

The impact of aid sanctions on maternal and child mortality, 1990–2019: a panel analysis



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Summary

Background Aid sanctions are a type of financial punishment imposed on a country by other countries or international organisations in response to a political coup, armed conflict, or human rights abuses. Humanitarian catastrophes in Burkina Faso, Sudan, and Myanmar have brought aid sanctions to the centre of the foreign affairs strategy debate because of their inadvertent negative effects on human health. Our analysis investigates the effects of aid sanctions from 1990 to 2019 on maternal and child mortality. These questions are particularly relevant in the context of the abrupt shift in US foreign aid policy in 2025, leading to aid prohibitions that might resemble aid sanctions in their effects.

Methods Data were drawn from a broad set of sources, including population health metrics databases, established sanctions databases, and a novel global dataset on aid sanctions created for this study. We assessed the prevalence of the use of aid sanctions worldwide during 1990–2019 and estimated their impact on official development assistance (ODA) and development assistance for health (DAH). We investigated the effect of aid sanctions on infant (age <1 year), children younger than 5 years (hereafter referred to as under-5), maternal (within 42 days of the end of pregnancy), and all-age mortality rates using panel difference-in-differences ordinary least squares estimation. We applied linear regression methods and included country and year fixed effects, country-specific time trends, and multiple control variables. We also conducted a series of sensitivity analyses, including entropy balancing, to confirm the validity of our results.

Findings During our study period, 67 low-income or middle-income countries (LMICs) and sovereign territories (hereafter referred to as countries) were targeted by 88 unique aid sanction episodes. Relative to our control group of 66 never-sanctioned countries, aid sanctions reduced ODA by an estimated US\$213·07 million per year (95% CI 502·28 to –76·12) for the average target country and reduced DAH by \$16·42 million (32·57 to 0·27)—a 17% reduction in DAH. Aid sanctions resulted in an additional 129·3 infant deaths per 100 000 livebirths (11·7 to 246·9), an additional 47·1 under-5 deaths per 100 000 livebirths (–2·8 to 97·0), and an additional 10·9 (2·2–19·6) maternal deaths per 100 000 livebirths, per year. Relative to mean in-sample mortality rates, aid sanctions thus increased infant, under-5, and maternal mortality rates by 3·1%, 3·6%, and 6·4%, respectively, on an annual basis.

Interpretation Over the period 1990–2019, infant, under-5, and maternal mortality rates among LMICs declined at average annualised rates of 2·6%, 3·2%, and 2·0%, respectively. Aid sanction episodes lasting 5 years—the median duration observed in our sample—would thus negate nearly 30% of the overall improvements in infant and under-5 mortality seen in the average LMIC over this period and approximately 60% of the improvements in maternal mortality. Our findings suggest that aid sanctions are leading to increases in child and maternal mortality via reductions to ODA and DAH and they can inadvertently compound human suffering. This research provides quantitative evidence to support growing legislative awareness of the importance of assessing health impacts while aid sanctions are imposed, and highlights the need to monitor the consequences of foreign aid policies by donor countries, such as foreign aid prohibitions and restrictions.

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Introduction

Sanctions are restrictive foreign policy tools applied by individual countries, groups of countries (eg, the EU), or international organisations (eg, the UN) to address perceived violations of international law or to induce targeted states to modify their behaviour.¹ Aid sanctions are a unique type of sanction that target development assistance in response to certain types of geopolitical

events in the target nation, including political coups, armed conflicts, and human rights violations (figure 1).² Development assistance represents a sizeable proportion of the funds used to run health-care systems in recipient countries, reaching an average of 28·5% for all low-income countries in 2019.² Recent humanitarian catastrophes in Burkina Faso, Sudan, and Myanmar have brought the issue of aid restrictions and prohibitions (aid

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For the Arabic translation of the abstract see Online for appendix 1

For the French translation of the abstract see Online for appendix 2

For the Mandarin translation of the abstract see Online for appendix 3

For the Russian translation of the abstract see Online for appendix 4

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Research in context

Evidence before this study

Previous health research has illuminated the negative consequences of sanctions for civilian populations in sanctioned nations, focusing predominantly on economic sanctions. Health research on the effects of general economic sanctions on local populations include case studies on Iraq, Yugoslavia, Nicaragua, South Africa, Cuba, and Venezuela. Those studies have shown increases in population mortality, malnutrition, and restricted access to health goods due in part to economic hardship leading to the deterioration of health-care systems during sanction episodes. Lessons of widespread human suffering resulting from the broad sanctions that were mandated by the UN in Iraq and Haiti in the 1990s marked a shift from multilateral UN sanctions to the unilateral imposition of targeted sanctions by individual nations. The increasing use of targeted sanctions, such as aid sanctions, is part of a global effort to minimise humanitarian suffering. We conducted a literature review on aid sanctions and maternal and child health in PubMed, Web of Science (Core Collection, BIOSIS, Current Contents Connect, CABI, Data Citation Index, Derwent Innovations Index, Inspec, KCI, SciELO, and Zoological Record), and ProQuest (PAIS International) from database inception to July 24, 2024, with no language restrictions. We searched for key words associated with aid sanctions and health, including foreign aid prohibition, aid restriction, aid cut, and sanctions. We also searched the grey literature via Google and Google Scholar for white papers, government documents, and working papers. We did not find any studies that investigated the impact of aid sanctions on human health broadly, nor on maternal and child mortality specifically.

