Annex I–V: The Role of Aid in the Provision of Sexual and Reproductive Health Services

Jesper Sundewall
Björn Ekman
Jessy Schmit

Annex I–V to The Role of Aid in the Provision of Sexual and Reproductive Health Services
to
The Expert Group for Aid Studies (EBA)

Jesper Sundewall is an associate professor of global health systems at Lund University and University of KwaZulu-Natal. Jesper's research is focused on health financing and health systems analysis in low- and middle-income countries.

Björn Ekman is an associate professor of global health economics at Lund University. His research interests are mainly in health and economics with a particular focus on health systems analysis and effects of digital technologies on health services.

Jessy Schmit is a public health researcher with a Master of Medical Science in Public Health (MPH) from Lund University. Her research interests lie in health economics, health financing and social determinants of health.

Please refer to the present report as: Sundewall, J., Ekman, B., and Schmit, J. (2023), *The Role of Aid in the Provision of Sexual and Reproductive Health Services*, EBA Report 2023:01, The Expert Group for Aid Studies (EBA), Sweden.

This report can be downloaded free of charge at www.eba.se

ISBN 978-91-88143-96-9
Printed by Elanders Sverige AB
Stockholm 2023

Cover design by Julia Demchenko

Table of Contents

Annex I. Systematic review of the literature

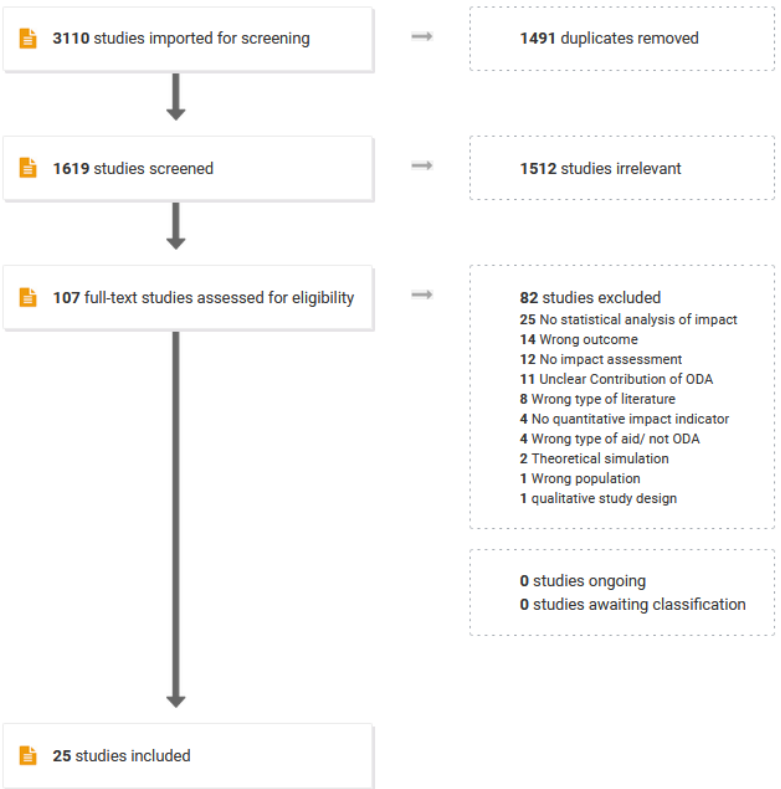
A systematic review was conducted investigating the evidence of an impact of official development assistance on sexual and reproductive health (SRH) outcomes in low-and lower-middle-income countries. Consistent with the components of SRH presented in the Guttmacher-Lancet report (Starrs et al., 2018), outcomes of interest for the review included gender-based violence, maternal and infant health (incl. ante- and postnatal care), menstrual health, abortion, HIV/AIDS, other sexually transmitted diseases, reproductive cancer, family planning and female genital mutilation (FGM).

Between 25/07/2022 and 05/08/2022, 54 databases (incl. MEDLINE, CINAHL Complete, ScienceDirect, and Scopus) and 1 preprint server (arXiv) were systematically searched for English language articles assessing the impact of official development assistance (ODA) on SRH. The search strategy combined terms for the outcomes of interest, development assistance, low- and lower-middle income countries and impact evaluation. The search was restricted to articles published between 2002 and 2020. Additional grey literature was retrieved through manual keyterm or abridged searches of the WHO IRIS database, the World Bank eLibrary, UNICEF's Office of Research-Innocenti Publications, UNFPA publications, the Joint United Nations Programme on AIDS Publications Library, the Publications Office of the European Union and the preprint servers medrxiv and Lancet preprints.

To be eligible for inclusion in the review, articles had to statistically assess the impact of ODA on at least one of the specified SRH outcomes using at least one quantitative indicator. Articles were included in the review if they were experimental, quasi-experimental or observational in study design and if aid recipients matched the target

population, defined as low-and lower-middle-income countries according to the World Bank classification in 2002. Only English language articles published between 2002 and 2020 were included in the review. Studies exclusively assessing humanitarian assistance or projects not yet implemented were excluded, as were purely theoretical simulation or projection studies. Also excluded were articles where foreign aid was clearly non-ODA, or the contribution of ODA to overall foreign funding was unclear or negligible.

Figure A1. Prisma chart for systematic review



Screening was conducted in Covidence by two reviewers. Reviewers were blinded to each other's decisions at both title/abstract screening and full-text screening. Conflicting decisions were manually resolved by the reviewers at each screening stage before

moving onto the next stage. Subsequent data extraction was performed in Covidence by one reviewer, with the extraction template containing information on study details, study design, type and period of funding, outcomes assessed, results presented, and conclusions drawn by the authors.

Results

Of 1619 unique articles identified in the search, 25 met the eligibility criteria and were therefore included in the review. Evaluations covered ODA disbursed or committed from 1968 to 2015, with most studies analyzing the impact of funding provided between 1990 and 2010. Of studies specifying a geographic region of aid recipients, the majority (10 studies) focused on Africa, particularly sub-Saharan Africa (5 studies) and the remaining studies on Asia and specifically southeast Asia (3 studies).

Results indicate strong variation in aid definitions used (see Table A1) and outcomes evaluated. Infant health emerges as a dominant topic in the current evaluation literature, with 13 of 25 studies focused on infant mortality as an outcome. Other evaluations focused largely on HIV/AIDS (five studies) or maternal health and maternal health service provision (six studies). Three studies analyzed the impact of ODA on family planning and only one study addressed abortion as an outcome. Notably, gender-based violence, reproductive cancers, sexually transmitted diseases other than HIV/AIDS, FGM and menstrual health were absent from the results, indicating considerable gaps in the current evaluation literature. A detailed breakdown of outcomes is provided below.

Table A1. Definitions of aid used in articles reviewed

Aid definition	# of Articles
ODA	7
Foreign aid (= ODA)	5
Health sector specific aid	4
ODA for HIV/AIDS	2
(Foreign) aid for health	2
Other definitions	7

Note: Two articles used multiple definitions of aid therefore #=27.

Infant health

Thirteen studies assessed the impact of ODA on infant mortality rates. Overall evidence of impact is mixed. Four studies find evidence that ODA significantly reduces IMR (Islam, 2003; Kotsadam *et al.*, 2018; Win and Cho, 2018; Akinlo and Sulola, 2019), with one additional study estimating DFID health programming alone to have resulted in 187,000 newborn lives saved between 2010 and 2014 (Friberg, Baschieri and Abbotts, 2017). However, three studies do not detect any significant effect of ODA on IMR in their analysis (Arndt, Jones and Tarp, 2015; Pallas and Ruger, 2017; Toseef, Jensen and Tarraf, 2019). The remaining studies report aid to significantly decrease IMR mostly in interaction with other factors, such as education (Mukherjee and Kizhakethalackal, 2013), the level of female empowerment (Montinola and Prince, 2018) or human rights commitments (Cole and Reynolds, 2019) in a country. One study reports that depending on the aid measure used, ODA had either no or a detrimental effect on IMR, while increasing aid volatility was associated with reductions in IMR (Wolf, 2007). Lastly, one study remains inconclusive due to internal contradictions (Irfan and Nehra, 2016).

Maternal health (incl. prenatal care and childbirth)

Of four studies assessing the impact of ODA on maternal mortality, one study finds evidence for ODA leading to a significant reduction in maternal mortality (Pickbourn and Ndikumana, 2016), while another study estimates DFID health and family planning programming to have saved 103,000 women's lives between 2010 and 2014 (Friberg, Baschieri and Abbotts, 2017). Two other studies show mixed results, with one study reporting contradictory effects depending on the type of lending provided by the World Bank (Coburn *et al.*, 2017), and another study finding that only aid allocated directly to the reproductive or maternal health sector reduces maternal mortality (Banchani and Swiss, 2019). Evidence for an impact of ODA on prenatal care provision remains inconclusive. One study did not observe an effect of ODA on prenatal care (Mukherjee and Kizhakethalackal, 2013), whereas another study reported that HIV aid improved prenatal care only in countries with low or medium HIV prevalence or low physician density (Grépin, 2012).

HIV/AIDS

Five articles assessed the effect of ODA on HIV/AIDS-related outcomes. Two studies report that ODA significantly reduces HIV/AIDS-related mortality (albeit only in the case of US bilateral aid in one study) (Nunnenkamp and Öhler, 2011; Hsiao and Emdin, 2015). Evidence for ODA lowering HIV/AIDS incidence is inconclusive, with one study supporting and another study refuting an effect (Nunnenkamp and Öhler, 2011; Lee, Yang and Kang, 2016). Two studies evaluating ODA's effect on HIV/AIDS prevalence find no evidence (Lee, Yang and Kang, 2016) and mixed evidence (Yogo and Mallaye, 2015) of a significant impact of ODA, respectively. Lastly, one study reports that increases in foreign assistance for HIV are significantly associated with increases in antiretroviral therapy coverage in 13 African countries (Bendavid *et al.*, 2010).

Family Planning

While outcomes evaluated varied, there appears to be some evidence of ODA impacting family planning in recipient countries. One study observes that ODA significantly reduces adolescent fertility rates (Zhuang, Wang and Daniels, 2020), while another study demonstrates that countries highly exposed to a withdrawal of US bilateral aid under the Mexico City Policy (MCP) experienced a significant concomitant decline in contraceptive use compared to countries with low exposure to the MCP (Brooks, Bendavid and Miller, 2019). Similarly, a third study finds evidence that USAID family planning funding significantly increased prevalence rates of modern contraceptives (Shepard *et al.*, 2003).

Abortion

Only one study evaluated the impact of the Mexico City Policy on abortion rates and concluded that withdrawal of US bilateral aid under the Mexico City Policy resulted in significantly increased abortion rates in highly exposed countries compared to countries with low exposure (Brooks, Bendavid and Miller, 2019).

Quality of Evidence

Overall, the quality of evidence for the effects of ODA on SRH outcomes was assessed as moderate. None of the studies included in this review were experimental in study design. Most studies (n=14) applied a fixed effects analysis using panel data, which is similar to the approach we adopt in our analysis. Three of studies could be described as quasi-experimental in nature, using a difference-in-difference analytical approach. Although they do not employ randomization, both fixed effects and DiD provide some evidence as to a possible causal relationship between ODA and SRH outcomes. The remaining studies were observational, except one which used a structural causal model. Out of the 25 studies that met

the eligibility criteria, all except one have been published in peer-reviewed journals. This lack of grey literature in the final review indicates that grey literature largely did not meet the eligibility criteria specified, with reported effects assessments being frequently qualitative or lacking in statistical analysis. The large differences between the studies in terms of study design, definition of ODA and the variety of outcomes measured make it difficult to say something conclusive about both the completeness and quality of the evidence.

Definition of Study Design Classification

Studies were classified into three categories according to their ability to make a causal claim as to the relationship between ODA and SRH outcomes.

Experimental – Studies employing an experimental study design with randomization. Able to make a causal claim. Considered strong evidence.

Non-Experimental – Studies lacking randomization, but employing a study design that allows to infer causality (e.g. quasi-experimental studies, use of causal models). Able to make a causal claim. Considered moderate evidence.

Observational – Studies that merely test for the association or correlation between ODA and SRH outcomes and do not provide any modelling. Unable to make a causal claim. Considered weak evidence.

References for systematic review

Akinlo, A. E. and Sulola, A. O. (2019) 'Health care expenditure and infant mortality in sub-Saharan Africa', Journal of Policy Modeling. Elsevier B.V., 41(1), pp. 168–178. doi: 10.1016/j.jpolmod.2018.09.001.

Arndt, C., Jones, S. and Tarp, F. (2015) 'Assessing foreign aid's long-run contribution to growth and development', World Development. Elsevier Ltd, 69, pp. 6–18. doi: 10.1016/j.worlddev.2013.12.016.

Banchani, E. and Swiss, L. (2019) 'The impact of foreign aid on maternal mortality', Politics and Governance. Cogitatio Press, 7(2), pp. 53–67. doi: 10.17645/pag.v7i2.1835.

Bendavid, E. et al. (2010) 'The relation of price of antiretroviral drugs and foreign assistance with coverage of HIV treatment in Africa: retrospective study.', BMJ (Clinical research ed.), 341(c6218). doi: 10.1136/bmj.c6218.

Brooks, N., Bendavid, E. and Miller, G. (2019) 'USA aid policy and induced abortion in sub-Saharan Africa: an analysis of the Mexico City Policy', The Lancet Global Health. Elsevier Ltd, 7(8), pp. e1046–e1053. doi: 10.1016/S2214-109X(19)30267-0.

Coburn, C. et al. (2017) 'The World Bank, Organized Hypocrisy, and Women's Health: A Cross-National Analysis of Maternal Mortality in Sub-Saharan Africa', Sociological Forum. Blackwell Publishing Inc., 32(1), pp. 50–71. doi: 10.1111/socf.12320.

Cole, W. M. and Reynolds, M. M. (2019) 'We comply with a little help from our friends: Human rights, development aid, and well-being', Social Forces. Oxford University Press, 97(4), pp. 1631–1663. doi: 10.1093/sf/soy087.

Friberg, I. K., Baschieri, A. and Abbotts, J. (2017) 'A method for estimating maternal and newborn lives saved from health-related investments funded by the UK government Department for International Development using the Lives Saved Tool', BMC Public Health. BioMed Central, 17(Suppl 4)(779), pp. 127–134. doi: 10.1186/s12889-017-4748-z.

Grépin, K. A. (2012) 'HIV donor funding has both boosted and curbed the delivery of different non-HIV health services in Sub-Saharan Africa', Health Affairs, 31(7), pp. 1406–1414. doi: 10.1377/hlthaff.2012.0279.

Hsiao, A. J. and Emdin, C. A. (2015) 'The association between development assistance for health and malaria, HIV and tuberculosis mortality: A cross-national analysis', Journal of Epidemiology and Global Health. Elsevier Ltd, 5(1), pp. 41–48. doi: 10.1016/j.jegh.2014.10.001.

Irfan, Z. B. and Nehra, A. (2016) 'Analysing the aid effectiveness on the living standard: A check-up on Southeast Asian countries', Journal of Urban Management. Elsevier B.V., 5(1), pp. 23–31. doi: 10.1016/j.jum.2016.07.001.

Islam, M. N. (2003) 'Political Regimes and the Effects of Foreign Aid on Economic Growth', The Journal of Developing Areas, 37(1), pp. 35–53. Available at: https://www.jstor.org/stable/4192937 (Accessed: 4 December 2022).

Kotsadam, A. et al. (2018) 'Development aid and infant mortality. Micro-level evidence from Nigeria', World Development. Elsevier Ltd, 105, pp. 59–69. doi: 10.1016/j.worlddev.2017.12.022.

Lee, H. Y., Yang, B. M. and Kang, M. (2016) 'Control of corruption, democratic accountability, and effectiveness of HIV/AIDS official development assistance', Global Health Action. Co-Action Publishing, 9(1). doi: 10.3402/gha.v9.30306.

Montinola, G. R. and Prince, S. M. (2018) Women's empowerment and foreign aid effectiveness. 6. Gothenburg.

Mukherjee, D. and Kizhakethalackal, E. T. (2013) 'Empirics of health-aid, education and infant mortality: A semiparametric study', Applied Economics, 45(22), pp. 3137–3150. doi: 10.1080/00036846.2012.699186.

Nunnenkamp, P. and Öhler, H. (2011) 'Throwing Foreign Aid at HIV/AIDS in Developing Countries: Missing the Target?', World Development, 39(10), pp. 1704–1723. doi: 10.1016/j.worlddev.2011.04.033.

Pallas, S. W. and Ruger, J. P. (2017) 'Does donor proliferation in development aid for health affect health service delivery and population health? Cross-country regression analysis from 1995 to 2010', Health Policy and Planning. Oxford University Press, 32(4), pp. 493–503. doi: 10.1093/heapol/czw164.

Pickbourn, L. and Ndikumana, L. (2016) 'The Impact of the Sectoral Allocation of Foreign aid on Gender Inequality', Journal of International

Development. John Wiley and Sons Ltd, 28(3), pp. 396–411. doi: 10.1002/jid.3213.

Shepard, D. S. et al. (2003) 'Cost-effectiveness of USAID's Regional Program for Family Planning in West Africa', Studies in Family Planning, 34(2), pp. 117–126.

Starrs, A. M. et al. (2018) 'Accelerate progress—sexual and reproductive health and rights for all: report of the Guttmacher–Lancet Commission', The Lancet. Lancet Publishing Group, pp. 2642–2692. doi: 10.1016/S0140-6736(18)30293-9.

Toseef, M. U., Jensen, G. A. and Tarraf, W. (2019) 'How Effective Is Foreign Aid at Improving Health Outcomes in Recipient Countries?', Atlantic Economic Journal. Springer, 47(4), pp. 429–444. doi: 10.1007/s11293-019-09645-2.

Win, T. and Cho, Y. C. (2018) 'Exploring Effectiveness of Official Development Assistance: Comparison Analysis of Developing Countries', Journal of Marketing Thought, 5(3), pp. 22–32. doi: 10.15577/jmt.2018.11.03.4.

Wolf, S. (2007) 'Does aid improve public service delivery?', Review of World Economics, 143(4), pp. 650–672. doi: 10.1007/s10290-007-0126-8.

Yogo, U. T. and Mallaye, D. (2015) 'Health Aid and Health Improvement in Sub-Saharan Africa: Accounting for the Heterogeneity Between Stable States and Post-Conflict States', Journal of International Development. John Wiley and Sons Ltd, 27(7), pp. 1178–1196. doi: 10.1002/jid.3034.

Zhuang, H., Wang, M. and Daniels, J. (2020) 'Foreign Aid and Adolescent Fertility Rate: Cross-Country Evidence', Journal of Globalization and Development. De Gruyter Open Ltd, 11(1), pp. 281–317. doi: 10.1515/jgd-2018-0051.

Search Strategy

#1 (Population/Outcome) – Title/Abstract Search

"sexual health" OR "reproductive health" OR "gender-based violence" OR "sexual violence" OR "sexual abuse" OR "antenatal care" OR "childbirth" OR "maternal mortality" OR "maternal health" OR "infant health" OR "infant mortality" OR "postnatal care" OR "abortion" OR "abortion care" OR "menstrual health" OR "menstrual hygiene" OR "HIV" OR "human immunodeficiency virus" OR "STI" OR "sexually transmitted infection" OR "STD" OR "sexually transmitted disease" OR "human papillomavirus" OR "HPV" OR "family planning" OR "adolescent birth rate" OR "unmet need for family planning" OR "reproductive cancer" OR "cervical cancer" OR "FGM" OR "female genital mutilation" OR "female genital cutting"

#2 (Population) – Title/Abstract Search

"less developed countries" OR "low income countries" OR "middle income countries" OR "developing countries" OR "least developed" OR Africa OR sub-Saharan Africa OR "lower middle income countries" OR Asia OR "South America" OR "Central America"

#3 (Intervention) – Title/Abstract Search

"development aid" OR "development assistance" OR "foreign aid" OR aid OR "foreign assistance" OR "development assistance for health" OR "financial support" OR "financial contribution" OR "official development assistance" OR "donor" OR "development partner" OR "bilateral" OR "multilateral" OR "loans" OR "grants" OR "global funds"

#4 – Title/Abstract Search

impact OR effect OR effectiveness OR influence OR role OR cross-country OR "panel regression" OR "fixed effects" OR "causal inference" OR "quantitative assessment" OR affect OR "aid effectiveness"

Country Classification 2002

Below is a list of countries classified as low- income and lower-middle income countries in 2002. Data was gathered from: World Bank 2002. World Development Indicators. Washington, The World Bank. Available at: https://documents1.worldbank.org/curated/en/475281468159895302/pdf/multi0page.pdf

Low Income Countries (2002)

Afghanistan
Angola
Armenia
Azerbaijan
Bangladesh
Benin
Bhutan
Burkina Faso
Burundi
Cambodia
Cameroon
Central African Republic
Chad
The Comoros
Congo Dem. Rep.
Congo Rep.
Cote d'Ivoire
Eritrea
Ethiopia
The Gambia
Georgia
Ghana
Guinea
Guinea-Bissau
Haiti
India
Indonesia
Kenya
Korea Dem. Rep.
Kyrgyz Republic
(Kyrgyzstan) Lao PDR
Lesotho
Liberia
Madagascar
Malawi
Mali

Mauritania
Moldova
Mongolia
Mozambique
Myanmar
Nepal
Nicaragua
Niger
Nigeria
Pakistan
Rwanda
Sao Tomé and Principe
Senegal
Sierra Leone
Solomon Islands
Somalia
Sudan
Tajikistan
Tanzania
Togo
Uganda
Ukraine
Uzbekistan
Vietnam
Yemen, Rep.
Zambia
Zimbabwe

Lower Middle-Income Countries (2002)

Albania
Algeria
Belarus
Belize
Bolivia
Bosnia and Herzegovina
Bulgaria
Cape Verde
China
Colombia
Cuba
Djibouti
Dominican Republic
Ecuador
Egypt, Arab Rep.
El Salvador
Equatorial Guinea
Fiji
Guatemala
Guyana

Honduras

Iran, Islamic Rep.

