQUAL_DIFF *(r)*	with different teacher	0.5249	24986	0.363	3231
	student would work harder	(0.4994)		(0.481)	
TCH_INCENTV	teacher appraisal led	-0.0317	41394	0.2687	4882
	to gratification	(1.0301)		(0.6336)	
Quality assurance of mathematics teachers through ...					
TCM_STUASS	test or assessment	0.8762	41110	0.9818	4882
	of student achievement	(0.3293)		(0.1338)	
TCM_PEER	teacher peer review	0.7916	41095	0.8382	4882
	of lectures, methods etc	(0.4061)		(0.3683)	
TCM_OBSER	principal or senior	0.8015	41170	0.9785	4882
	staff observations	(0.3989)		(0.1451)	
TCM_INSPE	obersavtion of classes	0.5882	41020	0.8664	4882
	external inspector	(0.4922)		(0.3402)	

Notes: The variables relate to the questionnaires administered to principals (schools) and students in the rotated booklet. For a more detailed description of variables, please see Table xx. Items marked with *(r)* are taken from the rotated student questionnaire. The variable means of Dev7 and Vietnam are statistically different at the 5% significance level, except PROPQUAL.

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3.3 Pedagogical/Teaching practices in Mathematics

Table 8: Summary statistics - pedagogical/teaching practices in Mathematics

		Dev7 countries		Vietnam	
Variable	Description	MS	Valid N	MS	Valid N
COMP_USE	Math policy - use of	0.4345	40800	0.6447	4815
	computers in class	(0.4957)		(0.4787)	
TXT_BOOK	Math policy -	0.7905	40557	0.7855	4882
	same textbook	(0.4069)		(0.4105)	
STD_CUR	Maths policy -	0.8705	40595	0.949	4882
	standardized curriculum	(0.3358)		(0.22)	
TCHBEHTD *(r)*	Teacher oriented	0.4973	26433	0.2964	3254
	inctruction method	(1.0798)		(0.8099)	
TCHBEHSO *(r)*	Student oriented	0.7921	26358	0.2969	3248
	instruction method	(0.9545)		(0.819)	

Notes: The variables relate to the questionnaires administered to principals (schools) and students in the rotated booklet. For a more detailed description of variables, please see Table xx. Items marked with *(r)* are taken from the rotated student questionnaire. The variable means of Dev7 and Vietnam are statistically different at the 5% significance level, except TXT_BOOK.

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3.4 Formative Assessment of Students

Table 9: Summary statistics - formative assessment of students

		Dev7 countries		Vietnam	
Variable	Description	MS	Valid N	MS	Valid N
Assessment used to					
ASS_PROG	inform parents about childs progress	0.9695 (0.172)	40708	0.9928 (0.0844)	4882
ASS_PROM	decide on students retention or promotion	0.8988 (0.3016)	40483	0.9508 (0.2162)	4882
ASS_INSTR	group students for instructional purposes	0.6648 (0.4721)	40316	0.7378 (0.4399)	4882
ASS_NAT	compare school to national performance	0.7008 (0.4579)	40493	0.8785 (0.3267)	4882
ASS_SCH	monitor the schools yearly progress	0.9111 (0.2846)	40555	0.9799 (0.1403)	4882
ASS_TCH	make judgements on teachers' effectiveness	0.7764 (0.4166)	40400	0.9912 (0.0934)	4882
ASS_CUR	identify improvements in the curriculum	0.9017 (0.2977)	40586	0.9127 (0.2822)	4882
ASS_OTH	compare school with other schools	0.661 (0.4734)	40386	0.866 (0.3406)	4882
TCHBEHFA *(r)*	help students perform better	0.4634 (0.9934)	26245	0.005 (0.79)	3246

Notes: The variables relate to the questionnaires administered to principals (schools) and students in the rotated booklet. For a more detailed description of variables, please see Table xx. Items marked with *(r)* are taken from the rotated student questionnaire. The variable means of Dev7 and Vietnam are statistically different at the 5% significance level.

