

Birchler, Kassandra; Michaelowa, Katharina

Working Paper

**Making aid work for education in developing countries:
An analysis of aid effectiveness for primary education
coverage and quality**

WIDER Working Paper, No. 2013/021

Provided in Cooperation with:

United Nations University (UNU), World Institute for Development Economics Research (WIDER)

Suggested Citation: Birchler, Kassandra; Michaelowa, Katharina (2013) : Making aid work for education in developing countries: An analysis of aid effectiveness for primary education coverage and quality, WIDER Working Paper, No. 2013/021, ISBN 978-92-9230-598-7, The United Nations University World Institute for Development Economics Research (UNU-WIDER), Helsinki

This Version is available at:

<https://hdl.handle.net/10419/213278>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

Corrigendum for WIDER Working Paper No. 2013/021 “Making aid work for education in developing countries: An analysis of aid effectiveness for primary education coverage and quality” by Kassandra Birchler, and Katharina Michaelowa

On page 4 of the working paper and in the variable description (Table A1, p. 26) we state that the main explanatory variable EDUCAID includes all aid disbursements for education, as reported to the OECD’s creditor reporting system (CRS), in constant 2010 US\$, and is expressed in per capita of the recipient country population. De facto, the econometric findings reported in the paper reflect absolute aid disbursement for education – and not per capita. Since our main specification (Table 1, Regression 4) uses the log of EDUCAID, this does not change much of the results, even in terms of the coefficient estimates. Our earlier sentence *“As a rough approximation, the coefficient indicates that doubling annual education aid per capita for a period five consecutive years implies a 5.6% increase in net enrolment rates.”* (p. 8), only needs to be adjusted upward to 6% rather than 5.6%: A doubling of annual education aid per capita leads to an increase in net enrolment by 6 percentage points. Hence the main argument of the paper, i.e. that donors’ increase in funding has substantially contributed to the successful increase in enrolment over the last 15 years, is still supported by the empirical evidence. In reasonable specifications, it holds not only for absolute aid, but also for aid per capita.

The re-calculation of all estimations using education aid per capita as initially intended reveals only two changes:

- (1) In those regressions that we already considered less convincing methodologically in the initial paper (notably the GMM estimates in the appendix, and Regressions 1-2 in Table 1), education aid per capita is generally insignificant. The methodological concerns with these regressions were discussed on p. 6ff. in the original paper.
- (2) When looking at aid per capita to specific areas within education (Table 2), we find one more significant interaction term supporting our initial hypothesis of a complementarity between infrastructure and teacher training (see p. 14). Both variables are now individually significant and positive (at the median of the other variable), and the interaction effect is positively significant, too (Table 2, Regression 14, and Figure 3)

For further reference, all regression tables and related graphs using the corrected education aid per capita variable are presented below.

Table 1: The effect of education aid on primary school enrolment (countries with initial NER < 80%)

VARIABLES	(1) System GMM NER (%)	(2) FE NER (%)	(3) FE NER growth (%)	(4) FE NER growth (%)
L.NER	0.46*** (0.00)	-0.01 (0.91)		
EDUCAID per capita	0.11 (0.35)	-0.10 (0.69)	-0.26 (0.60)	5.98* (0.07)
EDUCEXP	0.24 (0.61)	0.47* (0.07)	0.50 (0.55)	7.72 (0.42)
PTR	-0.12 (0.41)	-0.19 (0.23)	-0.18 (0.61)	-9.68 (0.55)
YOUNG POP	-0.24 (0.20)	0.34 (0.49)	-2.04* (0.07)	-53.25 (0.16)
GDP per capita	-0.00 (0.76)	-0.00*** (0.00)	-0.00 (0.88)	-5.38 (0.65)
BUDGET (surplus)	0.03 (0.93)	0.19 (0.53)	1.88*** (0.00)	1.51*** (0.00)
INFLATION	-0.01 (0.46)	-0.02 (0.80)	-0.49** (0.03)	-6.53** (0.03)
OPEN	0.02 (0.45)	0.07* (0.10)	-0.11 (0.42)	-3.17 (0.82)
FREE	-0.59 (0.24)	-3.64* (0.07)	-11.27** (0.01)	-10.45** (0.02)
Observations	260	260	260	257
Countries	110	110	110	110
R ² (within)		0.47	0.30	0.32
Wald	Chi2 = 739.9 (0.00)			
Hansen	Chi2 = 9.03 (0.172)			
AR1	Z=-1.22 (0.223)			
AR2				