Iraq

Jamaica

Jordan

Kazakhstan

Kiribati

Latvia

Lithuania

Macedonia, FYR

Maldives

Marshall Islands

Micronesia, Fed. Sts.

Morocco

Namibia

Papua New Guinea

Paraguay

Peru

Philippines

Romania

Russian Federation

Samoa

Sri Lanka

St Vincent and the Grenadines

Suriname (or Surinam)

Swaziland (today Eswatini)

Syrian Arab Republic (Syria)

Thailand

Tonga

Tunisia

Turkmenistan

Vanuatu

West Bank and Gaza

Yugoslavia, Fed. Republic.

Today Croatia, North Macedonia, Montenegro

Annex II. Results tables for the main FE analysis

Empirical strategy

As outlined in the main report we used fixed effect (FE) models as main estimation method. FE estimators address the threat of endogeneity from omitted variables bias. The main FE model takes the following form.

$$\text{SRH}it = \alpha it + \varphi \text{ODA}it + \beta Xit + \eta i + \upsilon t + \epsilon it \qquad (1)$$

The subscripts i and t denote country and year, respectively. SRH_{it} measures the SRH services of interest in the study. ODA_{it} measures the sectoral ODA disbursed to a country in a certain year (t). In the main model ODA is expressed in per capita terms to account for the effect of ODA after when controlling for the recipient countries' populations. φ_{it} is the main ODA effect estimate. X_{it} is a vector of country-level covariates that might impact SRH services in a country (i), as shown by previous studies. The country fixed effects (η_i) control for unobserved time-invariant factors at the country level. υ_t are the time fixed effects, which account for universal time trends experienced across countries. Finally, α_{it} and ϵ_{it} are the intercept and the idiosyncratic error term, respectively.

Table A1. The effect of health ODA on SRH services, summary of FE estimates

	Sectoral Health ODA, USD per capita (2020 constant)		
SRH service indicator	**SRH ODA**	**Total Health ODA**	**RH ODA**
Modern contraceptive prevalence	0.628***	0.242**	0.935
Skilled birth attendance	0.190*	0.059	0.902
ART coverage	0.531***	0.332***	0.575
Two-way FE	YES	YES	YES
Extended Controls	YES	YES	YES

Note: *** p<0.01, ** p<0.05, * p<0.1.

Model 1 was estimated using a linear-linear specification; thus, effect estimates represent the average percentage point change in service coverage associated with a 1 USD per capita increase in sectoral health ODA. The covariates GDP per capita, and population density (per sq. km) were log transformed to facilitate the interpretation of coefficients.

For each combination to ODA measure to SRH service indicator, the random-effect models were favored over the pooled OLS models based on the Breusch-Pagan Lagrange multiplier test. Moreover, the Durbin–Wu–Hausman test results suggested that FE models were preferred over the random-effects. All models were run with standard errors clustered at the country level, given significant results ($p<0.05$) from the Wald test for groupwise heteroskedasticity and Lagrange-Multiplier test for serial correlation. The tables below include the estimator selection procedures and relevant diagnostics.

Table A2. FE estimation of the effects of sectoral ODA on modern contraceptive prevalence (based on ODA disbursements per capita)

VARIABLES	(Simple) SRH ODA	(Model 1) SRH ODA	(Simple) TotH ODA	(Model 1) TotH ODA	(Simple) RH ODA	(Model 1) RH ODA
Health ODA pc	0.550***	0.628***	0.269***	0.242**	1.082	0.935
	[0.366 - 0.734]	[0.330 - 0.926]	[0.107 - 0.431]	[0.032 - 0.453]	[-0.423 - 2.587]	[-1.490 - 3.361]
ln GDP pc		1.735		1.820		-0.699
		[-7.796 - 11.266]		[-9.003 - 12.643]		[-11.601 - 10.204]
GHE share of CHE		0.027		0.061		0.039
		[-0.102 - 0.155]		[-0.084 - 0.205]		[-0.098 - 0.176]
Government effective		3.995*		3.345		3.717
		[-0.471 - 8.461]		[-1.616 - 8.305]		[-2.234 - 9.668]
Corruption control		1.504		2.372		3.275
		[-3.796 - 6.803]		[-3.543 - 8.286]		[-3.265 - 9.815]
ln Population density		23.558**		21.369**		21.158*
		[5.116 - 41.999]		[0.149 - 42.589]		[-3.467 - 45.782]
Primary schooling		0.064		0.050		0.048
		[-0.017 - 0.145]		[-0.034 - 0.135]		[-0.042 - 0.138]
Female labor part.		-0.090		-0.149		-0.213
		[-0.353 - 0.174]		[-0.456 - 0.159]		[-0.611 - 0.186]

VARIABLES	(Simple) SRH ODA	(Model 1) SRH ODA	(Simple) TotH ODA	(Model 1) TotH ODA	(Simple) RH ODA	(Model 1) RH ODA
Observations	498	387	503	390	491	383
N. of countries	113	95	115	96	111	94
Two-way FE	YES	YES	YES	YES	YES	YES
Adj. Within R^2	0.364	0.400	0.332	0.351	0.302	0.323
Rho statistic	0.952	0.980	0.952	0.976	0.948	0.977
Hausmann Chi2		40.70***		37.57***		39.67***
Testparm i. Year		1.05		1.41		1.97**

Note: All measures of health ODA are in USD per capita (constant 2020). Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1, and 95 % CI in brackets.
Data Sources: OECD-CRS, WDI, WGI.

Table A3. Effects of SRH ODA per capita on modern contraceptive prevalence (Estimator selection with diagnostics)

VARIABLES	Pooled OLS	Random Effects	Year Fixed Effects	Fixed Effects
SRH ODA pc	0.205**	0.614***	0.644***	0.628***
	[0.0204 - 0.391]	[0.397 - 0.830]	[0.388 - 0.899]	[0.330 - 0.926]
ln GDP pc	9.577***	7.715***	-0.083	1.735
	[6.709 - 12.44]	[3.691 - 11.739]	[-6.872 - 6.705]	[-7.796 - 11.266]
GHE as share of CHE	0.231***	0.065	0.012	0.027
	[0.102 - 0.360]	[-0.060 - 0.190]	[-0.118 - 0.143]	[-0.102 - 0.155]
Government Effectiveness	8.925***	2.475	4.339*	3.995*
	[2.667 - 15.18]	[-1.905 - 6.855]	[-0.192 - 8.871]	[-0.471 - 8.461]
Corruption Control	-5.431**	0.552	1.444	1.504
	[-10.08 - -0.779]	[-3.814 - 4.918]	[-3.612 - 6.501]	[-3.796 - 6.803]
ln Population Density	1.603**	4.011**	20.414***	23.558**
	[0.100 - 3.106]	[0.898 - 7.124]	[7.662 - 33.166]	[5.116 - 41.999]
Primary Schooling (gross)	0.328***	0.115***	0.050	0.064
	[0.247 - 0.409]	[0.044 - 0.187]	[-0.030 - 0.131]	[-0.017 - 0.145]
Female labor part.	0.0522	-0.103	-0.137	-0.090
	[-0.0273 - 0.132]	[-0.236 - 0.029]	[-0.385 - 0.111]	[-0.353 - 0.174]
Observations	387	387	387	387
Number of countries		95	95	95

VARIABLES	Pooled OLS	Random Effects	Year Fixed Effects	Fixed Effects
Country FE	NO	NO	YES	YES
Year FE	NO	NO	NO	YES
Overall R-squared	0.503	0.366	0.0277	0.0372
Within R-squared		0.351	0.404	0.438
Rho statistic		0.923	0.977	0.980
LM test		460.28***		
Hausman Chi^2			40.70***	
Testparm i. Year				1.05

Note: For fixed-effect estimators, standard errors are clustered at the country level to control for serial correlation. *** p<0.01, ** p<0.05, * p<0.1 and 95 % CI in brackets. LM test; Breusch-Pagan Lagrange multiplier test.
Data Sources: OECD-CRS, WDI, WGI.

Table A4. Effects of Total Health ODA per capita on modern contraceptive prevalence (Estimator selection with diagnostics)

VARIABLES	Pooled OLS	Random Effects	Year Fixed Effects	Fixed Effects
Total Health ODA pc	-0.0828	0.272***	0.269**	0.242**
	[-0.254 - 0.0888]	[0.095 - 0.449]	[0.057 - 0.481]	[0.032 - 0.453]
ln GDP pc	8.922***	7.630***	0.985	1.820
	[6.020 - 11.82]	[3.303 - 11.957]	[-6.792 - 8.763]	[-9.003 - 12.643]
GHE as share of CHE	0.203***	0.078	0.039	0.061
	[0.0782 - 0.327]	[-0.056 - 0.212]	[-0.106 - 0.184]	[-0.084 - 0.205]
Government Effectiveness	9.149***	2.480	3.849	3.345
	[3.028 - 15.27]	[-2.047 - 7.007]	[-1.135 - 8.833]	[-1.616 - 8.305]
Corruption Control	-4.312*	0.857	1.932	2.372
	[-9.423 - 0.799]	[-3.894 - 5.608]	[-3.532 - 7.396]	[-3.543 - 8.286]
ln Population Density	1.154	3.526**	18.000**	21.369**
	[-0.308 - 2.617]	[0.454 - 6.598]	[4.182 - 31.818]	[0.149 - 42.589]
Primary Schooling (gross)	0.360***	0.109***	0.044	0.050
	[0.279 - 0.442]	[0.034 - 0.184]	[-0.041 - 0.129]	[-0.034 - 0.135]
Female labor part.	0.0559	-0.104	-0.185	-0.149
	[-0.0239 - 0.136]	[-0.244 - 0.037]	[-0.475 - 0.104]	[-0.456 - 0.159]
Observations	390	390	390	390
Number of countries		96	96	96

VARIABLES	Pooled OLS	Random Effects	Year Fixed Effects	Fixed Effects
Country FE	NO	NO	YES	YES
Year FE	NO	NO	NO	YES
Overall R-squared	0.485	0.345	0.0340	0.0381
Within R-squared		0.310	0.353	0.392
Rho statistic		0.920	0.972	0.976
LM test		420.23***		
Hausmann Chi2			37.57***	
Testparm i. Year				1.41

Note: For fixed-effect estimators, standard errors are clustered at the country level to control for serial correlation. *** p<0.01, ** p<0.05, * p<0.1 and 95 % CI in brackets. LM test; Breusch-Pagan Lagrange multiplier test.
Data Sources: OECD-CRS, WDI, WGI.

Table A5. Effects of RH care ODA per capita on modern contraceptive prevalence (Estimator selection with diagnostics)

VARIABLES	Pooled OLS	Random Effects	Country Fixed Effects	Fixed Effects
RH care ODA pc	-1.348	1.225	1.117	0.935
	[-3.074 - 0.379]	[-0.948 - 3.397]	[-1.287 - 3.522]	[-1.490 - 3.361]
ln GDP pc (PPP, constant)	9.181***	8.545***	1.114	-0.699
	[6.336 - 12.03]	[4.147 - 12.943]	[-7.347 - 9.575]	[-11.601 - 10.204]
GHE as share of CHE	0.214***	0.069	0.014	0.039
	[0.0868 - 0.341]	[-0.057 - 0.195]	[-0.121 - 0.150]	[-0.098 - 0.176]
Gov. Effectiveness	8.714***	2.472	4.480	3.717
	[2.539 - 14.89]	[-2.929 - 7.873]	[-1.785 - 10.745]	[-2.234 - 9.668]
Corruption Control	-3.869	1.610	2.268	3.275
	[-8.770 - 1.032]	[-3.872 - 7.091]	[-3.812 - 8.348]	[-3.265 - 9.815]
ln Population Density	1.261*	3.475**	21.223***	21.158*
	[-0.172 - 2.695]	[0.355 - 6.596]	[6.764 - 35.682]	[-3.467 - 45.782]
Primary Schooling (gross)	0.356***	0.129***	0.046	0.048
	[0.278 - 0.434]	[0.049 - 0.209]	[-0.040 - 0.133]	[-0.042 - 0.138]
Female labor part.	0.0438	-0.098	-0.237	-0.213
	[-0.0393 - 0.127]	[-0.248 - 0.053]	[-0.617 - 0.143]	[-0.611 - 0.186]

VARIABLES	Pooled OLS	Random Effects	Country Fixed Effects	Fixed Effects
Observations	383	383	383	383
Number of countries		94	94	94
Country FE	NO	NO	YES	YES
Year FE	NO	NO	YES	YES
Overall R-squared	0.508	0.394	0.0345	0.0261
Within R-squared		0.252	0.316	0.367
Rho statistic		0.912	0.976	0.977
LM test		410.10***		
Hausmann Chi2			39.67***	
Testparm i. Year				1.97**

Note: For fixed-effect estimators, standard errors are clustered at the country level to control for serial correlation. *** p<0.01, ** p<0.05, * p<0.1 and 95 % CI in brackets. LM test; Breusch-Pagan Lagrange multiplier test.
Data Sources: OECD-CRS, WDI, WGI.

Table A6. FE estimation of the effects of sectoral ODA on skilled birth attendance (based on ODA disbursements per capita)

VARIABLES	(Simple) SRH ODA	(Model 1) SRH ODA	(Simple) TotH ODA	(Model 1) TotH ODA	(Simple) RH ODA	(Model 1) RH ODA
Health ODA pc	0.129	0.190*	0.018	0.059	1.944*	0.902
	[-0.092 - 0.349]	[-0.009 - 0.389]	[-0.004 - 0.040]	[-0.028 - 0.146]	[-0.216 - 4.104]	[-1.111 - 2.916]
ln GDP pc		8.615		8.701		6.759
		[-3.896 - 21.126]		[-3.778 - 21.180]		[-5.779 - 19.298]
GHE share of CHE		0.108		0.108*		0.125*
		[-0.022 - 0.239]		[-0.021 - 0.236]		[-0.005 - 0.254]
Gov. effective		-4.585		-3.935		-4.575
		[-10.313 - 1.144]		[-9.289 - 1.419]		[-10.352 - 1.202]
Corruption control		5.053*		4.772*		5.812*
		[-0.787 - 10.893]		[-0.592 - 10.136]		[-0.299 - 11.924]
ln Population density		47.320***		48.155***		44.140***
		[23.962 - 70.678]		[25.355 - 70.954]		[20.405 - 67.875]

VARIABLES	(Simple) SRH ODA	(Model 1) SRH ODA	(Simple) TotH ODA	(Model 1) TotH ODA	(Simple) RH ODA	(Model 1) RH ODA
Primary schooling		0.077		0.076		0.081
		[-0.104 - 0.257]		[-0.103 - 0.254]		[-0.101 - 0.262]
Female labor part.		0.105		0.106		0.060
		[-0.425 - 0.635]		[-0.424 - 0.635]		[-0.454 - 0.575]
Observations	919	685	939	695	878	663
Number of countries	118	100	118	101	116	100
Two-way FE	YES	YES	YES	YES	YES	YES
Adj. Within R^2	0.350	0.437	0.343	0.432	0.378	0.448
Rho statistic	0.907	0.987	0.907	0.988	0.911	0.986
Hausmann Chi2		139.46***		137.52***		134.43***
Testparm i. Year		1.39		1.33		1.38

Note: All measures of health ODA are in USD per capita (constant 2020). Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1, and 95 % CI in brackets.
Data Sources: OECD-CRS, WDI, WGI.

Table A7. Effects of SRH ODA per capita on skilled birth attendance (Estimator selection with diagnostics)

VARIABLES	Pooled OLS	Random Effects	Country Fixed Effects	Fixed Effects
SRH ODA pc	0.0462	0.198*	0.104	0.190*
	[-0.104 - 0.196]	[-0.000 - 0.395]	[-0.107 - 0.315]	[-0.009 - 0.389]
ln GDP pc	15.91***	20.237***	7.914	8.615
	[13.49 - 18.32]	[14.189 - 26.285]	[-1.772 - 17.601]	[-3.896 - 21.126]
GHE share of CHE	0.198***	0.166**	0.109*	0.108
	[0.111 - 0.286]	[0.033 - 0.300]	[-0.014 - 0.232]	[-0.022 - 0.239]
Government effective	5.397**	-5.054**	-3.036	-4.585
	[1.280 - 9.514]	[-10.108 - -0.001]	[-8.401 - 2.328]	[-10.313 - 1.144]
Corruption control	-4.941***	2.982	4.848	5.053*
	[-8.147 - -1.735]	[-3.430 - 9.393]	[-1.326 - 11.022]	[-0.787 - 10.893]
ln Population density	0.232	5.504***	51.833***	47.320***
	[-0.840 - 1.305]	[2.340 - 8.668]	[35.542 - 68.124]	[23.962 - 70.678]
Primary schooling	0.193***	0.147*	0.061	0.077
	[0.0998 - 0.287]	[-0.015 - 0.309]	[-0.118 - 0.240]	[-0.104 - 0.257]
Female labor part.	-0.0418	0.034	0.106	0.105
	[-0.134 - 0.0500]	[-0.203 - 0.272]	[-0.430 - 0.642]	[-0.425 - 0.635]

VARIABLES	Pooled OLS	Random Effects	Country Fixed Effects	Fixed Effects
Observations	685	685	685	685
Number of countries		100	100	100
Country FE	NO	NO	YES	YES
Year FE	NO	NO	NO	YES
Overall R-squared	0.531	0.470	0.00330	0.00490
Within R-squared		0.310	0.427	0.458
Rho statistic		0.820	0.989	0.987
LM test		1436.30***		
Hausmann Chi2			139.46***	
Testparm i. Year				1.39

Note: For fixed-effect estimators, standard errors are clustered at the country level to control for serial correlation. *** p<0.01, ** p<0.05, * p<0.1 and 95 % CI in brackets. LM test; Breusch-Pagan Lagrange multiplier.

Table A8. Effects of Total Health ODA per capita on skilled birth attendance (Estimator selection with diagnostics)

VARIABLES	Pooled OLS	Random Effects	Country Fixed Effects	Fixed Effects
Tot Health ODA pc	0.217***	0.136**	0.044	0.059
	[0.108 - 0.326]	[0.013 - 0.259]	[-0.035 - 0.123]	[-0.028 - 0.146]
ln GDP pc	16.90***	19.994***	7.917	8.701
	[14.36 - 19.44]	[14.069 - 25.919]	[-1.622 - 17.456]	[-3.778 - 21.180]
GHE share of CHE	0.192***	0.161**	0.109*	0.108*
	[0.106 - 0.278]	[0.029 - 0.293]	[-0.013 - 0.231]	[-0.021 - 0.236]
Government effective	5.152**	-4.577*	-2.691	-3.935
	[1.126 - 9.178]	[-9.394 - 0.239]	[-7.711 - 2.329]	[-9.289 - 1.419]
Corruption control	-5.576***	3.075	4.535	4.772*
	[-8.687 - -2.466]	[-2.782 - 8.933]	[-1.123 - 10.193]	[-0.592 - 10.136]
ln Population density	0.445	5.228***	51.506***	48.155***
	[-0.596 - 1.486]	[2.163 - 8.292]	[35.306 - 67.705]	[25.355 - 70.954]
Primary schooling	0.170***	0.140*	0.060	0.076
	[0.0778 - 0.263]	[-0.020 - 0.300]	[-0.117 - 0.238]	[-0.103 - 0.254]
Female labor part.	-0.0297	0.034	0.103	0.106
	[-0.121 - 0.0618]	[-0.200 - 0.268]	[-0.434 - 0.640]	[-0.424 - 0.635]

VARIABLES	Pooled OLS	Random Effects	Country Fixed Effects	Fixed Effects
Observations	695	695	695	695
Number of countries		101	101	101
Country FE	NO	NO	YES	YES
Year FE	NO	NO	NO	YES
Overall R-squared	0.539	0.480	0.00451	0.00629
Within R-squared		0.307	0.423	0.452
Rho statistic		0.817	0.989	0.988
LM test		1458.89***		
Hausmann Chi2			137.52***	
Testparm i. Year				1.33

Note: For fixed-effect estimators, standard errors are clustered at the country level to control for serial correlation. *** p<0.01, ** p<0.05, * p<0.1 and 95 % CI in brackets. LM test; Breusch-Pagan Lagrange multiplier test.
Data Sources: OECD-CRS, WDI, WGI.