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3.5 Cognitive Activation

Table 10: Summary statistics - cognitive activation

		Dev7 countries		Vietnam	
Variable	Description	MS	Valid N	MS	Valid N
COGACT *(r)*	Cognitive activation in mathematics lessons	0.2998 (0.975)	26217	-0.3278 (0.6647)	3249

Notes: The variables relate to the questionnaires administered to principals (schools) and students in the rotated booklet. For a more detailed description of variables, please see Table xx. Items marked with *(r)* are taken from the rotated student questionnaire. The variable means of Dev7 and Vietnam are statistically different at the 5% significance level.

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3.6 Classroom Management

Table 11: Summary statistics - cognitive activation

		Dev7 countries		Vietnam	
Variable	Description	MS	Valid N	MS	Valid N
STU_FEEDB	Seeking written feedback from students	0.7105 (0.4536)	40788	0.8419 (0.3649)	4882
CLSMAN *(r)*	Teacher classroom management	0.2394 (0.905)	25753	0.2163 (0.7761)	3252
DISCLIMA *(r)*	Disciplinary climate in class	-0.0243 (0.9055)	26242	0.3747 (0.6926)	3254

Notes: The variables relate to the questionnaires administered to principals (schools) and students in the rotated booklet. For a more detailed description of variables, please see Table xx. Items marked with *(r)* are taken from the rotated student questionnaire. The variable means of Dev7 and Vietnam are statistically different at the 5% significance level, except CLSMAN.

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4 What school related factors explains the achiveve-ment gap of Vietnam ?

4.1 School Characteristics

Table 12: Summary statistics - school characteristics

		Dev7 countries		Vietnam	
Variable	Description	MS	Valid N	MS	Valid N
PRIVATESCL	Private school dummy variable	0.1714 (0.3768)	41182	0.0832 (0.2762)	4882
SC02Q02	Funding for school from student fees	25.7233 (36.0117)	34621	16.6104 (26.3564)	4848
DUM_VILLAGE	School located in a village	0.1403 (0.3473)	41347	0.4584 (0.4983)	4882
TOWN	School located in a town	0.4508 (0.4976)	41347	0.3101 (0.4626)	4882
CITY	School located in a city	0.4089 (0.4916)	41347	0.2315 (0.4218)	4882
CLSIZE	Average class size	35.013 (9.764)	40771	42.5043 (8.7236)	4882
SCHSIZE	Number of enrolled students at school	1057.0332 (924.2422)	35062	1302.9009 (648.6821)	4882
PCGIRLS	Proportion of girls at school	0.49 (0.2597)	36342	0.5282 (0.0801)	4882
SCHSEL	School selectivity/ student admission policies	2.3061 (0.7991)	41286	2.8454 (0.4044)	4882

Notes: The variables relate to the questionnaires administered to principals (schools). For a more detailed description of variables, please see Table xx. Items marked with *(r)* are taken from the rotated student questionnaire. The variable means of Dev7 and Vietnam are statistically different at the 5% significance level.