Added value of this study

To our knowledge, this is the first study to investigate the impact of aid sanctions on human health. We built for this purpose a publicly available aid sanctions dataset spanning the period 1950–2019. Our econometric panel analysis focused on the

impact of aid sanctions across 113 countries over the period 1990–2019. This global approach enabled us to estimate the average effect of aid sanctions on mortality rates while controlling for potential country-specific confounders. We found that aid sanctions reduced official development assistance and development assistance for health and led to significant and meaningful increases in infant, under-5, and maternal mortality.

Implications of all the available evidence

Political and social instability—such as armed conflicts, coups d'état, and human rights violations—are increasing substantially. Since 2020, military officers have seized power in six African countries; UN Secretary-General António Guterres has referred to this problem as an epidemic of coups. Aid sanctions are currently the primary geopolitical tool used to respond to these events. Our econometric panel analysis shows that aid sanctions worked against UN Sustainable Development Goal 3—to “ensure healthy lives and promote well-being for all at all ages”—by slowing or reversing previous progress in reducing infant, under-5, and maternal mortality. Humanitarian disasters in Burkina Faso, Sudan, and Myanmar brought the world's attention to the potential problem of aid sanctions prohibiting foreign aid, and the US Congressional Research Service, a federal legislative agency with a mandate of generating timely research and analysis to inform legislative debate, has suggested that the US Congress consider a waiver mechanism to lessen the duration or intensity of aid sanctions in order to minimise unintended humanitarian suffering. Our findings invite critical legislative awareness and monitoring of the use of aid sanctions to promote international legal norms of human rights, democracy, and cessation of conflict while at the same time minimising unintended humanitarian harm to local populations, especially mothers and children. This study also highlights the need to understand how foreign aid prohibitions impact health and to consider waivers for life-saving programmes.

sanctions) to the forefront of the international policy debate.^{3,4} In 2023, the Congressional Research Service outlined a series of questions that the US Congress could consider when evaluating proposed aid sanctions on fragile nations in order to avoid inadvertent humanitarian harm.⁵ On Feb 7, 2025, the US Congress introduced a bill to the House of Representatives to abolish the United States Agency for International Development (USAID).⁶ The shutdown of USAID has sparked international debate on foreign aid prohibitions and the impact on human health.

Our study examines the extent to which past aid sanctions have affected maternal and child mortality in sanctioned countries. Using population health metrics from multiple major databases, as well as a novel aid sanctions dataset assembled for this study, we examine the relationship between aid sanctions, official

development assistance (ODA), development assistance for health (DAH), and measures of infant mortality (age <1 year), mortality in children younger than 5 years (hereafter referred to as under-5 mortality), and maternal mortality (death within 42 days of the end of pregnancy). Understanding how targeted aid sanctions impact human health, with mortality representing the most severe, objective, and widely available health metric, is a key input for foreign policy planning and for protecting progress on global development goals.

Methods

Aid sanctions dataset

We created a novel aid sanctions dataset for this study that is publicly and freely available online. To build this dataset, we searched four established sanctions databases—the HSE/HSEO Sanctions Database, the Threat and

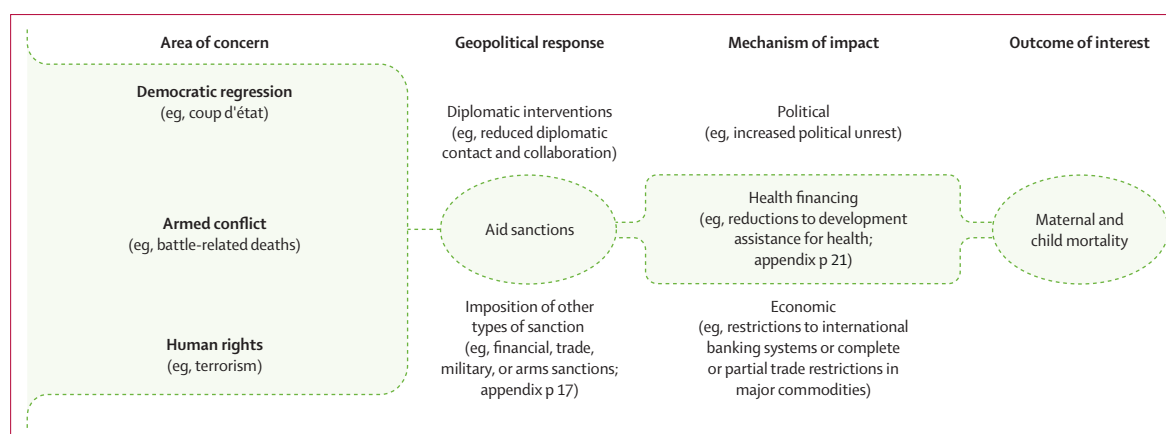


Figure 1: Conceptualisation of relationship between aid sanctions and maternal and child mortality

Imposition of Economic Sanctions database, the Targeted Sanctions Consortium database, and the EUSANCT database—for evidence of any aid sanction episodes during 1950–2019 and extracted the identity of the sanctioning and sanctioned countries, the year imposed, and the year lifted (if not ongoing) for each sanction case.^{7–10} We checked for additional aid sanctions not captured in these four databases by searching for cases imposed by the EU and the USA in the online content of the European Parliament and US Department of State, respectively.^{11,12} For other individual nations and regional bodies imposing aid sanctions, we screened online search engines to gather information about these cases and then confirmed the information with official government documents, such as policy orders, on government websites. Dataset coding was done by AK. To ensure consistency and reliability, RMG, YVY, and a research assistant reviewed the aid sanctions dataset independently.