Table A9. Effects of RH Care ODA per capita on skilled birth attendance (Estimator selection with diagnostics)

VARIABLES	Pooled OLS	Random Effects	Country Fixed Effects	Fixed Effects
RH care ODA pc	0.00677	1.494	0.798	0.902
	[-1.814 - 1.827]	[-0.751 - 3.740]	[-1.341 - 2.938]	[-1.111 - 2.916]
ln GDP pc	16.31***	20.299***	7.951	6.759
	[13.77 - 18.84]	[14.259 - 26.339]	[-1.862 - 17.764]	[-5.779 - 19.298]
GHE share of CHE	0.176***	0.182***	0.127**	0.125*
	[0.0853 - 0.267]	[0.050 - 0.314]	[0.004 - 0.249]	[-0.005 - 0.254]
Government effective	4.794**	-5.293**	-3.132	-4.575
	[0.625 - 8.964]	[-10.457 - -0.128]	[-8.553 - 2.289]	[-10.352 - 1.202]
Corruption control	-4.201**	3.901	5.735*	5.812*
	[-7.527 - -0.876]	[-2.832 - 10.634]	[-0.686 - 12.156]	[-0.299 - 11.924]
ln Population density	0.0696	5.187***	51.485***	44.140***
	[-1.015 - 1.154]	[2.091 - 8.283]	[35.177 - 67.794]	[20.405 - 67.875]
Primary schooling	0.196***	0.151*	0.063	0.081
	[0.103 - 0.288]	[-0.012 - 0.313]	[-0.117 - 0.242]	[-0.101 - 0.262]
Female labor part.	-0.0355	0.033	0.082	0.060
	[-0.130 - 0.0590]	[-0.200 - 0.267]	[-0.447 - 0.612]	[-0.454 - 0.575]

VARIABLES	Pooled OLS	Random Effects	Country Fixed Effects	Fixed Effects
Observations	663	663	663	663
Number of countries		100	100	100
Country FE	NO	NO	YES	YES
Year FE	NO	NO	NO	YES
Overall R-squared	0.530	0.474	0.00374	0.00416
Within R-squared		0.324	0.439	0.469
Rho statistic		0.820	0.989	0.986
LM test		1439.71***		
Hausmann Chi2			134.43***	
Testparm i. Year				1.38

Note: For fixed-effect estimators, standard errors are clustered at the country level to control for serial correlation. *** p<0.01, ** p<0.05, * p<0.1 and 95 % CI in brackets. LM test; Breusch-Pagan Lagrange multiplier test.
Data Sources: OECD-CRS, WDI, WGI.

Table A10. FE estimation of the effects of sectoral ODA on ART coverage (based on ODA disbursements per capita)

VARIABLES	(Simple) SRH ODA	(Model 1) SRH ODA	(Simple) TotH ODA	(Model 1) TotH ODA	(Simple) RH ODA	(Model 1) RH ODA
Health ODA pc	0.561***	0.531***	0.326***	0.332***	0.401	0.575
	[0.386 - 0.736]	[0.380 - 0.682]	[0.178 - 0.473]	[0.193 - 0.471]	[-1.272 - 2.074]	[-1.081 - 2.231]
ln GDP pc		-1.695		-2.335		-3.497
		[-16.181 - 12.792]		[-16.971 - 12.300]		[-18.169 - 11.174]
GHE share of CHE		-0.014		-0.014		-0.047
		[-0.154 - 0.125]		[-0.155 - 0.127]		[-0.185 - 0.091]
Government effective		6.128*		6.088*		6.274*
		[-0.340 - 12.597]		[-0.346 - 12.521]		[-0.645 - 13.193]
Corruption control		5.274*		5.278*		6.412*
		[-0.901 - 11.449]		[-1.012 - 11.567]		[-0.142 - 12.966]
ln Population density		14.208		9.790		9.995
		[-16.392 - 44.807]		[-20.878 - 40.459]		[-23.660 - 43.651]
Primary schooling		-0.052		-0.056		-0.053
		[-0.193 - 0.089]		[-0.195 - 0.083]		[-0.196 - 0.090]

VARIABLES	(Simple) SRH ODA	(Model 1) SRH ODA	(Simple) TotH ODA	(Model 1) TotH ODA	(Simple) RH ODA	(Model 1) RH ODA
Female labor part.		-0.181		-0.184		-0.246
		[-0.767 - 0.406]		[-0.774 - 0.406]		[-0.863 - 0.370]
Observations	1,816	1,306	1,820	1,307	1,788	1,290
Number of countries	97	90	97	90	97	90
Two-way FE	YES	YES	YES	YES	YES	YES
Adj. Within R^2	0.856	0.857	0.853	0.854	0.845	0.845
Rho statistic	0.644	0.897	0.654	0.850	0.663	0.861
Hausmann Chi2		1777.05***		1593.31***		1758.69***
Testparm i. Year		12.02***		11.07***		9.09***

Note: All measures of health ODA are in USD per capita (constant 2020). Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1, and 95 % CI in brackets.
Data Sources: OECD-CRS, WDI, WGI.

Table A11. Effects of SRH ODA per capita on ART coverage (Estimator selection with diagnostics)

VARIABLES	Pooled OLS	Random Effects	Country Fixed Effects	Fixed Effects
SRH ODA pc	0.713***	0.907***	0.534***	0.531***
	[0.554 - 0.872]	[0.609 - 1.205]	[0.243 - 0.826]	[0.380 - 0.682]
ln GDP pc	5.111***	35.033***	31.172***	-1.695
	[3.180 - 7.042]	[26.154 - 43.912]	[17.930 - 44.413]	[-16.181 - 12.792]
GHE share of CHE	0.0248	0.143	0.110	-0.014
	[-0.0633 - 0.113]	[-0.127 - 0.414]	[-0.086 - 0.306]	[-0.154 - 0.125]
Government effective	3.033*	2.013	10.537***	6.128*
	[-0.487 - 6.554]	[-6.457 - 10.483]	[2.833 - 18.241]	[-0.340 - 12.597]
Corruption control	1.146	1.873	4.557	5.274*
	[-2.463 - 4.755]	[-6.520 - 10.266]	[-2.580 - 11.695]	[-0.901 - 11.449]
ln Population density	2.207***	16.346***	109.281***	14.208
	[1.283 - 3.132]	[10.537 - 22.156]	[87.292 - 131.270]	[-16.392 - 44.807]
Primary schooling	0.0817**	0.159	-0.124	-0.052
	[0.0141 - 0.149]	[-0.066 - 0.385]	[-0.302 - 0.054]	[-0.193 - 0.089]
Female labor part.	0.190***	0.513***	0.312	-0.181
	[0.122 - 0.258]	[0.139 - 0.887]	[-0.398 - 1.021]	[-0.767 - 0.406]

VARIABLES	Pooled OLS	Random Effects	Country Fixed Effects	Fixed Effects
Observations	1,306	1,306	1,306	1,306
Number of countries		90	90	90
Country FE	NO	NO	YES	YES
Year FE	NO	NO	NO	YES
Overall R-squared	0.168	0.100	0.0205	0.356
Within R-squared		0.611	0.759	0.860
Rho statistic		0.593	0.995	0.897
LM test		63.51***		
Hausmann Chi2			1777.05***	
Testparm i. Year				12.02***

Note: For fixed-effect estimators, standard errors are clustered at the country level to control for serial correlation. *** p<0.01, ** p<0.05, * p<0.1 and 95 % CI in brackets. LM test; Breusch-Pagan Lagrange multiplier test.
Data Sources: OECD-CRS, WDI, WGI.

Table A12. Effects of Total health ODA per capita on ART coverage (Estimator selection with diagnostics)

VARIABLES	Pooled OLS	Random Effects	Country Fixed Effects	Fixed Effects
Total Health ODA pc	0.638***	0.828***	0.343**	0.332***
	[0.522 - 0.753]	[0.602 - 1.055]	[0.082 - 0.605]	[0.193 - 0.471]
ln GDP pc	5.894***	34.393***	31.766***	-2.335
	[3.901 - 7.886]	[25.548 - 43.239]	[18.298 - 45.234]	[-16.971 - 12.300]
GHE share of CHE	0.0171	0.157	0.110	-0.014
	[-0.0724 - 0.107]	[-0.107 - 0.422]	[-0.089 - 0.308]	[-0.155 - 0.127]
Government effective	6.231***	3.056	10.332**	6.088*
	[2.810 - 9.653]	[-5.247 - 11.360]	[2.481 - 18.184]	[-0.346 - 12.521]
Corruption control	-2.555	0.511	4.418	5.278*
	[-6.202 - 1.092]	[-7.750 - 8.773]	[-2.846 - 11.682]	[-1.012 - 11.567]
ln Population density	2.130***	15.618***	106.302***	9.790
	[1.221 - 3.039]	[10.200 - 21.036]	[84.040 - 128.565]	[-20.878 - 40.459]
Primary schooling	0.0696**	0.125	-0.123	-0.056
	[0.00264 - 0.137]	[-0.085 - 0.335]	[-0.297 - 0.052]	[-0.195 - 0.083]
Female labor part.	0.198***	0.513***	0.327	-0.184
	[0.129 - 0.267]	[0.144 - 0.881]	[-0.391 - 1.046]	[-0.774 - 0.406]

VARIABLES	Pooled OLS	Random Effects	Country Fixed Effects	Fixed Effects
Observations	1,307	1,307	1,307	1,307
Number of countries		90	90	90
Country FE	NO	NO	YES	YES
Year FE	NO	NO	NO	YES
Overall R-squared	0.191	0.115	0.0210	0.445
Within R-squared		0.602	0.756	0.857
Rho statistic		0.596	0.995	0.850
LM test		674.52***		
Hausmann Chi2			1593.31***	
Testparm i. Year				11.07***

Note: For fixed-effect estimators, standard errors are clustered at the country level to control for serial correlation. *** p<0.01, ** p<0.05, * p<0.1 and 95 % CI in brackets. LM test; Breusch-Pagan Lagrange multiplier test.
Data Sources: OECD-CRS, WDI, WGI.

Table A13. Effects of RH care ODA per capita on ART coverage (Estimator selection with diagnostics)

VARIABLES	Pooled OLS	Random Effects	Country Fixed Effects	Fixed Effects
RH care ODA per capita	2.480***	2.931**	-1.038	0.575
	[0.925 - 4.035]	[0.301 - 5.562]	[-2.996 - 0.919]	[-1.081 - 2.231]
ln GDP pc	4.934***	37.250***	32.397***	-3.497
	[2.987 - 6.881]	[27.912 - 46.587]	[18.265 - 46.529]	[-18.169 - 11.174]
GHE share of CHE	-0.0146	0.094	0.075	-0.047
	[-0.104 - 0.0751]	[-0.181 - 0.368]	[-0.114 - 0.263]	[-0.185 - 0.091]
Government effective	3.593*	2.105	10.471**	6.274*
	[-0.258 - 7.444]	[-7.285 - 11.495]	[2.136 - 18.807]	[-0.645 - 13.193]
Corruption control	3.747*	3.807	5.318	6.412*
	[-0.0430 - 7.536]	[-5.302 - 12.916]	[-2.339 - 12.975]	[-0.142 - 12.966]
ln Population density	1.454***	16.008***	111.944***	9.995
	[0.507 - 2.401]	[9.879 - 22.137]	[90.015 - 133.873]	[-23.660 - 43.651]
Primary schooling	0.127***	0.186*	-0.111	-0.053
	[0.0578 - 0.196]	[-0.032 - 0.405]	[-0.284 - 0.062]	[-0.196 - 0.090]
Female labor part.	0.203***	0.523***	0.248	-0.246
	[0.134 - 0.272]	[0.137 - 0.910]	[-0.492 - 0.988]	[-0.863 - 0.370]

VARIABLES	Pooled OLS	Random Effects	Country Fixed Effects	Fixed Effects
Observations	1,290	1,290	1,290	1,290
Number of countries		90	90	90
Country FE	NO	NO	YES	YES
Year FE	NO	NO	NO	YES
Overall R-squared	0.119	0.0747	0.0185	0.394
Within R-squared		0.609	0.749	0.848
Rho statistic		0.607	0.995	0.861
LM test		576.13***		
Hausmann Chi2			1758.69***	
Testparm i. Year				9.09***

Note: For fixed-effect estimators, standard errors are clustered at the country level to control for serial correlation. *** p<0.01, ** p<0.05, * p<0.1 and 95 % CI in brackets. LM test; Breusch-Pagan Lagrange multiplier test.
Data Sources: OECD-CRS, WDI, WGI.

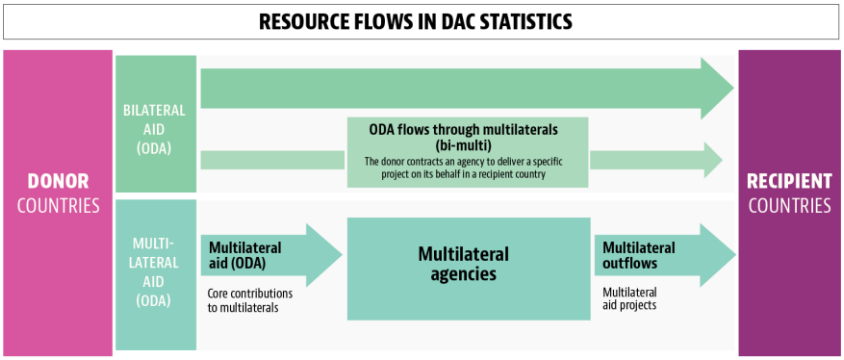
Annex III. Additional results

Based on the main FE estimation method, we conducted five additional investigations. First, we included an interaction term between ODA and countries' income classification in 2002 (as defined by the World Bank) to test for the effect of ODA on SRH services conditional on the baseline economic welfare of countries.

Second, we investigated whether ODA needs to have a certain volume, relative to government health expenditure, for a positive effect to occur. We created a variable ODA as share of GHE calculated by dividing sectoral ODA per capita (constant 2020 USD) by GHE per capita (current USD). Countries were classified into four categories, using the quantile values of the ODA/GHE variable as cut-off points. Quantiles were defined based on the relevant sample for each analysis. To spot differences between these categories, we included an interaction term between ODA disbursed and the categorical ODA/GHE variable.

Similarly, we investigated whether there is a difference in effect of health ODA depending on the volume of health ODA relative to total ODA received by a country. We created a variable health ODA as share of total ODA, calculated by dividing sectoral ODA per capita (constant 2020 USD) by total ODA per capita (constant 2020 USD). Quantile values of the health ODA/total ODA variable were used as cut-off points to create categories. To spot differences between the categories, we included an interaction term between health ODA disbursed and the categorical health ODA/total ODA variable.

Figure A1. Bilateral vs. multilateral ODA as defined in the OECD-CRS database



Source: OECD

Fourth, we investigated whether there were differences in ODA effectiveness over time, by including an interaction term between sectoral ODA and three-year periods. This could be indicative of a learning process in ODA utilization.

Fifth, we investigated whether the effectiveness of sectoral ODA differed depending on donor type by comparing the effects of ODA (all donors) to bilateral ODA and multilateral ODA. Bilateral ODA represents flows from official (government) sources directly to the recipient countries. Bilateral ODA includes resources (called non-core/multi-bi) channeled through national or international NGOs active in development to execute a specific project on behalf of the donor. Multilateral ODA represents flows from official (government) sources to ODA-eligible multilateral organizations, also referred to as core contributions. Donor countries typically not specify which projects and programmes are to be funded with these contributions and multilateral agencies use them for their own developmental programmes. Multilateral agencies also receive funds from other sources, not included in the ML ODA statistic (e.g., general public, philanthropy sources).

These five additional analyses were first estimated using the main FE models, with two-way FE (country, time) and time-variant controls i.e., lnGDP per capita, GHE/CHE, government effectiveness, control of corruption, ln population density, primary school enrolment, female labor market participation. Then, the effects were estimated by applying the FE estimator to three-year-averaged values of all variables (to account for the potential influence of missing data), resulting in six three-year time periods.

The results tables from the additional analysis are displayed below. First, we present the tables from the main FE estimation and then the results from the three-year averaged models.

Marginal effect of sectoral ODA on SRH services conditional on countries baseline income classification

Table A1. FE estimation – Marginal effect of ODA on modern contraceptive prevalence in each income group (based on main FE Model)

VARIABLES	SRH ODA	TotH ODA	RH ODA
Low income (2002)	0.852***	0.360***	0.572
	(0.140)	(0.136)	(1.382)
Lower-middle-income (2002)	0.332***	0.116	2.536**
	(0.0816)	(0.0993)	(1.113)
Extended controls	YES	YES	YES
Observations	387	390	383
Number of countries	95	96	94
Within R-squared	0.453	0.402	0.372

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A2. FE estimation – Marginal effect of ODA on modern contraceptive prevalence in each income group (based on 3-Year-Averages Model)

VARIABLES	SRH ODA	TotH ODA	RH ODA
Low income (2002)	0.981***	0.465***	1.426
	(0.161)	(0.163)	(1.593)
Lower-middle-income (2002)	0.283* (0.152)	0.0987 (0.127)	1.899 (2.384)
Extended controls	YES	YES	YES
Observations	328	328	327
Number of countries	102	102	102
Within R-squared	0.464	0.436	0.392

Note: There are six time periods as all variables are averaged over three years to account for yearly fluctuations and missing data. Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1, and robust SE in parenthesis.

Table A3. FE estimation – Marginal effect of ODA on skilled birth attendance in each income group (based on main FE Model)

VARIABLES	SRH ODA	TotH ODA	RH ODA
Low income (2002)	0.389	0.276	0.669
	(0.267)	(0.197)	(1.251)
Lower-middle-income (2002)	0.126 (0.079)	0.021 (0.036)	1.635*** (0.623)
Extended controls	YES	YES	YES
Observations	685	695	663
Number of countries	100	101	100
Within R-squared	0.459	0.456	0.470

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A4. FE estimation – Marginal effect of ODA on skilled birth attendance in each income group (based on 3-Year-Averages Model)

VARIABLES	(1) SRH ODA	(2) TotH ODA	(3) RH ODA
Low income (2002)	0.738***	0.423***	2.054
	(0.183)	(0.152)	(1.349)
Lower-middle-income (2002)	0.0990	-0.0175	1.926
	(0.123)	(0.0690)	(1.789)
Extended controls	YES	YES	YES
Observations	416	417	412
Number of countries	104	104	104
Within R-squared	0.528	0.529	0.526

Note:There are six time periods as all variables are averaged over three years to account for yearly fluctuations and missing data. Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1, and robust SE in parenthesis.

Table A5. FE estimation – Marginal effect of ODA on ART coverage in each income group (based on main FE Model)

VARIABLES	SRH ODA	TotH ODA	RH ODA
Low income (2002)	0.773***	0.291***	0.456
	(0.142)	(0.110)	(0.878)
Lower-middle-income (2002)	0.468***	0.361***	1.774
	(0.060)	(0.069)	(2.380)
Extended controls	YES	YES	YES
Observations	1,306	1,307	1,290
Number of countries	90	90	90
Within R-squared	0.860	0.857	0.848

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A6. FE estimation – Marginal effect of ODA on ART coverage in each income group (based on 3-Year-Averages Model)

VARIABLES	SRH ODA	TotH ODA	RH ODA
Low income (2002)	1.012***	0.361**	1.178
	(0.224)	(0.171)	(1.397)
Lower-middle-income (2002)	0.492***	0.376**	1.201
	(0.130)	(0.118)	(2.847)
Extended controls	YES	YES	YES
Observations	486	486	486
Number of countries	90	90	90
Within R-squared	0.872	0.868	0.862

Note: There are six time periods as all variables are averaged over three years to account for yearly fluctuations and missing data. Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1, and robust SE in parenthesis.