P-values in parentheses

*** p<0.01, ** p<0.05, * p<0.1

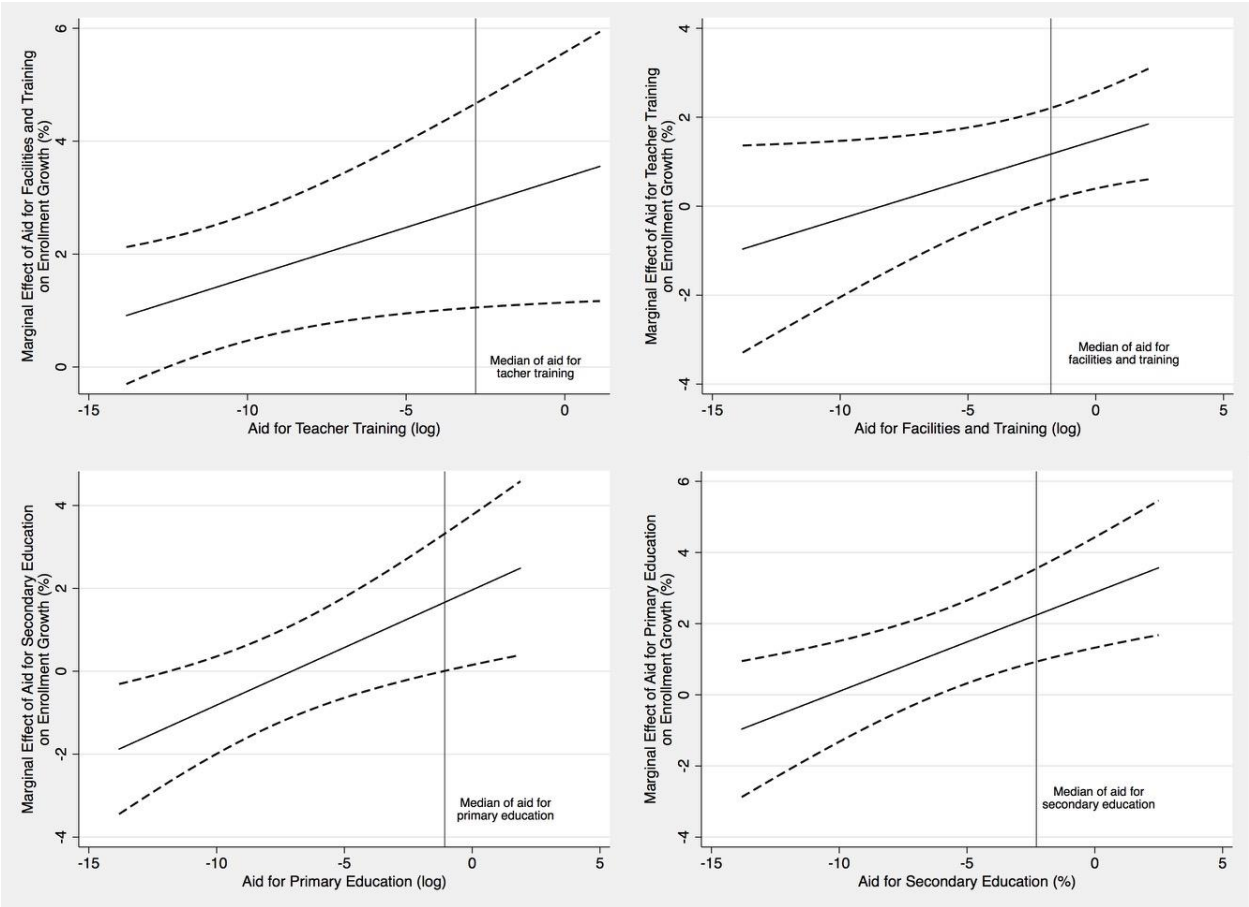
Table 2: The effect of education aid for different purposes on primary school enrolment.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Primary education	1.65** (0.04)											0.31 (0.68)	0.73 (0.36)		2.88*** (0.00)
Policy & Admin		2.13 (0.52)													
Facilities & training			2.41*** (0.00)									1.15 (0.15)	1.52* (0.06)	3.36** (0.01)	
Teacher training				1.53** (0.01)								0.99 (0.12)	0.93 (0.14)	1.48** (0.03)	
Educational research					0.38 (0.36)										
Basic skills						1.24** (0.03)						0.73 (0.24)	0.95* (0.10)		
Early childhood							-0.43 (0.51)								
Secondary education								0.86 (0.28)							1.96* (0.07)
Vocational training									-0.26 (0.79)						
Tertiary education										6.94** (0.01)		3.69 (0.26)			
Advanced technical training											0.76 (0.32)				
Facilities and training x teacher training														0.18* (0.10)	
Primary education x secondary education															0.28** (0.01)
EDUCEXP	7.16 (0.46)	7.24 (0.45)	7.20 (0.46)	8.41 (0.38)	6.88 (0.49)	7.15 (0.45)	5.93 (0.56)	7.66 (0.42)	6.49 (0.51)	8.50 (0.38)	8.29 (0.40)	9.46 (0.32)	8.71 (0.36)	8.18 (0.40)	7.42 (0.43)
PTR	-9.64 (0.56)	-8.96 (0.59)	-4.59 (0.79)	-8.46 (0.62)	-10.64 (0.51)	-9.50 (0.56)	-9.16 (0.59)	-7.72 (0.64)	-9.77 (0.56)	-10.78 (0.51)	-8.22 (0.62)	-7.39 (0.66)	-6.04 (0.72)	-5.66 (0.74)	-12.75 (0.45)