Data on other types of sanction

We used data from the Global Sanctions Database, the largest and most up-to-date database on sanctions, covering more than 1300 sanction cases worldwide between 1950 and 2022,¹³ to control for the effect that all other types of sanctions (apart from aid sanctions) might have had on our outcomes of interest. In conjunction with other econometric modelling choices detailed later, this serves to account for the endogeneity of sanction imposition (of all types), which might otherwise confound our estimates of the causal effect of aid sanctions on mortality. These different types of sanctions are outlined in appendix 5 (p 17).

Development assistance data

We used ODA data from the International Development Statistics database of the Organisation for Economic Co-operation and Development (OECD).¹⁴ The OECD dataset includes aggregate official and private aid disbursements and development resource flows (net disbursements, grant disbursements, and loan

commitments) from all bilateral and multilateral donors for the period 1960–2019. Data on DAH disbursements and total health expenditures were drawn from the Global Health Financing Database from the Institute for Health Metrics and Evaluation (IHME), which covers official DAH flows from 1990 to 2019.¹⁵

Mortality data

We used mortality estimates for 1990–2019 from the IHME Global Burden of Disease Study.¹⁶ We prioritised the IHME data over similar data from the World Bank because the IHME data provide a longer time series for maternal mortality.¹⁷

Other data

Real gross domestic product (GDP) per capita data were obtained from the World Bank's World Development Indicators database.¹⁸ Data on armed conflict and battle-related deaths were obtained from the Uppsala Conflict Data Program, which collects disaggregated data on organised violence, civil war, and armed conflict.¹⁹ We also used data from the Polity5 database of the Center for Systemic Peace to account for democratic governance and government transitions in an additional robustness check.²⁰

Estimation sample

Merging the aforementioned data sources yielded a main estimation sample consisting of 113 countries, of which almost half ($n=67$) were the targets of one or more unique aid sanction episodes over the period 1990–2019. The 1990–2000 decade was the height of sanction use, which, along with other data limitations, explains our choice of 1990 as the first year for our study.²¹

See Online for appendix 5

Statistical analysis

We performed our analysis in three stages: a preliminary analysis, main analysis, and sensitivity analyses. In our preliminary analysis, we assessed the prevalence of the use of aid sanctions worldwide to gain a better

understanding of the countries affected by aid sanctions. We applied panel estimation methods to provide evidence of the mechanism of impact of aid sanctions on ODA and DAH disbursements. We describe the prevalence and frequency of use of aid sanctions during the period 1990–2019, as well as their intensity and geographical distribution.

In our main analysis, we investigated the effect of aid sanctions on infant, under-5, maternal, and all-age mortality rates using panel difference-in-differences ordinary least squares estimation. The key covariate of interest was an indicator variable identifying when a country was targeted by aid sanctions. Our econometric model included a set of country fixed effects and country-specific linear time trends to control for any time-invariant country characteristics and country-specific trends that might otherwise result in a spurious association between aid sanctions and mortality rates, and year fixed effects were included to capture global trends in the evolution of sanctions and mortality rates. Our set of country-specific time-varying controls included several additional factors that might have affected the imposition of sanctions while also having an independent impact on measured mortality rates. These covariates included: the effect of other (non-aid) sanctions, the imposition of which is likely to be precipitated by the same factors as aid sanctions but ought to have a less direct effect on child and maternal health; GDP per capita as a measure of the level of economic development; battle-related deaths, which capture variation in deaths that are directly driven by conflict; and population, which accounts for country size. Additional details about the statistical analysis are provided in appendix 5 (pp 8–9).

Finally, we conducted five sensitivity analyses to confirm the robustness of the main results. Each of these analyses imposed particular sample restrictions based on years or countries of coverage; hence, we implemented these incrementally. First, we replicated our main analysis using entropy balancing. This technique consists of reweighting observations across treatment (sanctioned) and control (unsanctioned) countries to achieve covariate balance between groups and has been shown to outperform conventional matching and propensity score methods.²² We balanced our sample of ever-sanctioned and never-sanctioned countries based on the mean and variance of all-age mortality, population, and battle-related deaths, along with per capita ODA, DAH, and real GDP as of the first year in our sample. This approach addresses the potential concern that sanctioned countries remain systematically different—even after accounting for key control variables—from unsanctioned countries based on pretreatment characteristics. Second, we replicated our main specification while controlling for the Polity5 democratic governance index to account for the possibility that regime changes or democratic repression might attract the imposition of aid sanctions while simultaneously

harming human health. Third, we replicated our main analysis using World Bank mortality data and removing controls for battle-related deaths to include the largest possible sample of countries. Fourth, we tested for differential effects of longer-lasting (ie, more severe) sanctions, defined as lasting longer than 5 years (ie, the median duration in our sample).²³ The baseline effect of aid sanctions amounts to the effect of sanctions that were in place for less than 5 years, whereas the interaction effect of aid sanctions \times long duration denotes the incremental effect of sanctions that lasted at least 5 years. Fifth, to evaluate the evolution of the effect of aid sanctions over time relative to the year of sanction imposition, we re-estimated our main specification as an event study, obtaining estimates with the same set of control variables, fixed effects, and country-specific time trends as in the main analysis. This approach consisted of interacting the aid sanction indicator with period-specific binary time indicators for periods $t=-6, -5, \dots, 0, 1, \dots, 6$, where period $t=0$ denotes the year of sanction imposition, and periods $t=-6$ and $t=6$ subsume all earlier and later periods, respectively. Given the purpose of this exercise—to trace the effects of sanctions on mortality over time—and to avoid compositional changes in the set of sanctioned countries in periods $t=1$ to $t>5$, we limited our analysis exclusively to aid sanction episodes that lasted at least 5 years. This approach is equivalent to decomposing our main difference-in-differences estimates into 12 periods of leading and lagged effects for the subset of long-lasting sanction episodes documented during our sample period.