Marginal effect of sectoral ODA on SRH services conditional on ODA/GHE category

Table A7. FE estimation – Marginal effect of ODA on modern contraceptive prevalence, by ODA relative to GHE (based on main FE Model)

VARIABLES	SRH ODA	TotH ODA	RH ODA
<25th percentile ODA/GHE	0.244	-0.506	-10.57
	(1.441)	(0.674)	(7.164)
>25th < 50th percentile ODA/GHE	0.365	-0.146	0.887
	(0.621)	(0.223)	(2.879)
>50th < 75th percentile ODA/GHE	0.409***	0.285***	1.220
	(0.119)	(0.101)	(1.637)
> 75th percentile ODA/GHE	0.692***	0.127	0.852
	(0.120)	(0.121)	(1.253)
Observations	387	390	383

Note: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. ODA/GHE is calculated by dividing the sectoral ODA (constant 2020 USD per capita) by domestic general government health expenditure (current USD per capita).

Table A8. FE estimation – Marginal effect of ODA on modern contraceptive prevalence, by ODA relative to GHE (based on 3-Year-Averages Model)

VARIABLES	SRH ODA	TotH ODA	RH ODA
<25th percentile ODA/GHE	-1.444	0.001	-13.35
	(1.400)	(0.396)	(8.739)
>25th < 50th percentile ODA/GHE	-0.120	0.053	2.397
	(0.293)	(0.110)	(2.389)
>50th < 75th percentile ODA/GHE	0.558***	0.373***	3.548
	(0.143)	(0.108)	(2.299)
> 75th percentile ODA/GHE	0.586***	0.207*	0.999
	(0.200)	(0.112)	(1.459)
Observations	328	328	327

Note: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. There are 6 time periods as all variables are averaged over 3 years.

Table A9. FE estimation – Marginal effect of ODA on *skilled birth attendance*, by ODA relative to GHE (based on main FE Model)

VARIABLES	SRH ODA	TotH ODA	RH ODA
<25th percentile ODA/GHE	2.422	-0.948	13.00
	(1.867)	(0.712)	(19.63)
>25th < 50th percentile ODA/GHE	0.804	-0.0743	5.128
	(0.608)	(0.157)	(3.285)
>50th < 75th percentile ODA/GHE	0.331	0.0921	1.506
	(0.243)	(0.0799)	(1.312)
> 75th percentile ODA/GHE	0.199*	0.0428	0.914
	(0.102)	(0.0368)	(1.069)
Observations	685	695	663

Note: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A10. FE estimation – Marginal effect of ODA on skilled birth attendance, by ODA relative to GHE (based on 3-Year-Averages Model)

VARIABLES	SRH ODA	TotH ODA	RH ODA
<25th percentile ODA/GHE	-2.853**	0.272	-11.72
	(1.429)	(0.583)	(12.46)
>25th < 50th percentile ODA/GHE	-0.0340	0.181	3.063
	(0.215)	(0.195)	(2.014)
>50th < 75th percentile ODA/GHE	0.394	0.135	1.434
	(0.513)	(0.100)	(1.767)
> 75th percentile ODA/GHE	0.361*	0.0906	1.924
	(0.198)	(0.0883)	(1.199)
Observations	416	417	412

Note: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. There are 6 time periods as all variables are averaged over 3 years.

Table A11. FE estimation – Marginal effect of ODA on *ART coverage*, by ODA relative to GHE (based on main FE Model)

VARIABLES	SRH ODA	TotH ODA	RH ODA
<25th percentile ODA/GHE	0.0450	0.425	22.16*
	(1.692)	(0.280)	(11.67)
>25th < 50th percentile ODA/GHE	0.693	0.287*	0.775
	(0.453)	(0.157)	(2.499)
>50th < 75th percentile ODA/GHE	0.609***	0.359***	1.810
	(0.117)	(0.0684)	(1.525)
> 75th percentile ODA/GHE	0.524***	0.293***	0.599
	(0.0780)	(0.0828)	(0.818)
Observations	1,306	1,307	1,290

Note: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A12. FE estimation – Marginal effect of ODA on ART coverage, by ODA relative to GHE (based on 3-Year-Averages Model)

VARIABLES	SRH ODA	TotH ODA	RH ODA
<25th percentile ODA/GHE	-0.592	0.950**	28.55*
	(2.671)	(0.428)	(16.39)
>25th < 50th percentile ODA/GHE	0.228	0.331*	1.815
	(0.645)	(0.190)	(2.952)
>50th < 75th percentile ODA/GHE	0.575***	0.361***	0.909
	(0.162)	(0.101)	(2.023)
> 75th percentile ODA/GHE	0.602***	0.489***	1.481
	(0.106)	(0.163)	(1.266)
Observations	486	486	486

Note: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. There are six time periods as all variables are averaged over 3 years.

Marginal effect of sectoral ODA on SRH services conditional on sectoral ODA/total ODA category

Table A13. FE estimation – Marginal effect of health ODA on *modern contraceptive prevalence*, by health ODA relative to total ODA (based on main FE Model)

VARIABLES	SRH ODA	TotH ODA	RH ODA
<25th percentile	-0.314	0.170	-16.22*
HeaODA/TotODA	(0.724)	(0.232)	(9.019)
>25th < 50th percentile	0.585*	0.156	-0.616
HeaODA/TotODA	(0.318)	(0.177)	(2.971)
>50th < 75th percentile	0.346	0.136	0.159
HeaODA/TotODA	(0.463)	(0.160)	(2.043)
> 75th percentile	0.628***	0.235**	0.324
HeaODA/TotODA	(0.147)	(0.111)	(1.251)
Observations	387	390	383

Note: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1 HeaODA/TotODA is calculated by dividing the sectoral ODA (constant 2020 USD per capita) by the total ODA received by a country (current USD per capita).

Table A14. FE estimation – Marginal effect of ODA on modern contraceptive prevalence, by health ODA relative to total ODA (based on 3-Year-Averages Model)

VARIABLES	SRH ODA	TotH ODA	RH ODA
<25th percentile HeaODA/TotODA	-0.0289	0.147	-2.319
	(0.302)	(0.207)	(4.846)
>25th < 50th percentile HeaODA/TotODA	0.223	-0.0264	0.754
	(0.370)	(0.168)	(3.000)
>50th < 75th percentile HeaODA/TotODA	0.461	0.0258	3.494*
	(0.340)	(0.133)	(2.085)
> 75th percentile HeaODA/TotODA	0.578***	0.299***	1.339
	(0.165)	(0.101)	(1.417)
Observations	328	328	327

Note: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. There are 6 time periods as all variables are averaged over 3 years.

Table A15. FE estimation – Marginal effect of ODA on *skilled birth attendance*, by health ODA relative to total ODA (based on main FE Model)

VARIABLES	SRH ODA	TotH ODA	RH ODA
<25th percentile HeaODA/TotODA	-0.757	0.0589	-9.072*
	(0.527)	(0.193)	(4.911)
>25th < 50th percentile HeaODA/TotODA	0.0356	0.0911	0.918
	(0.383)	(0.120)	(1.708)
>50th < 75th percentile HeaODA/TotODA	-0.0783	0.0494	0.295
	(0.409)	(0.101)	(1.710)
> 75th percentile HeaODA/TotODA	0.204**	0.0607	0.854
	(0.102)	(0.0453)	(0.972)
Observations	685	695	663

Note: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A16. FE estimation – Marginal effect of ODA on skilled birth attendance, by Health ODA relative to total ODA (based on 3-Year-Averages Model)

VARIABLES	SRH ODA	TotH ODA	RH ODA
<25th percentile HeaODA/TotODA	-0.0891	0.0311	-0.541
	(0.192)	(0.0952)	(3.384)
>25th < 50th percentile HeaODA/TotODA	-0.309	0.0201	1.089
	(0.339)	(0.0779)	(2.940)
>50th < 75th percentile HeaODA/TotODA	0.476	0.0220	0.550
	(0.468)	(0.106)	(2.249)
> 75th percentile HeaODA/TotODA	0.399***	0.171**	2.020*
	(0.148)	(0.0846)	(1.143)
Observations	416	417	412

Note: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. There are six time periods as all variables are averaged over 3 years.

Table A17. FE estimation – Marginal effect of health ODA on ART coverage, by health ODA relative to total ODA (based on main FE Model)

VARIABLES	SRH ODA	TotH ODA	RH ODA
<25th percentile HeaODA/TotODA	-1.400**	-0.0251	-2.395
	(0.647)	(0.164)	(4.986)
>25th < 50th percentile HeaODA/TotODA	-0.525	-0.0166	-3.685*
	(0.404)	(0.116)	(2.107)
>50th < 75th percentile HeaODA/TotODA	-0.315	0.133	-1.145
	(0.251)	(0.0995)	(1.964)
> 75th percentile HeaODA/TotODA	0.532***	0.329***	0.362
	(0.0702)	(0.0670)	(0.883)
Observations	1,306	1,307	1,290

Note: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A18. FE estimation – Marginal effect of health ODA on *ART coverage*, by health ODA relative to total ODA (based on 3-Year-Averages Model)

VARIABLES	SRH ODA	TotH ODA	RH ODA
<25th percentile HeaODA/TotODA	-0.900	-0.206	-7.347
	(1.089)	(0.384)	(7.823)
>25th < 50th percentile	-0.609	-0.0273	-3.192
HeaODA/TotODA	(0.924)	(0.206)	(3.334)
>50th < 75th percentile	-0.158	0.0794	-0.104
HeaODA/TotODA	(0.452)	(0.172)	(1.856)
> 75th percentile HeaODA/TotODA	0.612***	0.371***	0.649
	(0.123)	(0.0991)	(1.233)
Observations	486	486	486

Note: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. There are 6 time periods as all variables are averaged over 3 years.

Marginal effect of sectoral ODA on SRH services, by three-year period

Table A19. FE estimation – Marginal effect of ODA on modern contraceptive prevalence in each period (based on main FE Model)

VARIABLES	SRH ODA	TotH ODA	RH ODA
2003-2005	0.111	-0.180	3.441
	(0.531)	(0.252)	(3.200)
2006-2008	0.372	0.0348	-2.878**
	(0.277)	(0.144)	(1.159)
2009-2011	0.471***	0.194**	2.672***
	(0.179)	(0.0925)	(0.957)
2012-2014	0.627***	0.159	1.017
	(0.218)	(0.128)	(0.953)
2015-2017	1.204***	0.307	1.650*
	(0.319)	(0.193)	(0.968)
2018-2020	0.850*	0.0283	0.0922
	(0.487)	(0.241)	(1.667)
Observations	375	378	371
R-squared	0.475	0.406	0.407
Number of countries	95	96	94

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A20. FE estimation – Marginal effect of ODA on modern contraceptive prevalence in each period (based on 3-Year-Averages)

VARIABLES	SRH ODA	TotH ODA	RH ODA
2003-2005	-0.116	-0.00908	4.171
	(0.555)	(0.245)	(4.323)
2006-2008	0.219	0.168	-3.248
	(0.205)	(0.146)	(2.147)
2009-2011	0.378***	0.252**	2.019**
	(0.118)	(0.0984)	(0.879)
2012-2014	0.476***	0.296**	1.936*
	(0.162)	(0.122)	(1.029)
2015-2017	0.811***	0.339**	2.238**
	(0.249)	(0.153)	(0.925)
2018-2020	0.595	0.110	3.269**
	(0.718)	(0.105)	(1.352)
Observations	328	328	327
R-squared	0.471	0.440	0.438
Number of countries	102	102	102

Note: All variables are averaged over three years to account for yearly fluctuations and missing data. Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1, and robust SE in parenthesis.

Table A21. FE estimation – Marginal effect of ODA on *skilled birth attendance* in each period (based on main FE Model)

VARIABLES	SRH ODA	TotH ODA	RH ODA
2003-2005	-0.608	-0.00115	-1.638
	(0.857)	(0.0433)	(2.219)
2006-2008	-0.0422	-0.0416	-0.842*
	(0.174)	(0.0851)	(0.441)
2009-2011	0.0889	0.0629	1.649
	(0.104)	(0.0727)	(1.062)
2012-2014	0.227	0.0646	1.466
	(0.160)	(0.0666)	(1.393)
2015-2017	0.861**	0.221	3.131***
	(0.353)	(0.143)	(1.125)
2018-2020	0.798	0.123	2.413
	(0.699)	(0.171)	(2.839)
Observations	656	666	636
R-squared	0.477	0.460	0.482
Number of countries	100	101	100

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A22. FE estimation – Marginal effect of ODA on skilled birth attendance in each period (based on 3-Year-Averages Model)

VARIABLES	SRH ODA	TotH ODA	RH ODA
2003-2005	-0.636	0.0561	0.785
	(0.914)	(0.0984)	(2.594)
2006-2008	0.0535	0.0752	-0.838
	(0.189)	(0.145)	(0.920)
2009-2011	0.0359	0.0299	1.837
	(0.120)	(0.0785)	(1.274)
2012-2014	0.251*	0.152	2.058*
	(0.140)	(0.103)	(1.106)
2015-2017	0.681**	0.286*	4.134***
	(0.282)	(0.165)	(0.922)
2018-2020	0.589*	0.0909	5.684***
	(0.302)	(0.0867)	(1.936)
Observations	416	417	412
R-squared	0.537	0.526	0.541
# of countries	104	104	104

Note. All variables are averaged over three years to account for yearly fluctuations and missing data. Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1, and robust SE in parenthesis.

Table A23. FE estimation – Marginal effect of ODA on *ART coverage* in each period (based on main FE Model)

VARIABLES	SRH ODA	TotH ODA	RH ODA
2003-2005	-0.681*	-0.294	1.524
	(0.393)	(0.201)	(3.047)
2006-2008	-0.0278	-0.0655	1.651***
	(0.188)	(0.138)	(0.618)
2009-2011	0.178*	0.105	0.971
	(0.100)	(0.0740)	(0.793)
2012-2014	0.392***	0.243***	0.185
	(0.111)	(0.0775)	(0.778)
2015-2017	0.611***	0.406***	-0.0396
	(0.158)	(0.0920)	(1.008)
2018-2020	0.867***	0.522***	1.387
	(0.208)	(0.123)	(2.253)
Observations	1,233	1,234	1,218
Within R-squared	0.872	0.868	0.848
# of countries	90	90	90

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A24. FE estimation – Marginal effect of ODA on ART coverage in each period (based on 3-Year-Averages)

VARIABLES	SRH ODA	TotH ODA	RH ODA
2003-2005	-1.373**	-0.383	1.284
	(0.553)	(0.242)	(4.140)
2006-2008	-0.176	-0.0841	2.637***
	(0.238)	(0.145)	(0.998)
2009-2011	0.105	0.114	2.021
	(0.153)	(0.0907)	(1.260)
2012-2014	0.316**	0.263***	0.811
	(0.156)	(0.0860)	(1.275)
2015-2017	0.569***	0.453***	0.637
	(0.197)	(0.104)	(1.470)
2018-2020	0.793***	0.495***	3.034
	(0.258)	(0.144)	(2.711)
Observations	486	486	486
R-squared	0.888	0.881	0.863
# of countries	90	90	90

Note: All variables are averaged over three years to account for yearly fluctuations and missing data. Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1, and robust SE in parenthesis.

ODA effectiveness depending on donor type

Table A25. The effects of health ODA on SRH services , summary of sensitivity analysis for missing data and measurement error

Sectoral ODA	Main FE estimation			Three-Year Average FE estimation		
	Contraceptive Prevalence	Skilled birth attendance	ART coverage	Contraceptive Prevalence	Skilled birth attendance	ART coverage
SRH ODA						
All donors	0.628***	0.190*	0.531***	0.531***	0.315**	0.593***
Multilateral donors	0.367	0.154	0.387	0.590	0.247	0.263
Bilateral donors	0.750***	0.252*	0.685***	0.649***	0.426***	0.733***
Total Health ODA						
All donors	0.242**	0.059	0.332***	0.258**	0.115	0.370***
Multilateral donors	0.226	0.052	0.422***	0.357	0.116	0.507**
Bilateral donors	0.317**	0.073	0.406***	0.359**	0.137	0.453***
RH care ODA						
All donors	0.935	0.902	0.575	1.481	2.035*	1.181
Multilateral donors	-0.816	-0.834	1.273	-1.064	-0.031	2.685*
Bilateral donors	1.904*	3.004***	-0.399	2.372**	3.582***	-0.036

Note: All estimators include country and time fixed effects. All measures of health ODA are in USD per capita (constant 2020). Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1. In the 3-Year-Average Variables model, all variables are averaged over three years resulting in six 3-year periods.

Table A26. FE estimation of the effects of sectoral ODA per capita on modern *contraceptive prevalence*, by donor type (based on main FE Model)

	SRH ODA			TotH ODA			RH ODA		
VARIABLES	**All donors**	**ML**	**Bilateral**	**All donors**	**ML**	**Bilateral**	**All donors**	**ML**	**Bilateral**
Health ODA pc	0.628***	0.367	0.750***	0.242**	0.226	0.317**	0.935	-0.816	1.904*
	(0.150)	(0.334)	(0.212)	(0.106)	(0.177)	(0.145)	(1.221)	(2.160)	(0.961)
ln GDP pc	1.735	0.367	0.869	1.820	0.515	1.816	-0.699	-1.147	-0.642
	(4.800)	(5.183)	(4.865)	(5.452)	(5.336)	(5.349)	(5.490)	(5.400)	(5.828)
GHE share of CHE	0.027	0.022	0.082	0.061	0.025	0.075	0.039	0.046	0.058
	(0.065)	(0.069)	(0.060)	(0.073)	(0.070)	(0.075)	(0.069)	(0.076)	(0.054)
Gov. effective	3.995*	3.525	3.367	3.345	3.286	3.427	3.717	3.605	5.585**
	(2.249)	(2.872)	(2.232)	(2.499)	(2.879)	(2.556)	(2.997)	(3.121)	(2.317)
Corruption control	1.504	2.510	2.156	2.372	2.933	2.634	3.275	3.790	1.197
	(2.669)	(3.013)	(3.111)	(2.979)	(3.212)	(2.984)	(3.294)	(3.378)	(3.418)
ln Population density	23.558**	23.090**	25.200**	21.369**	22.016*	22.388**	21.158*	24.525**	35.008**
	(9.288)	(11.505)	(9.684)	(10.689)	(11.958)	(10.753)	(12.400)	(12.270)	* (9.773)
Primary schooling	0.064	0.056	0.042	0.050	0.052	0.053	0.048	0.044	0.037
	(0.041)	(0.043)	(0.041)	(0.043)	(0.044)	(0.043)	(0.045)	(0.043)	(0.042)

VARIABLES	SRH ODA			TotH ODA			RH ODA		
	All donors	ML	Bilateral	All donors	ML	Bilateral	All donors	ML	Bilateral
Female labor part.	-0.090	-0.176	-0.039	-0.149	-0.178	-0.164	-0.213	-0.216	0.055
	(0.133)	(0.182)	(0.136)	(0.155)	(0.186)	(0.159)	(0.201)	(0.209)	(0.143)
Observations	387	385	375	390	388	390	383	378	336
# of countries	95	94	94	96	96	96	94	94	90
Two-way FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Adj. within R-squared	0.400	0.326	0.444	0.351	0.322	0.353	0.323	0.331	0.460
Rho	0.980	0.979	0.985	0.976	0.977	0.978	0.977	0.981	0.992

Note: All measures of health ODA are in USD per capita (constant 2020). Clustered standard errors (country level) in parenthesis. * ** p<0.01, ** p<0.05, * p<0.1. Abbreviations. ML, multilateral donors.