YOUNG POP	-54.66 (0.14)	-58.79 (0.13)	-56.61 (0.13)	-49.42 (0.17)	-62.93* (0.09)	-45.23 (0.22)	-61.73* (0.10)	-62.33* (0.09)	-64.72* (0.10)	-44.40 (0.24)	-64.82* (0.08)	-28.97 (0.43)	-33.17 (0.36)	-46.87 (0.21)	-51.85 (0.15)
GDP per capita	-4.37 (0.71)	-5.65 (0.64)	-4.93 (0.68)	-4.32 (0.71)	-7.62 (0.50)	-5.35 (0.64)	-6.25 (0.61)	-3.87 (0.74)	-5.74 (0.64)	-5.51 (0.64)	-4.96 (0.68)	-4.54 (0.70)	-4.18 (0.71)	-4.24 (0.71)	-6.88 (0.56)
BUDGET (surplus)	1.43** (0.02)	1.58*** (0.00)	1.90*** (0.00)	1.89*** (0.00)	1.72*** (0.00)	1.58*** (0.00)	1.66*** (0.01)	1.45** (0.02)	1.65*** (0.01)	1.56*** (0.00)	1.55*** (0.01)	1.80*** (0.00)	1.80*** (0.00)	2.11*** (0.00)	1.43*** (0.01)
INFLATION	-7.57** (0.01)	-6.58** (0.03)	-6.91** (0.01)	-7.82*** (0.01)	-6.59** (0.02)	-7.30*** (0.01)	-6.82** (0.02)	-6.76** (0.02)	-6.87** (0.02)	-6.36** (0.04)	-6.52** (0.02)	-7.67** (0.01)	-8.17*** (0.00)	-7.31** (0.01)	-6.88** (0.03)
OPEN	-2.47 (0.86)	-2.80 (0.84)	-2.10 (0.88)	-4.85 (0.72)	-3.07 (0.82)	0.77 (0.95)	-2.13 (0.88)	-1.22 (0.93)	-2.30 (0.87)	-3.61 (0.78)	-2.36 (0.87)	-2.63 (0.84)	-1.31 (0.92)	-2.17 (0.87)	-4.58 (0.75)
FREE	-11.42*** (0.01)	-11.18** (0.01)	-11.04** (0.01)	-9.90** (0.02)	-11.39** (0.01)	-11.88*** (0.01)	-11.24** (0.01)	-11.25** (0.01)	-11.31** (0.01)	-10.30** (0.02)	-11.11** (0.01)	-10.14** (0.02)	-10.82** (0.01)	-10.16** (0.02)	-10.93** (0.01)
Observations	257	257	257	257	257	257	257	257	257	257	257	257	257	257	257
Number of Countries	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110
R ² (within)	0.32	0.31	0.34	0.33	0.31	0.32	0.31	0.31	0.31	0.33	0.31	0.36	0.36	0.35	0.34