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4.2 School Resources

Table 13: Summary statistics - school resources

		Dev7 countries		Vietnam	
Variable	Description	MS	Valid N	MS	Valid N
RATCMP15	Available computers	0.3909	39490	0.2216	4875
	for 15-year-olds	(0.5476)		(0.3411)	
COMPWEB	Ratio of computers	0.7556	37446	0.7795	3634
	connected to internet	(0.3578)		(0.3109)	
SCMATEDU	Quality of school	-0.8145	41373	-0.4941	4882
	educational resources	(1.1538)		(0.9718)	
SCMATBUI	Quality of	-0.6322	41221	-0.3988	4882
	physical infrastructure	(1.1113)		(1.0161)	
EXC1_BAND	School offers	0.471	40044	0.1678	4882
	Band, orchestra or choir	(0.4992)		(0.3737)	
EXC2_PLAY	School offers	0.5928	40122	0.8509	4882
	schoo play/musical	(0.4913)		(0.3562)	
EXC3_NEWS	School offers	0.5373	39617	0.5088	4882
	yearbook/newspaper	(0.4986)		(0.5)	
EXC4_VOLU	School offers	0.827	40240	0.83	4882
	volunteering/service activ.	(0.3782)		(0.3757)	
EXC5_MCLUB	School offers	0.453	40154	0.2687	4882
	mathematics club	(0.4978)		(0.4434)	
EXC6_MATHCOMP	School offers	0.6268	40215	0.8032	4882
	Mathematics competition	(0.4837)		(0.3977)	
EXC7_CHESS	School offers	0.3437	39969	0.2302	4882
	chess club	(0.475)		(0.421)	
EXC8_ICTCB	School offers	0.4899	39752	0.1749	4882
	IT focused club	(0.4999)		(0.3799)	
EXC9_ARTCB	School offers	0.6774	40017	0.4585	4848
	art club/activities	(0.4675)		(0.4983)	
EXC10_SPORT	School offers	0.9321	40581	0.992	4882
	sporting activities	(0.2516)		(0.089)	
EXC11_UNICORN	School offers	0.7152	40002	0.9629	4882
	'country specific item'	(0.4513)		(0.189)	
SCL_EXTR_CL	School offers	0.6538	40869	0.9584	4882
	additional math classes	(0.4757)		(0.1997)	

Notes: The variables relate to the questionnaires administered to principals (schools). For a more detailed description of variables, please see Table xx. Items marked with *(r)* are taken from the rotated student questionnaire. The variable means of Dev7 and Vietnam are statistically different at the 5% significance level, except EXC4_VOLU.

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4.3 School Leadership

Table 14: Summary statistics - school leadership

		Dev7 countries		Vietnam	
Variable	Description	MS	Valid N	MS	Valid N
SCORE_PUBLIC	Achievement data posted publicly	0.345 (0.4754)	40965	0.7567 (0.4291)	4882
SCORE_AUTHRITS	Achievement data tracked by authority	0.8003 (0.3998)	41139	0.8282 (0.3773)	4778
SCHAUTON	School Autonomy in admin. decisions	-0.2542 (1.1328)	41394	-1.0419 (0.9378)	4882
TCHPARTI	Teacher participation in admin. decisions	-0.2169 (1.4457)	41394	-1.6445 (0.5188)	4882
LEADCOM	Communicating and acting on defined school goals	0.2387 (1.1105)	41252	0.0894 (0.6744)	4882
LEADINST	Promotion of instructional leadership	0.0899 (1.0724)	41219	-0.0549 (0.946)	4882
LEADPD	Promotion of solving classroom problems	0.244 (1.0851)	41219	-0.0587 (0.861)	4882
LEADTCH	Teacher participation in leadership	0.3233 (1.1356)	41125	-0.2914 (0.9077)	4882
QUAL_RECORD	Systematic recording of data for quality assurance	0.8865 (0.3172)	40941	0.9818 (0.1338)	4882

Notes: The variables relate to the questionnaires administered to principals (schools). For a more detailed description of variables, please see Table xx. Items marked with *(r)* are taken from the rotated student questionnaire. The variable means of Dev7 and Vietnam are statistically different at the 5% significance level.

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4.4 School Climate

Table 15: Summary statistics - school climate

		Dev7 countries		Vietnam	
Variable	Description	MS	Valid N	MS	Valid N
STUDCLIM	Student-related aspects of school climate	0.0485 (1.1642)	40973	0.0418 (0.6849)	4874
TEACCLIM	Teacher-related aspects of school climate	-0.1997 (1.1474)	40973	-0.0873 (0.7125)	4874
TCMORALE	Teacher morale and enthusiasm	0.0376 (1.0541)	41336	-0.2941 (0.8579)	4882

Notes: The variables relate to the questionnaires administered to principals (schools). For a more detailed description of variables, please see Table xx. Items marked with *(r)* are taken from the rotated student questionnaire. The variable means of Dev7 and Vietnam are statistically different at the 5% significance level, except STUDCLIM.