Table A27. FE estimation of the effects of sectoral ODA per capita on modern contraceptive prevalence, by donor type (based on 3-Year-Averages Model)

	SRH ODA			TotH ODA			RH ODA		
VARIABLES	**All donors**	**ML**	**Bilateral**	**All donors**	**ML**	**Bilateral**	**All donors**	**ML**	**Bilateral**
Health ODA pc	0.531***	0.590	0.649***	0.258**	0.357	0.359**	1.481	-1.064	2.372**
	(0.163)	(0.467)	(0.182)	(0.120)	(0.228)	(0.149)	(1.487)	(3.145)	(0.909)
ln GDP pc	5.850	4.926	6.256	5.867	4.656	6.287	3.921	4.841	3.195
	(5.047)	(5.321)	(5.067)	(5.713)	(5.519)	(5.683)	(5.549)	(5.594)	(5.227)
GHE share of CHE	0.028	0.004	0.067	0.045	-0.000	0.057	-0.010	0.001	0.015
	(0.073)	(0.080)	(0.060)	(0.080)	(0.081)	(0.083)	(0.079)	(0.084)	(0.060)
Government effective	8.055***	8.129**	7.281**	7.972**	8.186**	8.033**	8.673**	8.134**	8.045***
	(3.065)	(3.473)	(3.020)	(3.299)	(3.529)	(3.260)	(3.552)	(3.777)	(2.900)
Corruption control	0.075	-0.135	0.211	-0.221	0.084	-0.265	0.129	0.133	0.283
	(3.178)	(3.389)	(3.235)	(3.352)	(3.557)	(3.302)	(3.557)	(3.638)	(2.890)
ln Population density	32.508***	32.602***	33.576***	30.473***	30.518**	31.518***	29.334**	31.842***	38.144***
	(10.512)	(11.192)	(10.412)	(10.918)	(11.627)	(10.765)	(11.842)	(11.859)	(10.404)
Primary schooling	0.103**	0.099**	0.085**	0.094**	0.091**	0.097**	0.089**	0.094**	0.072**
	(0.044)	(0.043)	(0.040)	(0.045)	(0.045)	(0.045)	(0.043)	(0.045)	(0.034)

VARIABLES	SRH ODA			TotH ODA			RH ODA		
	All donors	ML	Bilateral	All donors	ML	Bilateral	All donors	ML	Bilateral
Female labor part.	0.062	0.019	0.039	0.038	0.006	0.033	-0.041	-0.018	0.120
	(0.153)	(0.175)	(0.157)	(0.157)	(0.179)	(0.157)	(0.195)	(0.199)	(0.150)
Observations	328	327	324	328	327	328	327	325	302
# of countries	102	102	101	102	102	102	102	102	98
Two-way FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Adj. within R-squared	0.416	0.366	0.430	0.392	0.367	0.395	0.367	0.353	0.491
Rho	0.987	0.986	0.988	0.985	0.985	0.986	0.984	0.986	0.992

Note: All measures of health ODA are in USD per capita (constant 2020). Clustered standard errors (country level) in parenthesis. * ** p<0.01, ** p<0.05, * p<0.1. Abbreviations. ML, multilateral donors. All variables are averaged over three years resulting in six 3-year periods.

Table A28. FE estimation of the effects of sectoral ODA per capita on *skilled birth attendance*, by donor type (based on main FE Model)

	SRH ODA			TotH ODA			RH ODA		
VARIABLES	**All donors**	**ML**	**Bilateral**	**All donors**	**ML**	**Bilateral**	**All donors**	**ML**	**Bilateral**
Health ODA pc	0.190*	0.154	0.252*	0.059	0.052	0.073	0.902	-0.834	3.004***
	(0.100)	(0.183)	(0.136)	(0.044)	(0.098)	(0.060)	(1.015)	(0.726)	(1.011)
ln GDP pc	8.615	6.930	6.544	8.701	8.550	8.775	6.759	5.933	9.945
	(6.305)	(6.325)	(6.013)	(6.290)	(6.343)	(6.294)	(6.319)	(6.396)	(7.424)
GHE share of CHE	0.108	0.107	0.102	0.108*	0.108	0.109*	0.125*	0.121*	0.106
	(0.066)	(0.068)	(0.063)	(0.065)	(0.066)	(0.065)	(0.065)	(0.068)	(0.070)
Government effective	-4.585	-4.422	-4.324	-3.935	-4.012	-4.022	-4.575	-4.026	-3.187
	(2.887)	(2.888)	(2.811)	(2.698)	(2.736)	(2.702)	(2.911)	(3.030)	(2.969)
Corruption control	5.053*	5.433*	5.026*	4.772*	4.803*	4.641*	5.812*	5.906*	5.568
	(2.943)	(3.024)	(3.012)	(2.704)	(2.710)	(2.711)	(3.080)	(3.208)	(3.580)
ln Population density	47.320***	46.400***	45.275***	48.155***	48.925***	48.057***	44.140***	47.838***	44.759***
	(11.772)	(12.134)	(12.266)	(11.492)	(11.587)	(11.485)	(11.962)	(12.725)	(13.653)
Primary schooling	0.077	0.077	0.081	0.076	0.075	0.077	0.081	0.072	-0.000
	(0.091)	(0.091)	(0.097)	(0.090)	(0.090)	(0.090)	(0.091)	(0.091)	(0.107)

VARIABLES	SRH ODA			TotH ODA			RH ODA		
	All donors	ML	Bilateral	All donors	ML	Bilateral	All donors	ML	Bilateral
Female labor part.	0.105	0.089	0.177	0.106	0.102	0.107	0.060	0.093	0.138
	(0.267)	(0.266)	(0.248)	(0.267)	(0.267)	(0.267)	(0.259)	(0.261)	(0.267)
Observations	685	673	649	695	689	695	663	645	537
# of countries	100	99	100	101	101	101	100	99	97
Two-way FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Adj. within R-squared	0.437	0.443	0.439	0.432	0.436	0.432	0.448	0.452	0.477
Rho	0.987	0.987	0.987	0.988	0.988	0.988	0.986	0.987	0.985

Note: All measures of health ODA are in USD per capita (constant 2020). Clustered standard errors (country level) in parenthesis. * *** p<0.01, ** p<0.05, * p<0.1. Abbreviations. ML, multilateral donors.

Table A29. FE estimation of the effects of sectoral ODA per capita on skilled birth attendance, by donor type (based on 3-Year-Averages Model)

	SRH ODA			TotH ODA			RH ODA		
VARIABLES	**All donors**	**ML**	**Bilateral**	**All donors**	**ML**	**Bilateral**	**All donors**	**ML**	**Bilateral**
Health ODA pc	0.315**	0.247	0.426***	0.115	0.116	0.137	2.035*	-0.031	3.582***
	(0.120)	(0.293)	(0.147)	(0.083)	(0.137)	(0.105)	(1.130)	(1.379)	(1.296)
ln GDP pc	20.391***	20.132**	20.435***	20.563***	19.871**	20.532***	18.424**	17.127**	17.197**
	(7.671)	(7.988)	(7.698)	(7.810)	(7.763)	(7.762)	(7.630)	(7.755)	(7.712)
GHE share of CHE	0.200**	0.190**	0.222***	0.200**	0.188**	0.199**	0.192**	0.196**	0.207**
	(0.084)	(0.088)	(0.082)	(0.084)	(0.088)	(0.084)	(0.083)	(0.090)	(0.087)
Government	-3.480	-3.487	-3.891	-2.857	-2.881	-3.032	-3.505	-4.066	-3.069
effective	(4.557)	(4.671)	(4.653)	(4.394)	(4.440)	(4.431)	(4.593)	(4.736)	(4.808)
Corruption control	4.123	4.235	4.015	3.700	4.282	3.798	4.923	6.029	4.635
	(4.303)	(4.368)	(4.509)	(4.327)	(4.352)	(4.344)	(4.481)	(4.587)	(4.987)
ln Population density	54.135***	54.926***	53.354***	54.340***	54.897***	54.288***	48.216***	50.300***	49.275***
	(13.708)	(14.103)	(14.102)	(13.293)	(13.364)	(13.284)	(13.687)	(14.428)	(15.209)
Primary schooling	0.131	0.128	0.129	0.127	0.124	0.128	0.119	0.127	0.108
	(0.103)	(0.104)	(0.103)	(0.102)	(0.103)	(0.102)	(0.103)	(0.104)	(0.112)

VARIABLES	SRH ODA			TotH ODA			RH ODA		
	All donors	ML	Bilateral	All donors	ML	Bilateral	All donors	ML	Bilateral
Female labor part.	0.310	0.285	0.325	0.303	0.279	0.295	0.236	0.251	0.350
	(0.267)	(0.271)	(0.269)	(0.264)	(0.264)	(0.265)	(0.273)	(0.265)	(0.288)
Observations	416	412	408	417	415	417	412	406	369
# of countries	104	104	104	104	104	104	104	104	103
Two-way FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Adj. within R-squared	0.508	0.503	0.510	0.504	0.503	0.504	0.511	0.512	0.528
Rho	0.987	0.987	0.986	0.987	0.987	0.987	0.983	0.984	0.983

Note: All measures of health ODA are in USD per capita (constant 2020). Clustered standard errors (country level) in parenthesis. *** p<0.01, ** p<0.05, * p<0.1. Abbreviations. ML, multilateral donors. All variables are averaged over three years resulting in six 3-year periods.

Table A30. FE estimation of the effects of sectoral ODA per capita on ART coverage, by donor type (based on main FE Model)

	SRH ODA			TotH ODA			RH ODA		
VARIABLES	**All donors**	**ML**	**Bilateral**	**All donors**	**ML**	**Bilateral**	**All donors**	**ML**	**Bilateral**
Health ODA pc	0.531***	0.387	0.685***	0.332***	0.422***	0.406***	0.575	1.273	-0.399
	(0.076)	(0.287)	(0.088)	(0.070)	(0.155)	(0.100)	(0.833)	(0.921)	(1.149)
ln GDP pc	-1.695	-3.159	-0.278	-2.335	-3.284	-2.058	-3.497	-3.419	2.793
	(7.291)	(7.392)	(7.566)	(7.366)	(7.374)	(7.369)	(7.384)	(7.381)	(8.940)
GHE share of CHE	-0.014	-0.045	0.026	-0.014	-0.038	-0.017	-0.047	-0.047	0.063
	(0.070)	(0.071)	(0.066)	(0.071)	(0.073)	(0.068)	(0.070)	(0.070)	(0.072)
Gov. effective	6.128*	5.997*	5.994*	6.088*	6.282*	5.885*	6.274*	6.277*	8.115**
	(3.255)	(3.410)	(3.152)	(3.238)	(3.312)	(3.286)	(3.482)	(3.537)	(3.400)
Corruption control	5.274*	5.862*	5.741*	5.278*	5.627*	5.635*	6.412*	6.679**	3.039
	(3.108)	(3.246)	(3.166)	(3.165)	(3.219)	(3.216)	(3.298)	(3.328)	(3.702)
ln Population density	14.208	10.910	16.904	9.790	8.681	11.591	9.995	10.761	27.914
	(15.400)	(16.795)	(16.204)	(15.435)	(16.405)	(15.579)	(16.938)	(17.148)	(19.679)
Primary schooling	-0.052	-0.053	-0.052	-0.056	-0.055	-0.053	-0.053	-0.052	-0.062
	(0.071)	(0.072)	(0.071)	(0.070)	(0.071)	(0.071)	(0.072)	(0.072)	(0.081)

VARIABLES	SRH ODA			TotH ODA			RH ODA		
	All donors	ML	Bilateral	All donors	ML	Bilateral	All donors	ML	Bilateral
Female labor part.	-0.181	-0.222	-0.281	-0.184	-0.206	-0.191	-0.246	-0.263	-0.316
	(0.295)	(0.307)	(0.300)	(0.297)	(0.302)	(0.300)	(0.310)	(0.311)	(0.361)
Observations	1,306	1,304	1,246	1,307	1,307	1,307	1,290	1,275	1,043
# of countries	90	90	89	90	90	90	90	90	88
Two-way FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Adj. within R-squared	0.857	0.846	0.861	0.854	0.849	0.853	0.845	0.846	0.849
Rho	0.897	0.867	0.925	0.850	0.841	0.872	0.861	0.870	0.965

Note: All measures of health ODA are in USD per capita (constant 2020). Clustered standard errors (country level) in parenthesis. * ** p<0.01, ** p<0.05, * p<0.1. Abbreviations. ML, multilateral donors.

Table A31. FE estimation of the effects of sectoral ODA per capita on ART coverage, by donor type (based on 3-Year-Averages Model)

	SRH ODA			TotH ODA			RH ODA		
VARIABLES	**All donors**	**ML**	**Bilateral**	**All donors**	**ML**	**Bilateral**	**All donors**	**ML**	**Bilateral**
Health ODA pc	0.593***	0.263	0.733***	0.370***	0.507**	0.453***	1.181	2.685*	-0.036
	(0.124)	(0.587)	(0.112)	(0.104)	(0.243)	(0.133)	(1.254)	(1.363)	(1.462)
ln GDP pc	3.345	2.395	4.153	2.932	2.153	3.359	1.841	1.998	3.955
	(7.802)	(7.889)	(7.802)	(7.987)	(7.984)	(7.933)	(7.944)	(7.929)	(8.074)
GHE share of CHE	0.002	-0.029	0.005	0.006	-0.023	0.006	-0.037	-0.020	0.071
	(0.091)	(0.093)	(0.088)	(0.093)	(0.094)	(0.090)	(0.090)	(0.093)	(0.097)
Gov. effective	6.429	6.475	6.478	6.769	7.166	6.252	6.660	6.169	7.215
	(4.762)	(4.892)	(4.817)	(4.863)	(4.859)	(4.881)	(4.932)	(5.040)	(5.013)
Corruption control	4.715	5.070	5.657	4.200	4.363	4.814	5.277	5.775	4.648
	(3.832)	(4.044)	(3.888)	(3.966)	(4.055)	(3.978)	(4.007)	(4.062)	(4.073)
ln Population density	20.780	18.561	23.005	17.263	16.319	19.194	16.108	17.596	31.627*
	(14.736)	(15.856)	(14.766)	(14.869)	(15.689)	(14.875)	(15.717)	(15.991)	(16.162)
Primary schooling	-0.036	-0.043	-0.044	-0.045	-0.046	-0.043	-0.046	-0.040	-0.029
	(0.075)	(0.076)	(0.076)	(0.074)	(0.074)	(0.076)	(0.075)	(0.076)	(0.077)

VARIABLES	SRH ODA			TotH ODA			RH ODA		
	All donors	ML	Bilateral	All donors	ML	Bilateral	All donors	ML	Bilateral
Female labor part.	-0.250	-0.320	-0.301	-0.247	-0.292	-0.262	-0.340	-0.340	-0.353
	(0.326)	(0.338)	(0.335)	(0.331)	(0.334)	(0.332)	(0.331)	(0.333)	(0.354)
Observations	486	486	478	486	486	486	486	482	439
# of countries	90	90	90	90	90	90	90	90	89
Two-way FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Adj. within R-squared	0.867	0.858	0.867	0.864	0.860	0.864	0.858	0.858	0.860
Rho	0.934	0.925	0.945	0.914	0.911	0.926	0.912	0.921	0.967

Note: All measures of health ODA are in USD per capita (constant 2020). Clustered standard errors (country level) in parenthesis. * ** p<0.01, ** p<0.05, * p<0.1. Abbreviations. ML, multilateral donors. All variables are averaged over three years resulting in six 3-year periods.

Annex IV. Sensitivity analysis

Our sensitivity analyses aim to account for shortcomings of the data and the main FE estimation. First, we investigate potential bias from measurement error and missing data. Second, we try to account for the influence of outlying observations with robust FE estimators. Third, we estimate the main model using alternative specifications (log-log, linear-log). Fourth, we investigate the potential of a delayed impact of ODA on service outcomes with a lagged independent variables (IVs) model. Finally, we implemented a dynamic FE estimator, the system-GMM estimator, to account for the potential endogeneity of the regressors.

For each of these approaches, we first provide a summary table showing the ODA effect estimates from the main model next to the effect estimates from the sensitivity analyses. Each summary table is then followed by complete tables, including parameter estimates and robust standard errors.

Sensitivity to missing data and measurement error

Table A1. The effects of health ODA on SRH services, summary of sensitivity analysis for missing data and measurement error

Sectoral ODA	SRH service outcomes		
	Contraceptive Prevalence	Skilled birth attendance	ART coverage
SRH ODA			
Main FE Estimator	0.628***	0.190*	0.531***
FE Interpolated Variables	0.482***	0.247***	0.545***
FE 3-Year-Averaged Variables	0.531***	0.314**	0.593***
Total Health ODA			
Main FE Estimator	0.242**	0.059	0.332***
FE Interpolated Variables	0.196***	0.080*	0.331***
FE 3-Year-Averaged Variables	0.258**	0.115	0.370***
RH care ODA			
Main FE Estimator	0.935	0.902	0.575
FE Interpolated Variables	1.113**	1.413***	0.649
FE 3-Year-Averaged Variables	1.481	0.649	1.181

Note: All estimators include country and time fixed effects. All measures of health ODA are in USD per capita (constant 2020). Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1. In the Interpolated Variables model, all covariates and the dependent variable (SRH service indicators) are interpolated with STATA command *ipolate*. In the 3-Year-Averaged Variables model, all variables are averaged over three years resulting in six 3-year periods.

Table A2. Sensitivity for missing data – Effects of sectoral ODA per capita on *modern contraceptive prevalence* (alternative FE estimators)

	SRH ODA			Total Health ODA			RH care ODA		
VARIABLES	**Main**	**Inter-polate**	**3-year-avg**	**Main**	**Inter-polate**	**3-year-avg**	**Main**	**Inter-polate**	**3-year-avg**
Health ODA pc	0.628***	0.482***	0.531***	0.242**	0.196***	0.258**	0.935	1.113**	1.480
	(0.150)	(0.129)	(0.163)	(0.106)	(0.065)	(0.120)	(1.221)	(0.455)	(1.487)
ln GDP pc	1.735	4.156	5.914	1.820	4.414	5.939	-0.699	3.250	3.999
	(4.800)	(4.849)	(5.060)	(5.452)	(5.102)	(5.725)	(5.490)	(5.016)	(5.561)
GHE share of CHE	0.027	0.023	0.028	0.061	0.031	0.044	0.039	0.003	-0.010
	(0.065)	(0.052)	(0.073)	(0.073)	(0.054)	(0.080)	(0.069)	(0.053)	(0.079)
Gov. effective	3.995*	1.563	8.048***	3.345	1.367	7.964**	3.717	1.158	8.665**
	(2.249)	(2.169)	(3.063)	(2.499)	(2.386)	(3.297)	(2.997)	(2.748)	(3.551)
Corruption control	1.504	2.568	0.070	2.372	2.712	-0.227	3.275	3.177	0.120
	(2.669)	(2.263)	(3.179)	(2.979)	(2.396)	(3.353)	(3.294)	(2.583)	(3.557)
ln Population density	23.558**	22.457**	32.531***	21.369**	19.836*	30.499***	21.158*	18.839	29.369**
	(9.288)	(10.869)	(10.512)	(10.689)	(11.828)	(10.918)	(12.400)	(12.611)	(11.839)
Primary schooling	0.064	0.037	0.103**	0.050	0.034	0.094**	0.048	0.032	0.089**
	(0.041)	(0.046)	(0.044)	(0.043)	(0.045)	(0.045)	(0.045)	(0.044)	(0.043)

VARIABLES	SRH ODA			Total Health ODA			RH care ODA		
	Main	Inter-polate	3-year-avg	Main	Inter-polate	3-year-avg	Main	Inter-polate	3-year-avg
Female labor part.	-0.090	-0.072	0.062	-0.149	-0.129	0.037	-0.213	-0.175	-0.041
	(0.133)	(0.125)	(0.153)	(0.155)	(0.145)	(0.157)	(0.201)	(0.189)	(0.195)
Observations	387	1,152	328	390	1,157	328	383	1,132	327
# of countries	95	101	102	96	101	102	94	101	102
Two-way FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Adj. within R-squared	0.400	0.380	0.416	0.351	0.348	0.392	0.323	0.327	0.367
Rho	0.980	0.987	0.987	0.976	0.984	0.985	0.977	0.983	0.984

Note: All measures of health ODA are in USD per capita (constant 2020). Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1, and SE in parenthesis.