Role of the funding source

The funders of the study had no role in the study design, data collection, data analysis, data interpretation, or writing of the report.

Results

The novel aid sanctions dataset comprises 85 countries or sovereign territories (hereafter collectively referred to as countries for simplicity) with a total of 130 unique sanctioning episodes during 1950–2019. During our period of analysis from 1990 to 2019, 67 low-income or middle-income countries (LMICs) were the target of 88 unique aid sanction episodes (figure 2). We included another 66 never-sanctioned countries in our analysis to assist with causal identification by enhancing the precision of our estimates of key control variables. Ordinary least squares estimates of the effect of aid sanctions on different measures of aid disbursements are presented in table 1. Aid sanctions were associated, on average, with reductions of US\$213.08 million (95% CI -76.12 to 502.28) per year in ODA and \$16.42 million (0.27 to 32.57) per year in DAH, which represents a nearly 17% reduction in annual DAH. On a per-capita basis, aid sanctions were associated with reductions of \$13.66 (2.13 to 25.19) in ODA and \$1.61

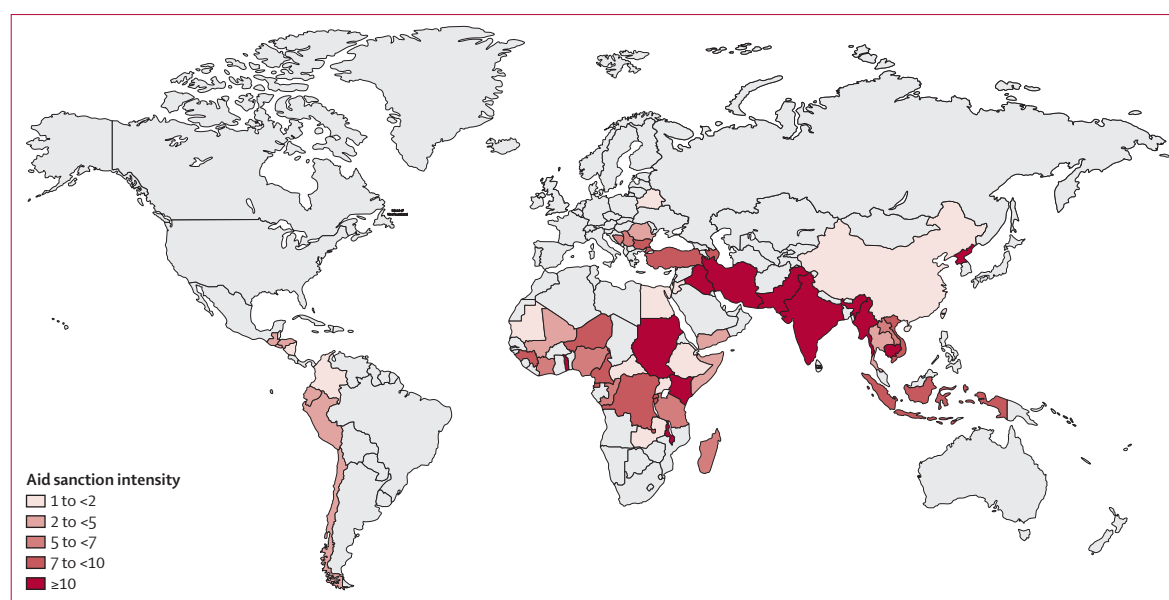


Figure 2: Global aid sanctions 1990–2019

Aid sanction intensity is a measure calculated as the number of years under aid sanctions multiplied by the number of sending nations.

(0·86 to 2·37) in DAH. The reduction in DAH triggered by aid sanctions amounts to a 2·40 percentage point (1·03 to 3·76) decrease in DAH as a share of total health expenditure—a nearly 28% reduction.

Aid sanctions were associated with statistically significant increases in infant, under-5, and maternal mortality rates, and those increases were greater than for other (non-aid) sanctions (table 2). Our estimates indicate that aid sanctions led to an additional 129·29 (95% CI 11·66 to 246·92) deaths per 100 000 infants per year, 47·13 (–2·78 to 97·04) deaths per 100 000 children younger than 5 years, and 10·90 (2·16 to 19·64) maternal deaths per 100 000 livebirths, with an average of 31·59 (1·01 to 62·18) additional deaths per 100 000 livebirths across all ages. To contextualise these estimates, the mean infant mortality rate in our estimation sample was 4140 per 100 000. Our estimate amounts to a 3·1% increase in infant mortality relative to the average. Under-5 and maternal mortality rates increased by 3·6% and 6·4%, respectively. The effect of aid sanctions on deaths across all categories (infant, under-5, maternal, and all ages) was substantially larger than the effect of other sanctions (table 2).