Robust p-values in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Figure 3: Interaction effects (Table 2, Regressions 14 and 15)



APPENDIX:

Table A2: Replication of Michaelowa and Weber (2007, Table 1) with new disbursement data.

Method	(1) Arellano&Bond	(2) Arellano & Bond, robust	(3) Blundel & Bond, robust	(4) Blundell & Bond, robust	(5) Blundell&Bond, robust; additional IV: ENERGYAID
Variables considered endogenous	L.NER EDUCAID NER (%)	L.NER EDUCAID	L.NER EDUCAID	L.NER EDUCAID EXPEDUC	L.NER EDUCAID
Dependent variable	NER (%)	NER (%)	NER (%)	NER (%)	NER (%)
L.NER	-0.80 (0.22)	0.42 (0.27)	0.58*** (0.01)	0.47*** (0.00)	0.60*** (0.00)
EDUCAID per capita	-0.40 (0.19)	-0.05 (0.86)	0.02 (0.78)	0.02 (0.72)	0.09 (0.30)
EDUCEXP	2.71** (0.02)	0.33 (0.18)	0.20 (0.20)	0.17 (0.67)	0.15 (0.33)
PTR	0.38 (0.25)	-0.17 (0.44)	-0.13 (0.36)	-0.17 (0.18)	-0.13 (0.27)
YOUNG POP	-5.09** (0.01)	-0.74* (0.08)	-0.08 (0.64)	-0.16 (0.33)	-0.07 (0.68)
GDP per capita	-0.00** (0.02)	-0.00 (0.24)	-0.00 (0.92)	-0.00 (0.78)	-0.00 (0.83)
BUDGET (surplus)	0.70 (0.14)	0.26 (0.52)	0.16 (0.49)	0.15 (0.55)	0.29 (0.24)
INFLATION	1.50** (0.04)	-0.02 (0.84)	-0.02* (0.06)	-0.02 (0.18)	-0.03** (0.03)
OPEN	-0.28* (0.08)	-0.01 (0.92)	0.00 (0.94)	0.01 (0.65)	0.00 (0.90)
FREE	-6.24** (0.01)	-4.84** (0.05)	-0.59 (0.20)	-0.73* (0.10)	-0.49 (0.34)
Observations	178	178	309	309	304
Number of Countries	105	105	131	131	129
Wald	Chi2 = 48292 (0.00)	Chi2 = 34934 (0.00)	Chi2 = 1434 (0.00)	Chi2 = 1186 (0.00)	Chi2 = 872 (0.00)
Hansen	Chi2 = 0.88 (0.347)	Chi2 = 6.79 (0.079)	Chi2 =8.69 (0.069)	Chi2 = 9.38 (0.153)	Chi2 =2.66 (0.264)
AR1	Z=-0.93 (0.353)	Z= -0.85 (0.395)	Z=-1.61 (0.107)	Z=-1.33 (0.185)	Z=-1.90 (0.057)
AR2	.	.	.	.	.
Instruments	19	21	23	25	19

P-values in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table A3: Replication of Michaelowa and Weber (2007, Table 1 new data), initial NER<80%