Table A3. Sensitivity for missing data – Effects of sectoral ODA per capita on *skilled birth attendance* (alternative FE estimators)

	SRH ODA			Total Health ODA			RH care ODA		
VARIABLES	**Main**	**Inter-polate**	**3-year-avg**	**Main**	**Inter-polate**	**3-year-avg**	**Main**	**Inter-polate**	**3-year-avg**
Health ODA pc	0.190*	0.247***	0.314**	0.059	0.080*	0.115	0.902	1.413***	2.032*
	(0.100)	(0.075)	(0.120)	(0.044)	(0.043)	(0.083)	(1.015)	(0.523)	(1.130)
ln GDP pc	8.615	16.344***	20.513***	8.701	16.435***	20.689***	6.759	14.031**	18.546**
	(6.305)	(6.153)	(7.694)	(6.290)	(6.214)	(7.833)	(6.319)	(6.037)	(7.654)
GHE share of CHE	0.108	0.110*	0.199**	0.108*	0.105*	0.199**	0.125*	0.110*	0.191**
	(0.066)	(0.056)	(0.084)	(0.065)	(0.056)	(0.084)	(0.065)	(0.056)	(0.083)
Government effective	-4.585	-3.432	-3.482	-3.935	-2.985	-2.860	-4.575	-3.187	-3.507
	(2.887)	(2.556)	(4.554)	(2.698)	(2.469)	(4.391)	(2.911)	(2.655)	(4.590)
Corruption control	5.053*	3.459	4.118	4.772*	3.274	3.696	5.812*	4.213	4.917
	(2.943)	(2.874)	(4.303)	(2.704)	(2.758)	(4.327)	(3.080)	(3.049)	(4.480)
ln Population density	47.320***	47.544***	54.167***	48.155***	47.295***	54.373***	44.140***	42.268***	48.259***
	(11.772)	(12.927)	(13.699)	(11.492)	(12.718)	(13.284)	(11.962)	(12.830)	(13.677)
Primary schooling	0.077	0.035	0.131	0.076	0.036	0.127	0.081	0.036	0.119
	(0.091)	(0.083)	(0.103)	(0.090)	(0.081)	(0.102)	(0.091)	(0.081)	(0.103)

VARIABLES	SRH ODA			Total Health ODA			RH care ODA		
	Main	Inter-polate	3-year-avg	Main	Inter-polate	3-year-avg	Main	Inter-polate	3-year-avg
Female labor part.	0.105	0.127	0.309	0.106	0.110	0.303	0.060	0.066	0.236
	(0.267)	(0.234)	(0.267)	(0.267)	(0.233)	(0.264)	(0.259)	(0.242)	(0.273)
Observations	685	1,347	416	695	1,360	417	663	1,308	412
# of countries	100	103	104	101	103	104	100	103	104
Two-way FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Adj. within R-squared	0.437	0.496	0.508	0.432	0.490	0.505	0.448	0.506	0.511
Rho	0.987	0.989	0.987	0.988	0.989	0.987	0.986	0.986	0.983

Note: All measures of health ODA are in USD per capita (constant 2020). Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1, and SE in parenthesis.

Table A4. Sensitivity for missing data – Effects of sectoral ODA per capita on *ART coverage* (alternative FE estimators)

	SRH ODA			Total Health ODA			RH care ODA		
VARIABLES	**Main**	**Inter-polate**	**3-year-avg**	**Main**	**Inter-polate**	**3-year-avg**	**Main**	**Inter-polate**	**3-year-avg**
Health ODA pc	0.531***	0.545***	0.593***	0.332***	0.331***	0.370***	0.575	0.649	1.181
	(0.076)	(0.079)	(0.124)	(0.070)	(0.070)	(0.104)	(0.833)	(0.767)	(1.254)
ln GDP pc	-1.695	1.798	3.339	-2.335	1.464	2.914	-3.497	0.347	1.830
	(7.291)	(7.087)	(7.839)	(7.366)	(7.219)	(8.023)	(7.384)	(7.196)	(7.982)
GHE share of CHE	-0.014	-0.029	0.002	-0.014	-0.028	0.006	-0.047	-0.061	-0.037
	(0.070)	(0.068)	(0.091)	(0.071)	(0.068)	(0.093)	(0.070)	(0.068)	(0.090)
Gov. effective	6.128*	5.172	6.433	6.088*	5.201	6.775	6.274*	5.391	6.664
	(3.255)	(3.415)	(4.760)	(3.238)	(3.415)	(4.862)	(3.482)	(3.606)	(4.930)
Corruption control	5.274*	4.836	4.717	5.278*	4.635	4.204	6.412*	5.951*	5.280
	(3.108)	(3.077)	(3.831)	(3.165)	(3.155)	(3.965)	(3.298)	(3.252)	(4.005)
ln Population density	14.208	15.592	20.802	9.790	11.600	17.279	9.995	11.923	16.126
	(15.400)	(14.924)	(14.748)	(15.435)	(15.038)	(14.883)	(16.938)	(16.358)	(15.732)
Primary schooling	-0.052	-0.038	-0.036	-0.056	-0.041	-0.045	-0.053	-0.037	-0.046
	(0.071)	(0.069)	(0.075)	(0.070)	(0.068)	(0.074)	(0.072)	(0.070)	(0.075)

VARIABLES	SRH ODA			Total Health ODA			RH care ODA		
	Main	Inter-polate	3-year-avg	Main	Inter-polate	3-year-avg	Main	Inter-polate	3-year-avg
Female labor part.	-0.181	-0.121	-0.250	-0.184	-0.116	-0.247	-0.246	-0.192	-0.340
	(0.295)	(0.284)	(0.326)	(0.297)	(0.289)	(0.331)	(0.310)	(0.297)	(0.331)
Observations	1,306	1,434	486	1,307	1,436	486	1,290	1,415	486
Number of countries	90	90	90	90	90	90	90	90	90
Two-way FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Adj. within R-squared	0.857	0.856	0.867	0.854	0.853	0.864	0.845	0.844	0.858
Rho	0.897	0.906	0.934	0.850	0.866	0.914	0.861	0.878	0.913

Note: All measures of health ODA are in USD per capita (constant 2020). Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1, and SE in parenthesis.

Influence of outlying observations

Table A5. The effects of health ODA on SRH services, summary of sensitivity analysis for outlying observations

Sectoral ODA	SRH service outcomes		
	Contraceptive Prevalence	Skilled birth attendance	ART coverage
SRH ODA			
Main FE Estimator	0.628***	0.190*	0.531***
Robust FE S Estimator	0.677***	0.142***	0.438***
Robust FE MM Estimator	0.430***	0.202	0.526***
FE Cook's Distance Outliers Removed	0.731***	0.111	0.570***
Total Health ODA			
Main FE Estimator	0.242**	0.059	0.332***
Robust FE S Estimator	0.347***	-0.014	0.294***
Robust FE MM Estimator	0.309**	-0.001	0.306***
FE Cook's Distance Outliers Removed	0.300***	0.006	0.345***
RH care ODA			
Main FE Estimator	0.935	0.902	0.575
Robust FE S Estimator	0.683*	0.432	0.220
Robust FE MM Estimator	1.339	1.218	0.148
FE Cook's Distance Outliers Removed	1.647**	0.737	0.702

Note: All estimators include country and time fixed effects. All measures of health ODA are in USD per capita (constant 2020). Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1. The user-contributed Stata module XTROBREG was used to calculate robust S and MM estimators, which are based on pairwise differencing. Influential observations were defined as observations that had a Cook's D>4/N-k, where N is the number of observations in the sample and k is the number of predictors.

Table A6. Outlier robustness analysis – Effects of sectoral ODA per capita on *modern contraceptive prevalence* (alternative FE estimators)

VARIABLES		Main FE Estimator	Robust S-Estimator	Robust MM-Estimator	Cooks' D. outliers removed
SRH ODA (USD pc)		0.628***	0.677***	0.430***	0.731***
		[0.330 - 0.926]	[0.452 - 0.902]	[0.282 - 0.577]	[0.538 - 0.923]
	ln GDP pc	1.735	-3.663	1.497	-1.234
		[-7.796 - 11.266]	[-16.008 - 8.682]	[-11.260 - 14.255]	[-8.119 - 5.651]
	GHE share of CHE	0.027	0.048	0.051	0.101**
		[-0.102 - 0.155]	[-0.155 - 0.252]	[-0.072 - 0.175]	[0.006 - 0.197]
	Government effective	3.995*	2.245	1.432	2.532
		[-0.471 - 8.461]	[-2.435 - 6.925]	[-3.833 - 6.696]	[-0.821 - 5.885]
	Corruption control	1.504	-4.148	-1.808	-0.277
		[-3.796 - 6.803]	[-10.159 - 1.863]	[-8.088 - 4.472]	[-4.242 - 3.688]
	ln Population density	23.558**	22.380***	26.318***	23.683***
		[5.116 - 41.999]	[12.603 - 32.157]	[9.646 - 42.990]	[10.638 - 36.727]
	Primary schooling	0.064	0.017	0.010	0.027
		[-0.017 - 0.145]	[-0.082 - 0.116]	[-0.058 - 0.078]	[-0.038 - 0.092]

VARIABLES		Main FE Estimator	Robust S-Estimator	Robust MM-Estimator	Cooks' D. outliers removed
	Female labor part.	-0.090	0.145	-0.032	-0.077
		[-0.353 - 0.174]	[-0.175 - 0.465]	[-0.298 - 0.235]	[-0.290 - 0.136]
Observations		387	378	378	365
Number of countries		95	86	86	92
Two-Way FE		YES	YES	YES	YES
Within R-squared		0.438			0.576
Hausmann p S vs FE			0.017		
Hausmann p MM vs. S				0.439	
Total Health ODA (USD pc)		0.242**	0.347***	0.309**	0.300***
		[0.032 - 0.453]	[0.217 - 0.476]	[0.052 - 0.566]	[0.181 - 0.419]
	ln GDP pc	1.820	0.853	4.178	1.982
		[-9.003 - 12.643]	[-8.875 - 10.580]	[-6.999 - 15.355]	[-4.401 - 8.364]
	GHE share of CHE	0.061	0.060	0.050	0.113**
		[-0.084 - 0.205]	[-0.173 - 0.294]	[-0.086 - 0.186]	[0.015 - 0.211]
	Government effective	3.345	2.045	1.937	2.597**
		[-1.616 - 8.305]	[-1.374 - 5.464]	[-1.940 - 5.813]	[0.044 - 5.150]

VARIABLES		Main FE Estimator	Robust S-Estimator	Robust MM-Estimator	Cooks' D. outliers removed
	Corruption control	2.372	-4.130	-1.220	0.107
		[-3.543 - 8.286]	[-10.275 - 2.016]	[-6.175 - 3.735]	[-3.842 - 4.055]
	ln Population density	21.369**	20.135**	25.082**	26.923***
		[0.149 - 42.589]	[3.029 - 37.242]	[5.252 - 44.911]	[14.977 - 38.869]
	Primary schooling	0.050	-0.000	-0.004	-0.004
		[-0.034 - 0.135]	[-0.098 - 0.097]	[-0.080 - 0.073]	[-0.070 - 0.061]
	Female labor part.	-0.149	0.062	-0.087	-0.107
		[-0.456 - 0.159]	[-0.223 - 0.347]	[-0.353 - 0.179]	[-0.305 - 0.092]
Observations		390	382	382	363
Number of countries		96	88	88	92
Two-Way FE		YES	YES	YES	YES
Within R-squared		0.392			0.555
Hausmann p S vs FE			0.0149		
Hausmann p MM vs. S				0.958	

VARIABLES		Main FE Estimator	Robust S-Estimator	Robust MM-Estimator	Cooks' D. outliers removed
RH care ODA (USD pc)		0.935	0.683*	1.339	1.647**
		[-1.490 - 3.361]	[-0.105 - 1.470]	[-0.490 - 3.168]	[0.257 - 3.037]
	ln GDP pc	-0.699	-5.193	1.696	-0.448
		[-11.601 - 10.204]	[-16.097 - 5.710]	[-12.336 - 15.727]	[-8.047 - 7.151]
	GHE share of CHE	0.039	0.018	0.061	0.100**
		[-0.098 - 0.176]	[-0.133 - 0.169]	[-0.071 - 0.193]	[0.003 - 0.198]
	Government effective	3.717	2.260	2.480	3.375**
		[-2.234 - 9.668]	[-1.277 - 5.797]	[-3.760 - 8.720]	[0.480 - 6.271]
	Corruption control	3.275	-4.354*	-0.374	0.863
		[-3.265 - 9.815]	[-8.720 - 0.012]	[-8.332 - 7.584]	[-3.216 - 4.942]
	ln Population density	21.158*	24.623***	28.886**	29.923***
		[-3.467 - 45.782]	[10.569 - 38.676]	[5.872 - 51.900]	[15.763 - 44.084]
	Primary schooling	0.048	-0.015	-0.006	0.006
		[-0.042 - 0.138]	[-0.118 - 0.089]	[-0.076 - 0.063]	[-0.056 - 0.069]
	Female labor part.	-0.213	0.101	-0.070	-0.113
		[-0.611 - 0.186]	[-0.233 - 0.435]	[-0.347 - 0.207]	[-0.334 - 0.107]

VARIABLES	Main FE Estimator	Robust S-Estimator	Robust MM-Estimator	Cooks' D. outliers removed
Observations	383	374	374	360
Number of countries	94	85	85	92
Two-Way FE	YES	YES	YES	YES
Within R-squared	0.367			0.523
Hausmann p S vs FE		3.015e-06		
Hausmann p MM vs. S			0.0652	

Note: All estimators include country and time fixed effects. All measures of health ODA are in USD per capita (constant 2020). *** p<0.01, ** p<0.05, * p<0.1 and 95% CI in brackets. The user-contributed Stata module XTROBREG was used to calculate robust S and MM estimators, which are based on pairwise differencing. For the Hausmann tests, p<0.05 represents preference over indicated model. Influential observations were defined as observations that had a Cook's D>4/N-k, where N is the number of observations in the sample and k the number of predictors.

Table A7. Outlier robustness analysis – Effects of sectoral ODA per capita on *skilled birth attendance* (alternative FE estimators)

VARIABLES		Main FE Estimator	Robust S-Estimator	Robust MM-Estimator	Cooks' D. outliers removed
SRH ODA (USD pc)		0.190*	0.142***	0.202	0.111
		[-0.009 - 0.389]	[0.068 - 0.216]	[-0.135 - 0.539]	[-0.075 - 0.296]
	ln GDP pc	8.615	0.780	-1.843	4.124
		[-3.896 - 21.126]	[-3.399 - 4.960]	[-9.267 - 5.581]	[-5.253 - 13.501]
	GHE share of CHE	0.108	0.029	0.127	0.113**
		[-0.022 - 0.239]	[-0.016 - 0.073]	[-0.090 - 0.344]	[0.013 - 0.214]
	Government effective	-4.585 [-10.313 - 1.144]	-0.497 [-1.314 - 0.320]	0.182 [-3.179 - 3.543]	-4.164* [-9.123 - 0.795]
	Corruption control	5.053*	0.726**	1.653	6.041**
		[-0.787 - 10.893]	[0.078 - 1.374]	[-1.038 - 4.345]	[1.308 - 10.775]
	ln Population density	47.320*** [23.962 - 70.678]	4.911 [-4.531 - 14.353]	30.666 [-26.097 - 87.430]	53.104*** [36.017 - 70.191]
	Primary schooling	0.077	0.012	0.007	-0.034
		[-0.104 - 0.257]	[-0.012 - 0.036]	[-0.129 - 0.142]	[-0.175 - 0.107]
	Female labor part.	0.105	0.087**	0.213	0.051
		[-0.425 - 0.635]	[0.013 - 0.162]	[-0.052 - 0.478]	[-0.475 - 0.578]

VARIABLES		Main FE Estimator	Robust S-Estimator	Robust MM-Estimator	Cooks' D. outliers removed
Observations		685	680	680	633
Number of countries		100	95	95	95
Two-Way FE		YES	YES	YES	YES
Within R-squared		0.458			0.548
Hausmann p S vs FE			0.0000		
Hausmann p MM vs. S				0.0269	
Total Health ODA (USD pc)		0.059	-0.014	-0.001	0.006
		[-0.028 - 0.146]	[-0.036 - 0.009]	[-0.095 - 0.093]	[-0.076 - 0.088]
	ln GDP pc	8.701	0.894	-1.608	4.842
		[-3.778 - 21.180]	[-3.200 - 4.987]	[-11.741 - 8.524]	[-4.856 - 14.540]
	GHE share of CHE	0.108*	0.030	0.123	0.117**
		[-0.021 - 0.236]	[-0.022 - 0.081]	[-0.182 - 0.428]	[0.020 - 0.215]
	Government effective	3.345	2.045	1.937	2.597**
		[-1.616 - 8.305]	[-1.374 - 5.464]	[-1.940 - 5.813]	[0.044 - 5.150]
	Corruption control	2.372	-4.130	-1.220	0.107
		[-3.543 - 8.286]	[-10.275 - 2.016]	[-6.175 - 3.735]	[-3.842 - 4.055]

VARIABLES		Main FE Estimator	Robust S-Estimator	Robust MM-Estimator	Cooks' D. outliers removed
	ln Population density	21.369**	20.135**	25.082**	26.923***
		[0.149 - 42.589]	[3.029 - 37.242]	[5.252 - 44.911]	[14.977 - 38.869]
	Primary schooling	0.050	-0.000	-0.004	-0.004
		[-0.034 - 0.135]	[-0.098 - 0.097]	[-0.080 - 0.073]	[-0.070 - 0.061]
	Female labor part.	-0.149	0.062	-0.087	-0.107
		[-0.456 - 0.159]	[-0.223 - 0.347]	[-0.353 - 0.179]	[-0.305 - 0.092]
Observations		390	382	382	363
Number of countries		96	88	88	92
Two-Way FE		YES	YES	YES	YES
Within R-squared		0.392			0.555
Hausmann p S vs FE			0.0149		
Hausmann p MM vs. S				0.958	
RH care ODA (USD pc)		0.902	0.432	1.218	0.737
		[-1.111 - 2.916]	[-0.372 - 1.237]	[-0.961 - 3.397]	[-0.942 - 2.416]
	ln GDP pc	6.759	0.089	-3.509	2.784
		[-5.779 - 19.298]	[-4.651 - 4.830]	[-9.871 - 2.852]	[-6.414 - 11.983]

VARIABLES		Main FE Estimator	Robust S-Estimator	Robust MM-Estimator	Cooks' D. outliers removed
	GHE share of CHE	0.125*	0.032	0.142**	0.119**
		[-0.005 - 0.254]	[-0.028 - 0.092]	[0.023 - 0.262]	[0.025 - 0.213]
	Government effective	-4.575	-0.355	0.119	-4.139*
		[-10.352 - 1.202]	[-1.317 - 0.607]	[-2.508 - 2.747]	[-8.960 - 0.683]
	Corruption control	5.812*	0.928**	2.660	6.695***
		[-0.299 - 11.924]	[0.103 - 1.753]	[-1.255 - 6.574]	[1.697 - 11.694]
	ln Population density	44.140***	5.644	36.401	50.953***
		[20.405 - 67.875]	[-5.600 - 16.887]	[-13.438 - 86.240]	[34.407 - 67.500]
	Primary schooling	0.081	0.013	0.004	-0.024
		[-0.101 - 0.262]	[-0.013 - 0.039]	[-0.139 - 0.148]	[-0.160 - 0.113]
	Female labor part.	0.060	0.102*	0.226	0.020
		[-0.454 - 0.575]	[-0.011 - 0.214]	[-0.052 - 0.505]	[-0.473 - 0.513]
Observations		663	656	656	609
Number of countries		100	93	93	93
Two-Way FE		YES	YES	YES	YES
Within R-squared		0.469			0.553
Hausmann p S vs FE			4.04e-41		

VARIABLES	Main FE Estimator	Robust S-Estimator	Robust MM-Estimator	Cooks' D. outliers removed
Hausmann p MM vs. S			4.85e-05	

Note: All estimators include country and time fixed effects. All measures of health ODA are in USD per capita (constant 2020). *** p<0.01, ** p<0.05, * p<0.1 and 95% CI in brackets. The user-contributed Stata module XTROBREG was used to calculate robust S and MM estimators, which are based on pairwise differencing. For the Hausmann tests, p<0.05 represents preference over indicated model. Influential observations were defined as observations that had a Cook's D>4/N-k, where N is the number of observations in the sample and k the number of predictors.