We conducted sensitivity analyses that replicated the main analysis from table 2 and the results were broadly consistent with our main findings (appendix 5 p 10). In the sensitivity analysis using entropy balancing, despite the more demanding specification (which also required dropping all countries that were subject to aid sanctions in 1990), we obtained estimates of the effect of aid sanctions that generally were slightly larger for infant, under-5, and all-age mortality rates than in our main analysis. Consistent with the more demanding analysis, these estimates were also associated with larger standard

errors, and the effect of aid sanctions on maternal mortality rates in the entropy-balanced analysis was not statistically distinguishable from zero at the 10% significance level. However, the point estimates were similar, providing support for our general causal identification strategy. In the sensitivity analysis using the Polity5 control, the coefficient and standard error estimates were very similar to the main analysis, despite the exclusion of data for the years 1990–94 and a few countries in our main estimation sample for which the Polity5 index is not available. In the sensitivity analysis using World Bank data, a country-year sample that is nearly 60% larger than in our main analysis (albeit without controls for battle-related deaths), broad patterns remained unchanged, although estimates were substantially larger for infant, under-5, and all-age mortality and modestly smaller for maternal mortality. In the sensitivity analysis testing for differential effects of longer-lasting sanctions, point estimates were broadly consistent with worse outcomes for longer aid sanctions. However, because differentiating aid sanction episodes in this manner reduced the power of our main test, it resulted in weaker statistical significance and inconclusive findings on the effects of the length of aid sanctions on infant, under-5, or all-age mortality rates. An effect was seen for maternal mortality rates (significant at the 10% level).

The internal validity of each of the aforementioned analyses hinges on the validity of the parallel trends assumption underlying all differences-in-differences research designs—ie, that mortality rates would have evolved in parallel over time in both sanctioned and unsanctioned countries if not for the imposition of

	ODA, \$ millions	DAH, \$ millions	ODA per capita, \$	DAH per capita, \$	DAH as a share of health expenditure, %
Effect of aid sanctions (95% CI)	-213.076 (-502.276 to 76.124)	-16.415 (-32.565 to -0.265)	-13.659 (-25.188 to -2.130)	-1.612 (-2.369 to -0.855)	-2.395% (-3.763 to -1.027)
p value	0.15	0.049	0.022	<0.0001	0.00060
Number of observations	3237	3237	3237	3237	3237
R ²	0.636	0.876	0.689	0.697	0.909

All specifications include country and year fixed effects and country-specific time trends. All costs are in US\$. All p values are evaluated against the default two-sided null hypothesis of zero effect. ODA=official development assistance. DAH=development assistance for health.

Table 1: Annual effect of aid sanctions on ODA and DAH between 1990 and 2019

	Additional deaths per 100 000 infants (95% CI)	Additional deaths per 100 000 children younger than 5 years (95% CI)	Additional maternal deaths per 100 000 livebirths (95% CI)	Additional deaths at any age per 100 000 population (95% CI)
Aid sanctions	129.290 (11.661 to 246.919)	47.131 (-2.776 to 97.038)	10.900 (2.156 to 19.644)	31.592 (1.006 to 62.178)
p value	0.031	0.064	0.015	0.043
Other sanctions	89.506 (9.677 to 169.335)	32.051 (4.682 to 59.420)	7.520 (2.126 to 12.914)	22.032 (-1.772 to 45.836)
p value	0.028	0.022	0.0063	0.070
Number of observations	3237	3237	3237	3237
R ²	0.995	0.995	0.987	0.961

All specifications include country and year fixed effects and country-specific time trends, along with controls for gross domestic product per capita, population, and battle-related deaths. Standard errors are clustered by country and year. Maternal mortality rates are measured per 100 000 livebirths among women and girls aged 10–54 years. All p values are evaluated against the default two-sided null hypothesis of zero effect.

Table 2: Effects of aid sanctions on mortality rates

sanctions in the former. To rule out the possibility that sanctioned countries were already experiencing disproportionately higher mortality rates before the imposition of sanctions and to gauge the dynamic effects of aid sanctions, the fifth sensitivity analysis repeated our main analysis as an event study for the subset of long-running aid sanctions. If not for the latter sample restriction, the estimates in table 2 would equal a weighted average of the full set of event study coefficient estimates shown in figure 3. The estimates in figure 3 cannot fully refute the existence of modest pre-trends across different groups. However, given that base-year effects were normalised to zero (ie, for periods $t=-6$ and earlier), the implication is that, if anything, mortality rates tended to be somewhat reduced in periods $t=-5$ to $t=-3$ relative to earlier periods before the imposition of sanctions, and these deviations were not generally significantly different from zero. On the other hand, for infant, under-5, and maternal mortality, aid sanctions had a statistically significant positive effect at years $t=4$ and $t=5$, consistent with a lag in policy effects on human mortality.²¹

Discussion

Our study investigates the use of aid sanctions, a unique geopolitical tool previously unexplored in the health literature, and their impact on maternal and child health. This work contributes to the burgeoning foreign policy debate about the use of foreign aid restrictions against fragile nations in light of recent events in west Africa and

the humanitarian catastrophes unfolding in Sudan and Burkina Faso. This research shows that aid sanctions led to less DAH and ODA for sanctioned countries and to increases in infant (3.1%), under-5 (3.6%), and maternal mortality (6.4%), with findings supported by several sensitivity analyses. Our estimates suggest that the imposition of aid sanctions for 5 years would negate 29%, 26%, and 64% of the improvements in infant, under-5, and maternal mortality rates, respectively, that have occurred among LMICs over the period 1990–2019 (appendix 5 p 9).