Method	(1) Arellano&Bond	(2) Arellano & Bond, robust	(3) Blundel & Bond, robust	(4) Blundell & Bond, robust	(5) Blundell&Bond, robust; additional IV: ENERGYAID
Variables considered endogenous	L.NER EDUCAID NER (%)	L.NER EDUCAID	L.NER EDUCAID	L.NER EDUCAID EXPEDUC	L.NER EDUCAID
Dependent variable	NER (%)	NER (%)	NER (%)	NER (%)	NER (%)
L.NER	-0.00 (1.00)	0.34 (0.21)	0.58** (0.01)	0.46*** (0.00)	0.62*** (0.00)
EDUCAID per capita	-0.46 (0.27)	-0.32 (0.30)	0.12 (0.36)	0.11 (0.35)	0.36* (0.08)
EDUCEXP	1.90* (0.06)	0.40 (0.10)	0.23 (0.21)	0.24 (0.61)	0.16 (0.38)
PTR	0.27 (0.39)	-0.11 (0.54)	-0.08 (0.56)	-0.12 (0.41)	-0.09 (0.45)
YOUNG POP	-3.07** (0.03)	-1.17*** (0.00)	-0.14 (0.48)	-0.24 (0.20)	-0.13 (0.44)
GDP per capita	-0.00* (0.08)	-0.00* (0.09)	-0.00 (0.82)	-0.00 (0.76)	-0.00 (0.72)
BUDGET (surplus)	0.85 (0.17)	0.32 (0.36)	0.09 (0.75)	0.03 (0.93)	0.26 (0.31)
INFLATION	0.76 (0.17)	-0.05 (0.62)	-0.02 (0.20)	-0.01 (0.46)	-0.02* (0.07)
OPEN	-0.19 (0.22)	-0.01 (0.85)	0.01 (0.80)	0.02 (0.45)	0.00 (0.95)
FREE	-8.53** (0.02)	-6.49*** (0.01)	-0.48 (0.35)	-0.59 (0.24)	-0.21 (0.71)
Observations	150	150	260	260	257
Number of Countries	88	88	110	110	108
Wald	Chi2 = 596869 (0.00)	Chi2 = 312545 (0.00)	Chi2 = 1279(0.00)	Chi2 = 739 (0.00)	Chi2 = 585 (0.00)
Hansen	Chi2 = 2.77 (0.096)	Chi2 = 6.47 (0.091)	Chi2 = 8.22 (0.084)	Chi2 = 9.03 (0.172)	Chi2 = 1.18 (0.554)
AR1	Z=-0.54 (0.586)	Z= -0.83 (0.404)	Z=-1.51 (0.132)	Z=-0.54 (0.586)	Z=-1.90 (0.057)
AR2	.	.	.	.	.
Instruments	19	21	23	25	19

P-values in parentheses

*** p<0.01, ** p<0.05, * p<0.1

**Table A4: The effect of education aid on primary school enrolment, all developing countries
(as Table 1, but unrestricted set of countries)**

	(1) System GMM	(2) FE	(3) FE	(4) FE
Variables	NER (%)	NER (%)	NER Growth (%)	NER Growth (%)
L.NER	0.47*** (0.00)	0.01 (0.89)		
EDUCAID per capita	0.02 (0.72)	-0.02 (0.85)	-0.09 (0.58)	4.94* (0.10)
EDUCEXP	0.17 (0.67)	0.46* (0.06)	0.39 (0.60)	6.44 (0.46)
PTR	-0.17 (0.18)	-0.17 (0.31)	-0.19 (0.56)	-9.05 (0.52)
YOUNG POP	-0.16 (0.33)	0.30 (0.52)	-1.78* (0.09)	-42.25 (0.23)
GDP per capita	-0.00 (0.78)	-0.00*** (0.01)	-0.00 (0.93)	-3.59 (0.72)
BUDGET (surplus)	0.15 (0.55)	0.25 (0.36)	1.74*** (0.00)	1.47*** (0.00)
INFLATION	-0.02 (0.18)	0.01 (0.86)	-0.39** (0.05)	-4.54 (0.12)
OPEN	0.01 (0.65)	0.07* (0.06)	-0.08 (0.50)	-1.31 (0.91)
FREE	-0.73* (0.10)	-2.49 (0.13)	-8.81** (0.02)	-8.25** (0.03)
Observations	309	309	309	305
Countries	131	131	131	131
Wald	Chi2 = 1186 (0.00)			
Hansen	Chi2 = 9.38 (0.153)			
AR1	Z=-1.33 (0.185)			
AR2	.			
R2 (within)		0.42	0.28	0.30

P-values in parentheses

*** p<0.01, ** p<0.05, * p<0.1