Table A8. Outlier robustness analysis – Effects of sectoral ODA per capita on *ART coverage* (alternative FE estimators)

VARIABLES		Main FE Estimator	Robust S-Estimator	Robust MM-Estimator	Cooks' D. outliers removed
SRH ODA (USD pc)		0.531***	0.438***	0.526***	0.570***
		[0.380 - 0.682]	[0.330 - 0.546]	[0.355 - 0.697]	[0.438 - 0.702]
	ln GDP pc	-1.695	-3.490	-3.993	-1.863
		[-16.181 - 12.792]	[-25.138 - 18.158]	[-22.000 - 14.015]	[-12.751 - 9.026]
	GHE share of CHE	-0.014	-0.007	-0.009	-0.019
		[-0.154 - 0.125]	[-0.172 - 0.158]	[-0.162 - 0.145]	[-0.129 - 0.090]
	Government effective	6.128*	-1.096	2.717	5.540**
		[-0.340 - 12.597]	[-6.198 - 4.007]	[-2.522 - 7.956]	[0.678 - 10.401]
	Corruption control	5.274*	7.669***	6.500**	5.566**
		[-0.901 - 11.449]	[2.966 - 12.372]	[0.450 - 12.550]	[0.529 - 10.604]
	ln Population density	14.208	-3.400	4.380	14.018
		[-16.392 - 44.807]	[-27.259 - 20.458]	[-29.923 - 38.684]	[-8.536 - 36.572]
	Primary schooling	-0.052	0.110*	0.067	0.017
		[-0.193 - 0.089]	[-0.018 - 0.238]	[-0.084 - 0.218]	[-0.091 - 0.125]

VARIABLES		Main FE Estimator	Robust S-Estimator	Robust MM-Estimator	Cooks' D. outliers removed
	Female labor part.	-0.181	0.029	0.055	0.034
		[-0.767 - 0.406]	[-0.538 - 0.595]	[-0.511 - 0.620]	[-0.366 - 0.435]
Observations		1,306	1,306	1,306	1,236
Number of countries		90	90	90	90
Two-Way FE		YES	YES	YES	YES
Within R-squared		0.860			0.903
Hausmann p S vs FE			0.013		
Hausmann p MM vs. S				0.299	
Total Health ODA (USD pc)		0.332***	0.294***	0.306***	0.345***
		[0.193 - 0.471]	[0.073 - 0.516]	[0.155 - 0.457]	[0.245 - 0.444]
	ln GDP pc	-2.335	-6.305	-5.076	-3.500
		[-16.971 - 12.300]	[-30.686 - 18.076]	[-25.584 - 15.431]	[-14.653 - 7.653]
	GHE share of CHE	-0.014	-0.002	-0.013	-0.035
		[-0.155 - 0.127]	[-0.192 - 0.188]	[-0.182 - 0.155]	[-0.148 - 0.078]
	Government effective	6.088*	-1.528	2.536	5.591**
		[-0.346 - 12.521]	[-6.728 - 3.671]	[-3.121 - 8.192]	[0.649 - 10.534]

VARIABLES		Main FE Estimator	Robust S-Estimator	Robust MM-Estimator	Cooks' D. outliers removed
	Corruption control	5.278*	8.544***	6.741*	6.148**
		[-1.012 - 11.567]	[3.829 - 13.260]	[-0.034 - 13.516]	[0.911 - 11.386]
	ln Population density	9.790	-8.845	1.551	10.263
		[-20.878 - 40.459]	[-32.181 - 14.491]	[-38.799 - 41.902]	[-12.950 - 33.476]
	Primary schooling	-0.056	0.099	0.063	0.008
		[-0.195 - 0.083]	[-0.020 - 0.217]	[-0.088 - 0.214]	[-0.100 - 0.116]
	Female labor part.	-0.184	-0.038	0.072	0.047
		[-0.774 - 0.406]	[-0.683 - 0.607]	[-0.592 - 0.735]	[-0.377 - 0.471]
Observations		1,307	1,307	1,307	1,242
Number of countries		90	90	90	90
Two-Way FE		YES	YES	YES	YES
Within R-squared		0.857			0.898
Hausmann p S vs FE			0.0211		
Hausmann p MM vs S				0.831	

VARIABLES		Main FE Estimator	Robust S-Estimator	Robust MM-Estimator	Cooks' D. outliers removed
RH care ODA (USD pc)		0.575	0.220	0.148	0.702
		[-1.081 - 2.231]	[-2.660 - 3.100]	[-1.692 - 1.987]	[-0.777 - 2.181]
	ln GDP pc	-3.497	-5.765	-3.515	-3.780
		[-18.169 - 11.174]	[-42.216 - 30.685]	[-24.193 - 17.163]	[-15.156 - 7.596]
	GHE share of CHE	-0.047	-0.013	-0.037	-0.053
		[-0.185 - 0.091]	[-0.304 - 0.278]	[-0.192 - 0.118]	[-0.168 - 0.063]
	Government effective	6.274*	-1.076	3.624	6.255**
		[-0.645 - 13.193]	[-13.365 - 11.213]	[-3.751 - 10.998]	[0.779 - 11.732]
	Corruption control	6.412*	8.780**	8.114**	7.037**
		[-0.142 - 12.966]	[1.767 - 15.792]	[1.559 - 14.669]	[1.574 - 12.500]
	ln Population density	9.995	-6.059	5.727	10.087
		[-23.660 - 43.651]	[-42.826 - 30.709]	[-43.978 - 55.432]	[-15.656 - 35.830]
	Primary schooling	-0.053	0.111	0.073	0.025
		[-0.196 - 0.090]	[-0.073 - 0.295]	[-0.090 - 0.235]	[-0.087 - 0.137]
	Female labor part.	-0.246	-0.001	0.006	-0.054
		[-0.863 - 0.370]	[-0.974 - 0.973]	[-0.751 - 0.763]	[-0.509 - 0.401]

VARIABLES	Main FE Estimator	Robust S-Estimator	Robust MM-Estimator	Cooks' D. outliers removed
Observations	1,290	1,290	1,290	1,220
Number of countries	90	90	90	90
Two-Way FE	YES	YES	YES	YES
Within R-squared	0.848			0.890
Hausmann p S vs FE		0.0302		
Hausmann p MM vs. S			0.512	

Note: All estimators include country and time fixed effects. All measures of health ODA are in USD per capita (constant 2020). *** p<0.01, ** p<0.05, * p<0.1 and 95% CI in brackets. The user-contributed Stata module XTROBREG was used to calculate robust S and MM estimators, which are based on pairwise differencing. For the Hausmann tests, p<0.05 represents preference over indicated model. Influential observations were defined as observations that had a Cook's D>4/N-k, where N is the number of observations in the sample and k the number of predictors.

FE estimation with alternative functional forms

Table A9. The effects of health ODA on SRH services, summary of FE estimations with alternative functional form

Sectoral ODA	SRH service outcomes		
	Contraceptive Prevalence	Skilled birth attendance	ART coverage
SRH ODA			
Main FE estimator (linear, USD pc)	0.628***	0.190*	0.531***
FE estimator (linear-log, USD millions)	1.904**	0.239	1.121
FE estimator (log-log, USD millions)	0.0882***	0.0149	0.0626
Total Health ODA			
Main FE estimator (linear, USD pc)	0.242**	0.0591	0.332***
FE estimator (linear-log, USD millions)	1.203	-0.224	2.004*
FE estimator (log-log, USD millions)	0.0606	0.00189	0.136***
RH care ODA			
Main FE estimator (linear, USD pc)	0.935	0.902	0.575
FE estimator (linear-log, USD millions)	1.676***	0.830**	0.711

Sectoral ODA	SRH service outcomes		
	Contraceptive Prevalence	Skilled birth attendance	ART coverage
FE estimator (log-log, USD millions)	0.0706***	0.0265***	0.0134

Note: All estimations include country and time fixed effects. Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1. In the linear-log specification, all IVs are log-transformed, including ODA. The linear-log specification provides the absolute change in service coverage (percentage points) associated with a per cent change in ODA. In the log-log specification, all variables are log-transformed, including SRH service indicators. The log-log specification allows coefficients to be interpreted as elasticities, thus the percent change in service coverage associated with a percent change in ODA.

Table A10. Effects of sectoral ODA on *modern contraceptive prevalence* (FE estimation with alternative functional forms)

		SRH ODA			Total Health ODA			RH ODA	
Variables	**Main**	**Linear-Log**	**Log-Log**	**Main FE**	**Linear-Log**	**Log-Log**	**Main FE**	**Linear-Log**	**Log-Log**
Health ODA	0.628***	1.904**	0.0882***	0.242**	1.203	0.0606	0.935	1.676***	0.0706***
	(0.150)	(0.879)	(0.0327)	(0.106)	(1.229)	(0.0380)	(1.221)	(0.519)	(0.0228)
ln GDP pc	1.735	0.124	0.000302	1.820	0.975	0.0217	-0.699	-0.680	-0.0274
	(4.800)	(5.179)	(0.175)	(5.452)	(5.310)	(0.177)	(5.490)	(4.865)	(0.161)
GHE share of CHE	0.0266	1.057	0.00942	0.0607	1.398	0.0243	0.0393	0.728	-0.00362
	(0.0648)	(1.527)	(0.0688)	(0.0727)	(1.639)	(0.0736)	(0.0691)	(1.450)	(0.0662)
Government effective	3.995*	8.595	0.294	3.345	6.800	0.226	3.717	8.406	0.280
	(2.249)	(5.193)	(0.222)	(2.499)	(5.371)	(0.228)	(2.997)	(5.186)	(0.217)
Corruption control	1.504	0.830	-0.103	2.372	2.509	-0.0276	3.275	1.586	-0.0631
	(2.669)	(4.701)	(0.207)	(2.979)	(5.018)	(0.213)	(3.294)	(4.592)	(0.199)
ln Population density	23.56**	15.85	1.229**	21.37**	20.22	1.401***	21.16*	11.69	1.090**
	(9.288)	(12.47)	(0.478)	(10.69)	(13.13)	(0.509)	(12.40)	(11.94)	(0.469)
Primary schooling	0.0643	3.792	0.483**	0.0500	3.709	0.474**	0.0480	4.059	0.495**
	(0.0407)	(4.052)	(0.197)	(0.0426)	(4.277)	(0.207)	(0.0451)	(3.987)	(0.197)

Variables	SRH ODA			Total Health ODA			RH ODA		
	Main	Linear-Log	Log-Log	Main FE	Linear-Log	Log-Log	Main FE	Linear-Log	Log-Log
Female labor part.	-0.0896	-7.655	-0.286	-0.149	-9.473	-0.380	-0.213	-7.230	-0.275
	(0.133)	(6.092)	(0.229)	(0.155)	(6.991)	(0.230)	(0.201)	(6.603)	(0.252)
Observations	387	387	387	390	390	390	383	382	382
Number of countries	95	95	95	96	96	96	94	94	94
Adjusted R-squared	0.400	0.336	0.422	0.351	0.312	0.399	0.323	0.370	0.449
Two-way FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

Note: Standard errors are clustered at the country level to control for serial correlation. *** p<0.01, ** p<0.05, * p<0.1 and a robust SE in parentheses. The main models use ODA in USD per capita. In the log-log and linear-log specifications, ODA disbursements are expressed in millions of USD.

Table A11. Effects of sectoral ODA on *skilled birth attendance* (FE estimation with alternative functional forms)

	SRH ODA			Total Health ODA			RH ODA		
Variables	**Main**	**Linear-Log**	**Log-Log**	**Main**	**Linear-Log**	**Log-Log**	**Main**	**Linear-Log**	**Log-Log**
Health ODA	0.190*	0.239	0.0149	0.0591	-0.224	0.00189	0.902	0.830**	0.0265***
	(0.100)	(0.501)	(0.00991)	(0.0439)	(0.557)	(0.0117)	(1.015)	(0.418)	(0.00954)
ln GDP pc	8.615	9.247	0.280*	8.701	9.950	0.291**	6.759	7.762	0.261*
	(6.305)	(6.422)	(0.147)	(6.290)	(6.308)	(0.145)	(6.319)	(6.308)	(0.144)
GHE share of CHE	0.108	3.175	-0.0351	0.108*	3.188	-0.0350	0.125*	3.141	-0.0414
	(0.0658)	(2.180)	(0.0471)	(0.0648)	(2.161)	(0.0469)	(0.0653)	(2.193)	(0.0471)
Government effective	-4.585	-7.845	-0.181	-3.935	-7.186	-0.168	-4.575	-7.909	-0.187
	(2.887)	(5.570)	(0.110)	(2.698)	(5.306)	(0.105)	(2.911)	(5.708)	(0.113)
Corruption control	5.053*	6.842	0.169*	4.772*	6.323	0.162*	5.812*	7.729	0.183*
	(2.943)	(4.963)	(0.0923)	(2.704)	(4.551)	(0.0856)	(3.080)	(5.208)	(0.0979)
ln Population density	47.32***	46.79***	1.010***	48.15***	49.33***	1.067***	44.14***	41.49***	0.897***
	(11.77)	(11.70)	(0.276)	(11.49)	(11.15)	(0.270)	(11.96)	(11.72)	(0.283)
Primary schooling	0.0767	6.031	0.299*	0.0756	6.187	0.307*	0.0809	5.996	0.299*
	(0.0911)	(8.130)	(0.178)	(0.0901)	(8.101)	(0.178)	(0.0914)	(8.167)	(0.178)

Variables	SRH ODA			Total Health ODA			RH ODA		
	Main	Linear-Log	Log-Log	Main	Linear-Log	Log-Log	Main	Linear-Log	Log-Log
Female labor part.	0.105	6.503	0.300	0.106	6.793	0.294	0.0605	7.007	0.324
	(0.267)	(10.33)	(0.233)	(0.267)	(10.18)	(0.235)	(0.259)	(10.46)	(0.230)
Observations	685	685	685	695	695	695	663	662	662
Number of countries	100	100	100	101	101	101	100	100	100
Adjusted R-squared	0.437	0.431	0.382	0.432	0.428	0.378	0.448	0.450	0.403
Two-way FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

Note: Standard errors are clustered at the country level to control for serial correlation. *** p<0.01, ** p<0.05, * p<0.1 and a robust SE in parenthesis. The main models use ODA in USD per capita. In the log-log and linear-log specifications, ODA disbursements are expressed in millions of USD.

Table A12. Effects of sectoral ODA on *ART coverage* (FE estimation with alternative functional forms)

Variables	SRH ODA			Total Health ODA			RH ODA		
	Main	Linear-Log	Log-Log	Main	Linear-Log	Log-Log	Main	Linear-Log	Log-Log
Health ODA	0.531***	1.121	0.0626	0.332***	2.004*	0.136***	0.575	0.711	0.0134
	(0.0761)	(1.029)	(0.0442)	(0.0698)	(1.110)	(0.0510)	(0.833)	(0.490)	(0.0208)
ln GDP pc	-1.695	-3.943	0.740**	-2.335	-4.216	0.703**	-3.497	-3.940	0.761**
	(7.291)	(7.532)	(0.334)	(7.366)	(7.637)	(0.316)	(7.384)	(7.441)	(0.336)
GHE share of CHE	-0.0144	-2.271	-0.0749	-0.0140	-2.193	-0.0676	-0.0471	-2.351	-0.0724
	(0.0701)	(1.455)	(0.1000)	(0.0709)	(1.498)	(0.0988)	(0.0695)	(1.471)	(0.100)
Government effective	6.128*	12.46**	0.308	6.088*	11.98**	0.308	6.274*	12.56**	0.295
	(3.255)	(5.423)	(0.292)	(3.238)	(5.414)	(0.288)	(3.482)	(5.584)	(0.297)
Corruption control	5.274*	8.374	0.221	5.278*	8.768	0.234	6.412*	9.225*	0.239
	(3.108)	(5.609)	(0.222)	(3.165)	(5.626)	(0.224)	(3.298)	(5.548)	(0.229)
ln Population density	14.21	6.466	1.334	9.790	5.405	1.228*	9.995	6.760	1.483*
	(15.40)	(16.56)	(0.807)	(15.43)	(16.42)	(0.734)	(16.94)	(16.20)	(0.792)
Primary schooling	-0.0522	-4.625	0.873**	-0.0563	-5.335	0.797**	-0.0529	-4.418	0.897**
	(0.0711)	(6.540)	(0.357)	(0.0699)	(6.503)	(0.339)	(0.0720)	(6.640)	(0.367)

Variables	SRH ODA			Total Health ODA			RH ODA		
	Main	Linear-Log	Log-Log	Main	Linear-Log	Log-Log	Main	Linear-Log	Log-Log
Female labor part.	-0.181	-15.54	-1.182	-0.184	-15.21	-1.129	-0.246	-16.36	-1.181
	(0.295)	(15.64)	(0.768)	(0.297)	(15.40)	(0.758)	(0.310)	(15.73)	(0.773)
Observations	1,306	1,306	1,159	1,307	1,307	1,160	1,290	1,289	1,143
Number of countries	90	90	90	90	90	90	90	90	90
Adjusted R-squared	0.857	0.847	0.875	0.854	0.848	0.876	0.845	0.846	0.875
Two-way FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

Note: Standard errors are clustered at the country level to control for serial correlation. *** p<0.01, ** p<0.05, * p<0.1 and a robust SE in parenthesis. The main models use ODA in USD per capita. In the log-log and linear-log specifications, ODA disbursements are expressed in millions of USD.

Potential delayed effect

Table A13. The effects of health ODA on SRH services, summary of lagged IVs (including ODA) models

Sectoral ODA	SRH service outcomes		
	Contraceptive Prevalence	Skilled birth attendance	ART coverage
SRH ODA			
Main FE Estimator	0.628***	0.190*	0.531***
FE Estimator 1-Year Lagged IVs	0.732***	0.313**	0.546***
Total Health ODA			
Main FE Estimator	0.242**	0.059	0.332***
FE Estimator 1-Year Lagged IVs	0.315***	0.044	0.338***
RH care ODA			
Main FE Estimator	0.935	0.902	0.575
FE estimator 1-Year Lagged IVs	0.280	1.094	0.568

Note: All estimations include country and time fixed effects. Standard errors are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1. In the Lagged IVs model, all independent variables, including ODA, are lagged by one year. Thus, the effect of ODA received by a country in the previous year on current SRH service coverage is estimated.

Table A14. FE estimation – Effects of health ODA per capita on *modern contraceptive prevalence* (main model vs. lagged IVs model)

	SRH ODA		TotH ODA		RH ODA	
VARIABLES	**Main Model**	**Lagged IVs**	**Main Model**	**Lagged IVs**	**Main Model**	**Lagged IVs**
Health ODA	0.628***	0.732***	0.242**	0.315***	0.935	0.280
	(0.150)	(0.201)	(0.106)	(0.099)	(1.221)	(0.758)
ln GDP pc	1.735	1.398	1.820	-1.509	-0.699	-1.586
	(4.800)	(4.367)	(5.452)	(5.109)	(5.490)	(5.333)
GHE share of CHE	0.027	0.049	0.061	0.034	0.039	0.024
	(0.065)	(0.073)	(0.073)	(0.074)	(0.069)	(0.077)
Government effective	3.995*	5.068**	3.345	5.347**	3.717	4.420
	(2.249)	(2.304)	(2.499)	(2.539)	(2.997)	(3.481)
Corruption control	1.504	2.812	2.372	3.330	3.275	3.746
	(2.669)	(1.979)	(2.979)	(2.238)	(3.294)	(2.868)
ln Population density	23.558**	26.206**	21.369**	19.811	21.158*	16.887
	(9.288)	(10.793)	(10.689)	(12.352)	(12.400)	(16.439)
Primary schooling	0.064	0.057	0.050	0.052	0.048	0.059
	(0.041)	(0.046)	(0.043)	(0.047)	(0.045)	(0.051)

	SRH ODA		TotH ODA		RH ODA	
VARIABLES	**Main Model**	**Lagged IVs**	**Main Model**	**Lagged IVs**	**Main Model**	**Lagged IVs**
Female labor part.	-0.090	0.044	-0.149	-0.037	-0.213	-0.163
	(0.133)	(0.144)	(0.155)	(0.161)	(0.201)	(0.251)
Observations	387	376	390	377	383	372
Number of countries	95	97	96	98	94	97
Two-way FE	YES	YES	YES	YES	YES	YES
Adj. within R-squared	0.400	0.444	0.351	0.414	0.323	0.337
Rho	0.980	0.984	0.976	0.978	0.977	0.970

Note: All measures of health ODA are in USD per capita (constant 2020). Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1 In the Lagged IVs model, all independent variables, including ODA, are lagged by one year.

Table A15. FE estimation – Effects of health ODA per capita on *skilled birth attendance* (main model vs. lagged IVs model)

	SRH ODA		TotH ODA		RH ODA	
VARIABLES	**Main Model**	**Lagged IVs**	**Main Model**	**Lagged IVs**	**Main Model**	**Lagged IVs**
Health ODA	0.190*	0.313**	0.059	0.044	0.902	1.094
	(0.100)	(0.158)	(0.044)	(0.062)	(1.015)	(0.719)
ln GDP pc	8.615	11.603*	8.701	11.357*	6.759	10.957
	(6.305)	(6.656)	(6.290)	(6.662)	(6.319)	(6.843)
GHE share of CHE	0.108	0.103	0.108*	0.092	0.125*	0.098
	(0.066)	(0.068)	(0.065)	(0.067)	(0.065)	(0.067)
Government effective	-4.585	-5.018**	-3.935	-4.554*	-4.575	-5.213**
	(2.887)	(2.450)	(2.698)	(2.409)	(2.911)	(2.605)
Corruption control	5.053*	5.701**	4.772*	5.365**	5.812*	6.346**
	(2.943)	(2.666)	(2.704)	(2.584)	(3.080)	(2.882)
ln Population density	47.320***	55.020***	48.155***	55.040***	44.140***	51.193***
	(11.772)	(12.280)	(11.492)	(12.257)	(11.962)	(13.486)
Primary schooling	0.077	0.107	0.076	0.112	0.081	0.118
	(0.091)	(0.097)	(0.090)	(0.096)	(0.091)	(0.098)

	SRH ODA		TotH ODA		RH ODA	
VARIABLES	**Main Model**	**Lagged IVs**	**Main Model**	**Lagged IVs**	**Main Model**	**Lagged IVs**
Female labor part.	0.105	0.052	0.106	0.028	0.060	-0.023
	(0.267)	(0.255)	(0.267)	(0.253)	(0.259)	(0.255)
Observations	685	665	695	670	663	641
Number of countries	100	101	101	101	100	101
Two-way FE	YES	YES	YES	YES	YES	YES
Adj. within R-squared	0.437	0.488	0.432	0.476	0.448	0.491
Rho	0.987	0.991	0.988	0.991	0.986	0.989

Note: All measures of health ODA are in USD per capita (constant 2020). Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. In the Lagged IVs model, all independent variables, including ODA, are lagged by one year.