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5 Conclusion

6 Resources

6.1 Blax

6.2 Other resources for other uses

• Rtf2LaTeX2e - free software to convert from rtf (MS-Word) file to LaTeX. It saves a lot of work when converting existent papers written in Word like programs, but it is not perfect (tables, graphs, equations, and formats may not convert well).

• LaTeX.org - information and free programs for lots of uses

• Ctan.org - information and free programs for lots of uses (Boston College) Economics' resources - information and links for LaTeX typesetting (includes an introduction manual)

• Sourceforge - free open source LaTeX programs for lots of uses (look for LaTex in the software search)

6.3 Links for publication of economics reseach

Search for these useful links on the web (I'll add the links to this document later).

• JEL Classification Numbers

• How to publish in Economics by Prof. Kwan Choi (Editor, Review of International Economics)

• http://econpapers.repec.org/ or http://www.ssrn.com/ - to share working papers 1.5=one and half, 2=double, 3=triple, etc.).

6.4 New line or paragraph

To start a new line **with indent** like for a new paragraph, skip one line in your .tex file.

To start a new line **without indent** add \\ at the point where you want the new line to start.

6.5 Indent

To eliminated the indent in a given paragraph (useful when preparing presentation slides), start the paragraph with \noindent

To increase the indent, add a \quad or \hspace{**X**cm}, where **X** is the number of centimeters to skip (you can use in=inch too).

6.6 Margins

To change page layout margins, alter the parameters in

\geometry{left=**1.0**in,right=**1.0**in,top=**1.0**in,bottom=**1.0**in}

Instead of inches (in), you could use centimeters (cm). You must be using the geometry package, i.e., make sure the following is in the preamble of your .tex file:

\usepackage[nohead]{geometry}

6.7 Hyphenation

To avoid excessive hyphenation (i.e., word-breaks between lines), add the following to where you want the command to start having effect (usually before the beginning of your text):

\sloppy

This command does not completely eliminate hyphenation, but makes it very rare. LaTeX was create to generate a nice looking output, so the compiler tries the best it can to avoid hyphenation, but sometimes it would create large spaces between words, so the compiler prefers to hyphenate the last word of the line.

6.8 Justification

Justification is generally not needed for working papers, but here it is. To have text justified to the left, use \flushright at the point you want justification to start. To have text justified to the right, use \flushleft at the point you want justification to start. To have text centered, use

\begin{center}

Text that you want to be centered

\end{center}

to call the label by writing

Smith \ref{**labelforSmith**}. For references with year, like Smith (1996), using labels is not that useful because it is faster to just write the year yourself. But if you want to get the year automatically using the label, write Smith\cite{**labelforSmith**} or, if the reference is already within parentheses, write (Smith, \citeyear{**labelforSmith**}).

6.9 Figures and pictures

and then to crop it, you can try to use an eps version of the figure. I won't explain this here because I think it's too much work and confusing. Add the figure (where you want it

to be) with:

\begin{figure}[**htbp**]
\caption{**Title**}
\centering \includegraphics[width=**0.75**\textwidth]{**filename.pdf**} \\
A note you want to add here (like the source of the data for a graph).
\label{**your_key**}
\end{figure}

where **htbp** is for the location on the page: here, top of the page, bottom, of floating in an exclusive page, **Title** is the title that appears at the top of the figure (automatically precedes with "Figure X:", where X is the number of the figure), **0.75**\textwidth gives the width as a proportion of the text width (you can use a measure in inches or cm instead), **filename.pdf** is the name of the file of the figure, which should be in the same folder of your .tex file, and **your_key** is the key that you can use to refer to the figure in the text (you have to write \ref{**your_key**} in order to have the reference (the number of the figure) shown in the text). Notice that you can add a note at the bottom of the figure for sources or other remarks. The example above should give something like the following figure (using the option "h", i.e., print it here).

T

7 Concluding remarks

Good luck! Yes, luck is helpful during this learning process (avoiding silly mistakes will save you a lot of time).

This is an open-source document. Feel free to write and distribute your own improved version based on this one (just don't forget to cite this document). The original .tex file of this document is available at http://faculty.gvsu.edu/ogural/

Future topics to be covered here include how to use Bibtex ...

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