Although aid sanctions have not been studied thoroughly, health researchers have been grappling with the effects of broader economic sanctions on humanitarian health for decades. The complexity of conducting a credible cross-country analysis of the average effect of sanctions on human health might account for the reliance in the health literature on single-country case studies. Although case studies are useful for understanding what happens in certain countries, they cannot be readily generalised to other countries, thereby forfeiting the opportunity to provide a predictive baseline against which to gauge the health effects of hypothetical aid sanctions before imposition. A 2022 UNICEF report outlined the impact of sanctions on child health across multiple case studies.²⁴ The report noted that the concurrent challenges faced by sanctioned nations, such as armed conflict, poverty, and corruption, make it difficult to isolate the impact of specific types of sanctions

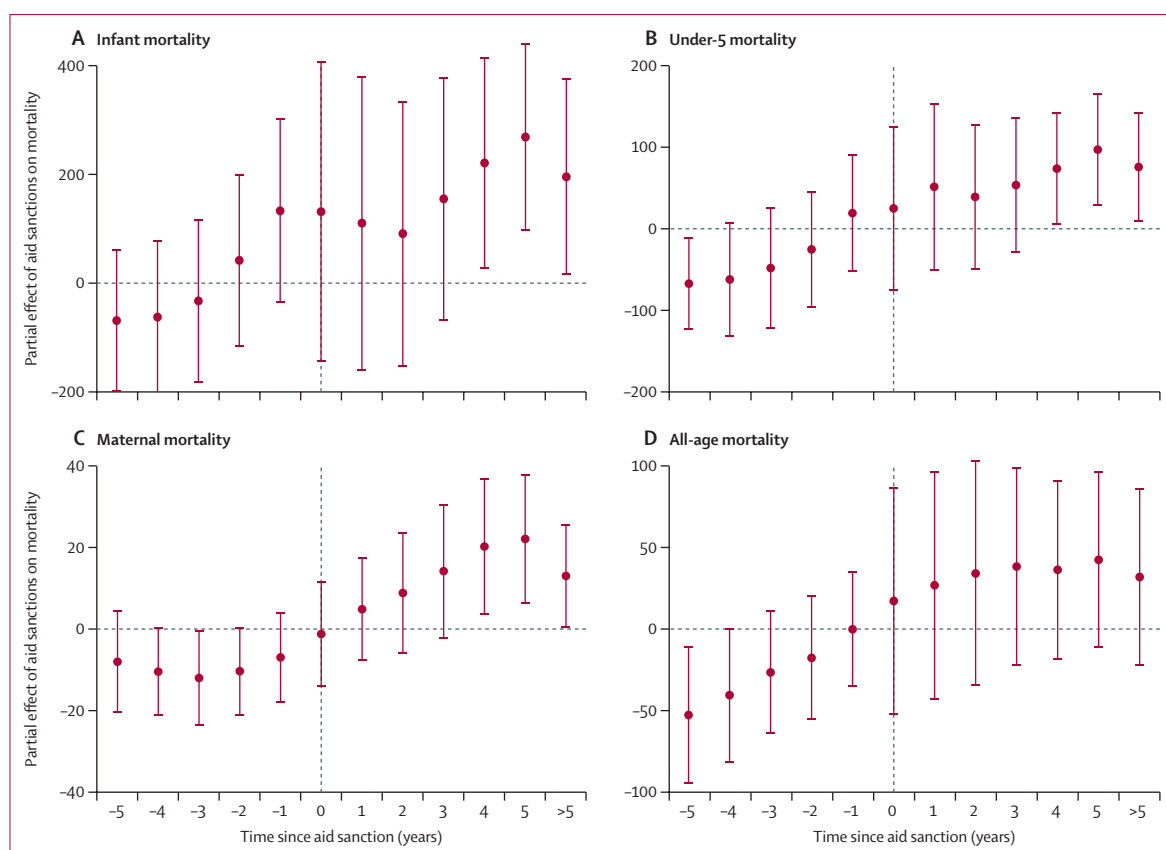


Figure 3: Effect of aid sanctions on mortality rates over time

For each sanctioned country, we define period $t=0$ as the year of aid sanction implementation, and we construct a full set of binary indicator variables flagging periods $t=-5$ to $t=6$ (including later years). Sanction effects in period $t=-6$ (including earlier years) are constrained to be zero. To avoid compositional changes in the set of sanctioned countries in periods $t=1$ to $t=5$, we exclude countries that were sanctioned for less than 5 years. Whisker bars represent 95% CIs.

on child health and wellbeing—an observation that motivated this study.

The humanitarian catastrophes of the 1990–2000 era marked the shift from multilateral to unilateral sanctions, and from broad, blunt sanction instruments to targeted sanctions.²⁵ Iraq's invasion and occupation of Kuwait in 1990 resulted in the most comprehensive multilateral economic sanctions ever imposed by the UN Security Council and led to approximately 500 000 deaths of Iraqi children.^{21,26} An analysis indicated that regions most impacted by these UN sanctions had higher child mortality rates than regions that were provided relief by the Oil-for-Food Programme.²⁷ The economic hardship in Haiti resulting from economic sanctions imposed by the UN Security Council from 1991 to 1995 led to a deterioration in Haiti's health-care system and an estimated 20 000 excess child deaths and 100 000 excess cases of moderate or severe malnutrition among children younger than 5 years.²⁸ The development of targeted unilateral geopolitical coercive tools, such as aid sanctions, is part of the international movement to design and employ geopolitical tools that promote human rights and democracy and punish war, while

minimising unintended humanitarian harm. During our study period, Sudan had one of the highest aid sanction intensities—30 years—highlighting the tension of using this tool in countries dealing with prolonged complex humanitarian emergencies. Our research highlights the unintended consequences and complexity of these geopolitical ambitions.