Table A16. FE estimation – Effects of health ODA per capita on *ART coverage* (main model vs. lagged IVs model)

	SRH ODA		TotH ODA		RH ODA	
VARIABLES	**Main Model**	**Lagged IVs**	**Main Model**	**Lagged IVs**	**Main Model**	**Lagged IVs**
Health ODA	0.531***	0.546***	0.332***	0.338***	0.575	0.568
	(0.076)	(0.081)	(0.070)	(0.071)	(0.833)	(0.773)
ln GDP pc	-1.695	-1.030	-2.335	-1.729	-3.497	-2.828
	(7.291)	(7.359)	(7.366)	(7.445)	(7.384)	(7.443)
GHE share of CHE	-0.014	-0.027	-0.014	-0.028	-0.047	-0.060
	(0.070)	(0.071)	(0.071)	(0.071)	(0.070)	(0.070)
Government effective	6.128*	6.772**	6.088*	6.772**	6.274*	6.951*
	(3.255)	(3.341)	(3.238)	(3.328)	(3.482)	(3.579)
Corruption control	5.274*	5.634*	5.278*	5.655*	6.412*	6.770**
	(3.108)	(3.001)	(3.165)	(3.051)	(3.298)	(3.206)
ln Population density	14.208	18.655	9.790	14.211	9.995	14.155
	(15.400)	(15.619)	(15.435)	(15.640)	(16.938)	(17.248)
Primary schooling	-0.052	-0.044	-0.056	-0.048	-0.053	-0.043
	(0.071)	(0.073)	(0.070)	(0.072)	(0.072)	(0.075)

	SRH ODA		TotH ODA		RH ODA	
VARIABLES	**Main Model**	**Lagged IVs**	**Main Model**	**Lagged IVs**	**Main Model**	**Lagged IVs**
Female labor part.	-0.181	-0.224	-0.184	-0.230	-0.246	-0.290
	(0.295)	(0.305)	(0.297)	(0.305)	(0.310)	(0.319)
Observations	1,306	1,306	1,307	1,307	1,290	1,290
Number of countries	90	90	90	90	90	90
Two-way FE	YES	YES	YES	YES	YES	YES
Adj. within R-squared	0.857	0.867	0.854	0.864	0.845	0.855
Rho	0.897	0.929	0.850	0.900	0.861	0.904

Note: All measures of health ODA are in USD per capita (constant 2020). Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. In the Lagged IVs model, all independent variables, including ODA, are lagged by one year.

Dynamic FE model – System GMM

The relationship between service coverage and health ODA may be dynamic, meaning that previous SRH services coverage might be correlated with contemporary ODA allocation decisions. To account for the potential endogeneity of ODA (and covariates) due to this dynamic effect, we used a two-step system GMM estimator with country and time fixed effects on our data (Frees 2004, Cameron and Trivedi 2005). For this estimation, we used the community-contributed xtdpdgmm command in STATA (Kripfganz 2020).

The system-GMM estimator was applied to the three-year averaged data with six time periods, to limit bias from missing data and measurement error. Based on their suggested relevance from the main models, the following covariates were included in the system-GMM models; ln GDP pc, GHE/CHE, corruption control, ln population density, and primary school enrollment.

As a starting point, ODA was considered predetermined, and all other covariates were considered endogenous. Lagged forward-orthogonal-deviations (fod) of these variables were used as instruments for the current levels of the regressors. While first-differences (diff) are most commonly used, the fod-GMM estimator retains more information than the diff-GMM estimators in unbalanced panels (Kripfganz 2020), such as ours. Our initial candidate model included all available instruments for the fod-transformed models. The two-step system-GMM was implemented with robust and Windmeijer corrected standard errors and the instrument set was collapsed, to reduce the number of instruments. This was necessary given the relatively small number of countries (N) in our panel.

For each system-GMM model estimated, a Hansen test for overidentifying restrictions was conducted as well as AR(1) and AR(2) tests for first and second-order autocorrelation, respectively. Moreover, the Akaike (AIC) and Bayesian (BIC) information criteria

were computed to compare candidate models and support the specification search. Specifications of individual models were systematically adjusted (from the baseline choice) to fit the stringent identifying assumptions. For instance, we experimented with including a different number of instruments (e.g., limiting instruments to two-period lags). Also, we tested the models when classifying some of the covariates as pre-determined, and even exogenous.

In line with the main FE estimation, the results from the system-GMM estimation generally suggested positive associations between sectoral health ODA and SRH services. However, the magnitude and significance of these positive associations was highly sensitive to model specifications and variable classifications. The GMM modelling approach was designed to estimate models with relatively few time periods and large panels (N) and requires a quite large number of observations to provide robust estimates. Thus, it may not be ideal for our country-level panel data. The reduction in potential endogeneity bias from using the system-GMM estimator may come at the cost of loss in precision (Frees 2004).

References

Cameron, A. C. and P. K. Trivedi (2005). Microeconometrics: Methods and Applications. New York, Cambridge University Press.

Frees, E. W. (2004). Longitudinal and Panel Data: Analysis and Applications in the Social Sciences. Cambridge, UK, Cambridge University Press.

Kripfganz, S. (2020). Generalized method of moments estimation of linear dynamic panel-data models. 2020 Stata conference 14, Stata Users Group.

Annex V. Data and variable definitions

Table A1. Summary statistics of key variables

VARIABLE	N	mean	sd	min	max
ODA variables					
Total Health ODA, US$ millions	2,235	113.1	185.9	0.0143	1,346
SRH ODA, US$ millions	2,186	50.81	106.6	0.000597	778.4
RH care ODA, US$ millions	2,115	8.211	16.72	-0.0128	176.3
Total Health ODA, US$ pc	2,235	12.71	27.52	0.0299	515.1
SRH ODA, US$ pc	2,186	3.695	7.482	0.00102	103.3
RH care ODA, US$ pc	2,115	0.545	0.975	-0.0260	21.63
Total Health ODA, US$ pc (multilateral)	2,199	4.544	9.586	-0.0788	303.7
SRH ODA, US$ pc (multilateral)	2,138	1.526	3.610	-0.0260	103.3
RH care ODA, US$ pc (multilateral)	2,060	0.196	0.413	-0.0260	7.232
Total Health ODA, US$ pc (bilateral)	2,229	8.260	23.79	0.000743	500.0
SRH ODA, US$ pc (bilateral)	2,033	2.368	5.586	-0.00109	58.55
RH care ODA, US$ pc (bilateral)	1,673	0.447	0.959	4.07e-07	21.63
SRH service outcomes					
Skilled birth attendance (%)	950	82.17	22.79	5.700	100
Modern contraceptive prevalence (%)	505	36.07	20.29	0.900	84
ART coverage (%)	1,837	25.40	23.27	0	98

VARIABLE	N	mean	sd	min	max
Skilled birth attendance, Interpolated (%)	1,724	76.01	24.75	5.700	100
Contraceptive Prevalence, Interpolated (%)	1,384	35.33	20.37	0.900	84
ART coverage, Interpolated (%)	1,840	25.36	23.27	0	98
Covariates					
GDP per capita (constant, PPP)	2,118	6,868	5,493	715.5	41,249
GHE as share of CHE (%)	2,024	40.35	20.29	0.891	97.12
Government Effectiveness Index (0-5)	2,228	1.855	0.583	0.0497	3.549
Corruption Control Index (0-5)	2,240	1.890	0.563	0.584	4.163
Population Density (per sq. km)	2,214	124.5	187.5	1.579	1,802
Primary school enrolment (% gross)	1,721	103.4	16.49	23.36	150.0
Female labor market part. (%)	2,166	50.87	19.05	6.081	87.81
TotH ODA as share of GHE (%)	2,016	71.9	1.181	7.87e-03	1161.4
SRH ODA as share of GHE (%)	1,969	26.8	0.488	4.84e-04	505.1
RH care ODA as share of GHE (%)	1,905	5.28	0.132	-0.0416	194.9

Note: Table A1 presents summary statistics for the 119 LLMIC over the period 2002–2020. The unit of observation is country-year. The panel is unbalanced. Regarding negative ODA values, loan repayments are recorded as negative and deducted from ODA. In some cases, loan repayments are higher than new ODA and net ODA will show as a negative number. Data sources: OECD-CRS, WGI, WDI.

Table A2. Between and within country variation for key variables

Variable		Mean	Std. Dev	Min.	Max	Observations
Total Health ODA, millions USD	overall	113.055	185.913	0.014	1345.917	N = 2235
	within		163.343	1.193	815.679	n = 119
	between		88.822	-545.705	643.293	T-bar = 18.782
SRH ODA, millions USD	overall	50.815	106.640	0.001	778.379	N = 2186
	within		92.815	0.197	442.176	n = 119
	between		51.036	-372.779	389.265	T-bar = 18.370
RH care ODA, millions USD	overall	8.211	16.715	-0.013	176.323	N = 2115
	within		12.784	0.010	70.400	n = 119
	between		10.637	-46.226	114.135	T-bar = 17.773
Total Health ODA, USD per capita	overall	12.70899	27.521	0.029	515.122	N = 2235
	within		19.405	0.113	115.783	n = 119
	between		19.498	-101.633	415.909	T-bar = 18.782
SRH ODA, USD per capita	overall	3.695	7.482	0.001	103.345	N = 2186
	within		6.098	0.033	39.273	n = 119
	between		4.490	-32.653	83.495	T-bar = 18.370
RH care ODA, USD per capita	overall	0.545	0.975	-0.0260	21.625	N = 2115
	within		0.884	0.002	7.566	n = 119
	between		0.738	-6.825	14.603	T-bar = 17.773

Variable		Mean	Std. Dev	Min.	Max	Observations
Skilled birth attendance (% of all births)	overall	82.1727	22.794	5.7	100	N = 950
	within		23.154	14.55	99.979	n = 119
	between		8.378	40.058	115.280	T-bar = 7.983
Modern contraceptive prevalence (% of married women)	overall	36.071	20.286	0.9	84	N = 505
	within		20.402	1.2	82.25	n = 115
	between		5.156	7.505	55.605	T-bar = 4.391
ART coverage (% of HIV positive)	overall	25.404	23.267	0	98	N = 1837
	within		11.305	3.526	56.158	n = 97
	between		20.359	-26.175	87.824	T-bar = 18.938
GDP per capita (PPP), constant 2017 international $	overall	6868.242	5492.844	715.454	41249.49	N = 2118
	within		5262.352	816.498 -	29441.7	n = 113
	between		1596.93	5358.72	18676.03	T-bar = 18.743
Domestic government health expenditure (% current health expend.)	overall	40.352	20.289	0.891	97.121	N = 2024
	within		19.242	5.208	87.518	n = 115
	between		6.726	-2.039	66.542	T-bar= 17.6
Corruption control, rated from 0 (low) – 5(high)	overall	1.890	0.563	0.584	4.163	N = 2240
	within		0.532	0.846	3.582	n = 119
	between		0.202	0.450	2.745	T-bar = 18.824

Variable		Mean	Std. Dev	Min.	Max	Observations
Government effectiveness, rated from 0(low) – 5(high)	overall	1.855	0.583	0.050	3.549	N = 2228
	within		0.551	0.369	3.091	n = 119
	between		0.214	0.873	2.958	T-bar = 18.723
Population density (people per sq. km of land area)	overall	124.517	187.511	1.579	1801.807	N = 2214
	within		184.966	1.805	1332.512	n = 118
	between		30.110	-227.378	593.812	T-bar = 18.763
School enrollment primary, % gross	overall	103.394	16.492	23.364	149.957	N = 1721
	within		16.032	23.364	139.081	n = 116
	between		7.748	53.591	145.932	T-bar = 14.836
Female labor market participation rate (% of female pop. ages 15+)	overall	50.872	19.0508	6.081	87.812	N = 2166
	within		18.993	10.025	84.2072	n = 114
	between		2.2795	39.730	65.8904	T-bar = 19

Note. The unit of observation is country-year. The standard deviations show that, while there is variance across countries, there is substantial within-country variation in SRH services outcomes, health ODA received, and covariates. Such within-country variability is required to be able to apply FE models.
Data sources: OECD-CRS, WGI, WDI.

Table A3. Definitions and sources of variables and indicators

	Variable	Indicator (unit of measurement)	Source (period)	Comment
Independent variables ODA collected for multilateral, bilateral and all donors	Health ODA	Health ODA disbursement (constant 2020 USD)	OECD-CRS (2002-2020)	Purpose code 120
	SRH ODA	Population programs & policies and reproductive health ODA (constant 2020 USD)	OECD-CRS (2002-2020)	Purpose code 130
	PP ODA	Population policy & programs ODA (constant 2020 USD)	OECD-CRS (2002-2020)	Purpose code 13010
	RH ODA	Reproductive healthcare ODA (constant 2020 USD)	OECD-CRS (2002-2020)	Purpose code 13020
	FP ODA	Family planning ODA (constant 2020 USD)	OECD-CRS (2002-2020)	Purpose code 13030
	STD ODA	STD-control ODA (constant 2020 USD)	OECD-CRS (2002-2020)	Purpose code 13040
	PD ODA	Personnel development ODA (constant 2020 USD)	OECD-CRS (2002-2020)	Purpose code 13081
Dependent variables	SBA	Births attended by SBA (% of live births)	WDI (2002-2020)	
	Contraceptive	Contraceptive prevalence, any modern methods - % of married women (aged 15-49)	WDI (2002-2020)	
	ART coverage	Antiretroviral therapy coverage (% living with HIV)	WDI (2002-2020)	

	Variable	Indicator (unit of measurement)	Source (period)	Comment
Control variables	GDP per capita	GDP per capita (constant 2017 international, adjusted for purchasing power parity)	WDI (2002-2020)	PPP
	GHE per capita	Domestic general government health expenditure per capita (current US$)	WDI (2002-2020)	
	IG	Income classification	World Bank (2002-2020)	L, LM, UM, H
	GHE as share of CHE	Domestic general government health expenditure (% of current health expenditure)	WDI (2002-2019)	
	Corruption Control	Control of corruption estimate, -2.5 (low) to 2.5 (high)	WGI (2002-2020)	Re-scaled 0 (low) to 5 (high)
	Government Effective	Government effectiveness estimate, -2.5 (low) to 2.5 (high)	WGI (2002-2020)	Rescaled from 0 (low) to 5 (high)
	Primary Schooling	Enrolment rate, primary (% gross)	WDI (2002-2020)	
	Female labor part.	Labor force participation rate, female (% of ages 15+)	WDI (2002-2020)	
	Population Density	Population density (pop. per km^2 land)	WDI (2002-2020)	
	Population	Total population	WDI (2002-2020)	

Note: Corruption Control and Government effectiveness estimates were re-scaled from 0-5 to be able to apply logarithmic transformations.
Source: Authors' compilation.

Table A4. Sample of 119 ODA-eligible countries classified as low- or lower-middle-income in 2002

Country	id	IG 2002	IG 2020	Note
Afghanistan	1	L	L	
Albania	2	LM	UM	
Algeria	3	LM	LM	
Angola	4	L	LM	
Armenia	5	LM	UM	
Azerbaijan	6	L	UM	
Bangladesh	7	L	LM	
Belarus	8	LM	UM	
Benin	9	L	LM	
Bhutan	10	L	LM	
Bolivia	11	LM	LM	
Bosnia and Herzegovina	12	LM	UM	
Brazil	13	LM	UM	
Burkina Faso	14	L	L	
Burundi	15	L	L	
Cabo Verde	16	LM	LM	
Cambodia	17	L	LM	
Cameroon	18	L	LM	
Central African Republic	19	L	L	
Chad	20	L	L	
China	21	LM	UM	
Colombia	22	LM	UM	
Comoros	23	L	LM	
Congo, Dem. Rep.	24	L	L	
Congo, Rep.	25	L	LM	
Cote d'Ivoire	26	L	LM	
Cuba	27	LM	UM	Lacking data on GDP pc

Country	id	IG 2002	IG 2020	Note
Djibouti	28	LM	LM	Lacking data on GDP pc
Dominican Republic	29	LM	UM	
Ecuador	30	LM	UM	
Egypt, Arab Rep.	31	LM	LM	
El Salvador	32	LM	LM	
Equatorial Guinea	33	L	UM	
Eritrea	34	L	L	
Eswatini	35	LM	LM	
Ethiopia	36	L	L	
Fiji	37	LM	UM	
Gambia, The	38	L	L	
Georgia	39	L	UM	
Ghana	40	L	LM	
Guatemala	41	LM	UM	
Guinea	42	L	L	
Guinea-Bissau	43	L	L	
Guyana	44	LM	UM	
Haiti	45	L	LM	Lacking data on schooling
Honduras	46	LM	LM	
India	47	L	LM	
Indonesia	48	L	LM	
Iran, Islamic Rep.	49	LM	LM	
Iraq	50	LM	UM	
Jamaica	51	LM	UM	
Jordan	52	LM	UM	
Kazakhstan	53	LM	UM	
Kenya	54	L	LM	
Kiribati	55	LM	LM	Lacking data on female labor part.
Korea, Dem. People's Rep.	56	L	L	Lacking data on female labor part.

Country	id	IG 2002	IG 2020	Note
Kosovo	57	LM	UM	Lacking data on service coverage
Kyrgyz Republic	58	L	LM	
Lao PDR	59	L	LM	
Lesotho	60	L	LM	
Liberia	61	L	L	
Madagascar	62	L	L	
Malawi	63	L	L	
Maldives	64	LM	UM	
Mali	65	L	L	
Marshall Islands	66	LM	UM	Lacking data on female labor part.
Mauritania	67	L	LM	
Micronesia, Fed. Sts.	68	LM	LM	Lacking data on female labor part.
Moldova	69	L	UM	
Mongolia	70	L	LM	
Montenegro	71	LM	UM	Lacking data on GHE/CHE
Morocco	72	LM	LM	
Mozambique	73	L	L	
Myanmar	74	L	LM	
Namibia	75	LM	UM	
Nepal	76	L	LM	
Nicaragua	77	L	LM	
Niger	78	L	L	
Nigeria	79	L	LM	
North Macedonia	80	LM	UM	
Pakistan	81	L	LM	
Papua New Guinea	82	L	LM	
Paraguay	83	LM	UM	
Peru	84	LM	UM	
Philippines	85	LM	LM	

Country	id	IG 2002	IG 2020	Note
Rwanda	86	L	L	
Samoa	87	LM	LM	
Sao Tome and Principe	88	L	LM	
Senegal	89	L	LM	
Serbia	90	LM	UM	
Sierra Leone	91	L	L	
Solomon Islands	92	L	LM	
Somalia	93	L	L	Lacking data on GHE/CHE
South Africa	94	LM	UM	
South Sudan	95	L	L	Lacking data on GHE/CHE
Sri Lanka	96	LM	LM	
St. Vincent and the Grenadines	97	LM	UM	
Sudan	98	L	L	
Suriname	99	LM	UM	
Syrian Arab Republic	100	LM	L	Lacking data on GDP pc
Tajikistan	101	L	LM	
Tanzania	102	L	LM	
Thailand	103	LM	UM	
Timor-Leste	104	L	LM	
Togo	105	L	L	
Tonga	106	LM	UM	
Tunisia	107	LM	LM	
Turkiye	108	LM	UM	
Turkmenistan	109	LM	UM	Lacking data on schooling
Tuvalu	110	LM	UM	Lacking data on service coverage
Uganda	111	L	L	

Country	id	IG 2002	IG 2020	Note
Ukraine	112	LM	LM	
Uzbekistan	113	L	LM	
Vanuatu	114	LM	LM	
Vietnam	115	L	LM	
West Bank and Gaza	116	LM	LM	Lacking data on GHE/CHE
Yemen, Rep.	117	L	L	
Zambia	118	L	LM	
Zimbabwe	119	L	LM	

Note: Data on Income Group classification from the World Bank.
Abbreviations; L, low- income countries; LM, lower-middle-income countries.