Sanctions are an intensely politicised foreign policy tool. Scholars have argued for the cessation of their use, and the UN considers unilateral sanctions to be in violation of international legal norms. In 2012, the UN General Assembly published a resolution on human rights and unilateral coercive measures that articulated grave concerns about the impact of these measures on the health of women and children because of their hindrance to social and economic development.³ In March, 2023, the UN Human Rights Office of the High Commissioner began work on the design of a universal system to assess and monitor the effects of sanctions on human rights, including health, indicating the interest of the international community in monitoring the impact of sanctions on local populations.⁴ The Special Rapporteur on Unilateral Coercive Measures is mandated

Panel: Policy recommendations for aid sanctions

We recommend that nations and entities planning or monitoring aid sanction regimes, or prohibitions to foreign aid, consider the following legislative questions:

- Impact: Has the impact of harm to humanitarian health and wellbeing on broader global health security interests been considered?
- Waiver: Does the waiver option clearly permit support for essential health programmes and initiatives? Is there a mechanism to shorten aid sanction intensity, duration, or both if population health suffering inadvertently increases?
- Intention: Could withdrawal of foreign aid contribute to political, economic, and health destabilisation, undermining the intention of the measure?
- Oversight and implications: Does the governing body imposing sanctions have sufficient information on the impact of foreign aid prohibitions, including on population health and wellbeing?
- Exemptions for humanitarian aid: Is there a clear mechanism to enable the continuation of humanitarian aid after the prohibition of foreign aid if the humanitarian situation deteriorates?

We propose an additional fragility assessment for conflict-affected countries:

- Is the country being considered for foreign aid restriction experiencing extreme climate events, high numbers of internationally displaced people, or high levels of food insecurity?
- Does the restriction of foreign assistance inadvertently impact development assistance for health or programmes related to other strategic interests and global health goals in the country?

A complete list of our policy recommendations is provided in appendix 5 (pp 22–23).

with documenting the negative impacts of unilateral coercive measures (the legal term for unilateral sanctions) with the broader aim that no individual country should impose sanctions without being mandated by the UN Security Council. However, sanctions are a mainstay of geopolitical coercion; they are used widely, including with unilateral decision making outside the mandate of the UN Security Council. New coercive tools are being developed and combined, with policy makers honing targeted sanctions, such as aid sanctions, to minimise the unintended consequences of blunt, broad sanction instruments such as complete trade restrictions and economic sanctions (appendix 5 p 17). Our research shows the importance of using analytical models to understand coercive tools. We show that aid sanctions restrict ODA and DAH, which results in negative effects on maternal and child mortality.

Aid sanctions were imposed by the USA against Burkina Faso in December, 2022, under section 7008 on

coup-related restrictions in US foreign aid appropriations, because of democratic regression and terrorist concerns. The rapidly deteriorating humanitarian situation, however, led to diplomats and the media calling for the international community to waive these sanctions. In December, 2023, the Congressional Research Service outlined to the US Congress a waiver system under which the aid sanction period could be shortened or the severity of the aid restriction lessened to avert unintended humanitarian suffering of the Burkinabé people.⁵ This mechanism allows for the Secretary of State to waive restrictions on a case-by-case basis in the national security interests of the USA. When USAID cautioned that the humanitarian situation in Burkina Faso had escalated to “dire” in May, 2024, a waiver of restrictions on aid was exercised and the USA committed \$55 million in emergency humanitarian aid to mitigate the crisis.²⁹

US policy towards foreign aid shifted in early 2025, with a pause on foreign aid and a subsequent House of Representatives bill proposing to abolish USAID.⁶ In a disciplined effort to be constructive in our contribution to shifts in foreign policy, we outline health-related questions for any legislative body considering strategic changes in foreign aid commitments, including reductions or prohibitions in foreign aid or aid sanction regimes. The elements for such an assessment are based on the previously established framework created by the US Congressional Research Service,⁵ and underscore the interconnection between human health and national security interests in regional stability (panel; appendix 5 p 22). We also propose an additional fragility assessment for conflict-affected nations that could be particularly vulnerable to foreign aid reductions due to risks of food insecurity, high levels of internationally displaced people, and fragility in humanitarian aid delivery (appendix 5 p 23). The informed consideration of these questions is required to shape foreign aid policies in a strategic and humane way that advances national interests while remaining balanced in the understanding that national interests are affected by the health and stability of people in other nations. We encourage scholars to work constructively with their national administrations to advance the development of long-term strategies for foreign aid giving and programming, including measured and monitored use of geopolitical coercive tools.

Towards this end, we have provided replication files of our entire study. These enable other research and policy formulation teams to engage in concerted work on the impact of foreign aid restrictions and prohibitions on human health. This research is required to provide peer-reviewed evidence of how these foreign affairs decisions (eg, internal decisions to cut foreign aid) affect human health. A key question is under which conditions and contexts do aid restrictions have the greatest risk for adverse consequences, as we demonstrated for aid

sanctions, which typically take place suddenly and in contexts of armed conflict, democratic retractions, and human rights violations. Additionally, our replication package enables other research teams to investigate the impacts of different types of sanctioning tool on human health (eg, financial sanctions or trade sanctions). This type of scholarship will expand understanding of the mechanisms through which political decisions act, and how foreign aid strategies can best be formulated to achieve national interests while upholding humanitarian principles and protecting health.

For example, the UK Foreign, Commonwealth & Development Office developed a long-term foreign aid strategy, including commitment to regions of the globe irrespective of war, terrorism, and other concerns,³⁰ indicative of an understanding of the importance of stability in foreign affairs strategies grounded in stable partnerships. On Feb 26, 2025, however, the Labour Government of the UK announced a cut to ODA from 0·5% to 0·3% of gross national income in 2027 to provide for increases in defense spending.³¹ The UK Prime Minister reinstated foreign aid commitments to Sudan, Gaza, and Ukraine, and for global health programs such as vaccinations,³² but others have stated that it is an impossibility to maintain these priorities given the sweeping scope of pending ODA reductions.³³ The questions outlined in the Panel can help to inform these policy decisions.

Our analysis focused on available mortality metrics. Future research could examine effects on global morbidity metrics, such as child stunting and wasting, although there is a need to strengthen global data availability. Madagascar provides a pertinent case study from our dataset on the use of aid sanctions. The EU and USA put aid sanctions into effect immediately after the 2009 coup in that country. The sanctions remained in effect for 5 years until the 2014 elections.⁵ During this time, all non-humanitarian assistance to Madagascar was suspended. UNICEF's 2010 humanitarian action report estimated that in the first year after the political coup and imposition of aid sanctions, Madagascar's health budget was cut by 40% due to the loss of DAH, stating, "UNICEF now has serious concerns about the steady deterioration in the country's capacity to cope."³⁴ UNICEF's primary concern was the collapse of the health and nutrition sectors from loss of foreign aid, resulting in widespread child wasting and stunting, "putting future generations at risk".³⁵

A key finding from our results is that shorter sanction duration might be an important consideration in minimising unintended long-term negative effects on civilian populations. This finding supports current foreign affairs efforts to develop a waiver mechanism to shorten aid sanction duration when humanitarian suffering increases. However, additional research is needed to confirm the effects of sanction duration on mortality, to delineate time lags from policy implementation to mortality effects, and to test the

effects of sanction duration and intensity on earlier metrics of health, such as morbidity. Our results show an increase in mortality at 4 years and 5 years for all cases where aid sanctions lasted at least 5 years. To the extent that these effects appear to be diminishing beyond the fifth year, we cannot rule out that this reflects the adoption of strategies to mitigate or circumvent the impact of aid sanctions among targeted countries. We lack statistical power to investigate this possibility rigorously, however, given the small number of countries that experienced aid sanction episodes lasting much longer than 5 years during our sample period. More broadly, all of our aforementioned analyses should be viewed as measuring the effects of aid sanctions net of the impact of any countervailing strategies.

This study should be considered in light of its limitations. First, the main econometric challenge faced in our study, like all research investigating the impact of political interventions on health outcomes, is the potential for our estimates of the effects of aid sanctions to be biased due to reverse causality and confounding factors. We controlled for multiple time-varying country-specific covariates along with key fixed effects to mitigate these concerns and conducted multiple robustness checks to confirm the validity of our results. Second, our efforts to create an aid sanction dataset were based on comprehensive and global searches of all aid sanction cases imposed from 1950 to 2019 using a peer-reviewed method that was previously used in the construction of the more general global sanctions databases. We could have missed individual cases from countries where aid sanctions are not listed on government websites or in instances where non-English-language policy statements were issued. Nevertheless, such instances ought to be rare and, if anything, the omission of any such aid sanction episodes would tend to bias our estimates towards zero.

In this study, we found that the imposition of aid sanctions, a long-standing geopolitical tool, can pose a substantial threat to the lives of mothers and their children. Our aim is to provide a constructive perspective to inform foreign affairs strategies involving aid sanctions, based on quantitative health metrics, striking a delicate balance between discouraging violence, anti-democratic actions, and human rights abuses and maintaining improvements in global maternal and child health. To accomplish this dual goal, a determined political effort is required to incorporate the use of population health metrics into the development and implementation of carefully crafted sanction regimes. This strategy would help ensure that a mandate to discourage violations of human rights and democratic structures will ultimately serve concomitant efforts to improve maternal and child survival, health, and wellbeing around the world.

The findings of this study also indicate the importance of documenting the health effects of shifts in foreign aid policies by donor countries, such as aid prohibitions and

restrictions, as this would enable formulation of mitigating responses by other global health actors and a degree of strategic compensation of receiving nations. Health research at the intersection of geopolitics naturally exists at the tension point between political priorities and self-interests and humanitarianism. It is possible to merge strategic objectives of national interests and advancing global health through an understanding of how geopolitical decisions impact health. Through understanding the mechanisms and impacts of varying geopolitical levers, donor nations can advance national interests while being strategic in long-term vision and commitment to aid humanity in areas of the world where democracy and human rights and health are particularly fragile, and the actions of geopolitical partners are highly consequential.

Contributors

RMG developed the concept for this research based on her in-country experience with the impacts of aid sanctions on maternal and child health in fragile nations. RMG, SB, and YVY conceptualised the study and developed the research design. SB and YVY developed the econometric model and managed the estimation process. SB developed and managed the robustness tests. SB and AK were responsible for extracting, cleaning, and assembling the data. JLD made substantive suggestions on study design, data sources, and methodology; and assisted with crafting, revising, and preparing the manuscript for submission. AK coded the aid sanctions dataset, which was checked by YVY, RMG, and research assistants. RMG wrote the first draft of the manuscript; SB wrote the methods and results sections with input from YVY and JLD. GLD, EB, CS, and MB provided critical insights and revisions to the manuscript. SB and RMG managed the revision process with significant assistance from GLD. All authors reviewed the revision packages. SB created the publicly available replication package. PHW provided RMG with mentorship, input on management of the research project, and revisions to the manuscript throughout the research cycle. JLD, AK, YVY, and SB verified the data. All authors had full access to all the data in the study and read and approved the final manuscript. RMG managed the overall research enterprise and made the final decision to submit for publication.

Declaration of interests

We declare no competing interests.

Data sharing

The aid sanctions dataset and code utilised for the econometric model are open access and publicly available upon publication of this manuscript through our data-sharing agreement with the Dryad Digital Repository (<https://doi.org/10.5061/dryad.b2rbnzsqd>).

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Editorial note: The Lancet Group takes a neutral position with respect to territorial claims in published maps and tables.

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