

Did “Integrated ECD” Cause the Slowdowns in the Reduction of Under-5-Mortality?

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Author Note

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integrated policies

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List of abbreviations

COVID-19	Corona Virus Disease 2019
ECD	Early Childhood Development
GDP	Gross Domestic Product
HIV/AIDS	Human Immunodeficiency Virus / Acquired Immune Deficiency Syndrome
IECD	Integrated Early Childhood Development
LAMP	Locally Adaptable Mono-sectoral Policies
LSG	Local Self-Government
U5M	Under 5 Mortality
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Emergency Fund

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Introduction, summary, conclusions

Services that support early childhood development (ECD) can be found in multiple sectors, including health, education, and social protection. In many countries, these services have been brought together in one multi-sectoral or integrated policy. By 2019, such policies for integrated ECD (IECD) could be found in 76 countries. By far most of these are low and lower-middle income countries and they are predominantly fragile.

Observations at country level during policy consultancies brought to light that IECD causes serious slowdowns both in the development of ECD policies and in their implementation. Providing scientific evidence for this finding would require in-depth retrospective policy analysis in a sample countries with an IECD policy. This requires substantial research capacity and lies beyond the scope of this paper, which, instead, approaches the issue from the following three angles.

Section 1 presents Under 5 Mortality (U5M) as the key dependent variable in this paper and points at unexpected decelerations in the reduction of U5M, especially in low income countries. These decelerations are then compared with the years in which countries have adopted IECD strategies, policies, laws and regulations. It appears that there is a fair degree of correspondence between the spread of IECD and the unfavorable development of U5M, as well as a strong positive correlation between countries' degree of fragility and their chance of having an IECD policy in place.

The second of the three angles concerns the pathways from IECD to U5M. Section 2 analyzes the mechanisms by which IECD slows down the decision making process before policy adoption and the implementation process after policy adoption. This section is a summary of a paper¹ that also presents an alternative to IECD: Locally Adaptable Mono-sectoral Policies (LAMP). LAMP is an occasional name for a widely applied governance concept for multi-sectoral policy development.

The third angle consists of a quest for an alternative explanation for the decelerations. The lead question for section 3 is, in popular speech: "if it wasn't IECD that caused the decelerations, then what was it?" Such an alternative explanation could not be found. On the contrary, all lights were green for a historically unique acceleration in the reduction of U5M.

According to the rules of formal logic, the method of "rejection of alternative explanations" (the third angle) has a weakness: one can never be sure that one has identified (and rejected) all of the possible alternative causes. Therefore it remains urgent to undertake the recommended in-depth retrospective policy analysis of a sample of IECD-affected countries. But even without this analysis, this paper justifies the following conclusions:

- IECD is a highly complex governance concept that donors have forced upon some of the world's most fragile government administrations.
- IECD slows down policy development and decision making, and once the policy is adopted it causes decelerations (if not standstills) in the expansion of life-saving services.
- More research is needed but should not be awaited: IECD should be discontinued because its negative side effects are of biblical proportions.

¹ "The Governance of ECD. Lighting the LAMP of Locally Adaptable Mono-sectoral Policies", by Jan van Ravens (2024). This paper can be found at www.janvanravens.com under Global Reports.

1. Introduction of IECD coincides with decelerations in U5M reduction

This section examines trends in U5M. It starts at the global level and via the level of country income groups it zooms in on the sub-regional level. The section finds that the spread of IECD *coincides* with decelerations in the reduction of U5M. Whether or not there is causality is a question for sections 2 and 3.

1.1 Arguments for using U5M as an indicator to assess the impact of IECD

The ideal indicator to assess the impact of IECD would be an index (or composite indicator) that encompasses the whole of ECD and indicates the joint impact of all ECD services that are provided under the aegis of an integrated policy.

At least four initiatives have been taken to develop such an index.

In 2010, UNESCO launched the idea of a Holistic Early Childhood Development Index to monitor progress during the timeframe of the SDGs (2015–2030), but concrete trend data are not available at the time of writing (United Nations Educational, Scientific and Cultural Organization, n.d.).

The same goes for the United Nations Children's Emergency Fund's (UNICEF) Early Childhood Development Index 2030 (UNICEF, 2021), which cannot be universally applied because it requires countries' participation in UNICEF's own household survey (SDSN, n.d.).

The Early Development Instrument, developed by an international consortium, has been applied in 24 countries but trend data are unavailable (Early Development Instrument, n.d.).

Limited trend data could be found for the Child Development Index by Save the Children (2021), but this index focuses on childhood more broadly rather than early childhood.

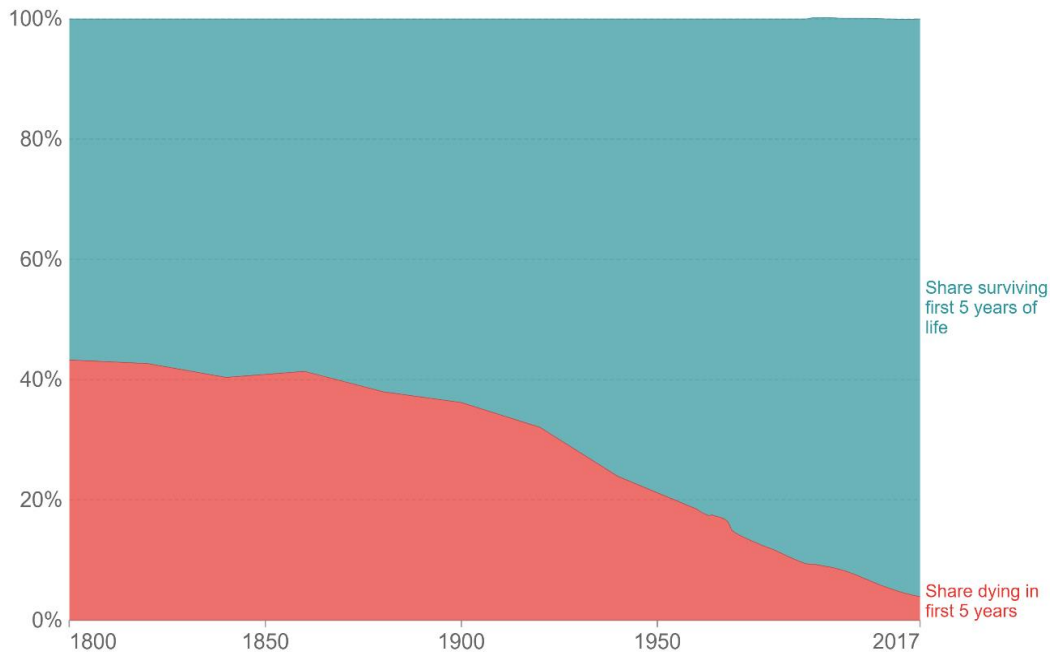
In the absence of an index with sufficient coverage, this paper adopts Under 5 Mortality (U5M) as its key dependent variable. U5M *has been considered an important indicator of health status and national prosperity in social and biomedical research* (Alimohamadi et al., 2019) and it is available as an indicator for the vast majority of the world's countries and for a long period of time. U5M is typically an outcome indicator, in the sense that it is driven by a range of factors including programs in the health sector, flanking policies in other sectors, and contextual factors outside the sphere of governmental policy.

1.2 Trends in U5M at global level

For a good understanding of the dynamics of an indicator, it can be helpful to begin with a quick look into the past. Figure 1 presents the global trend line of U5M since 1800.

Figure 1

Global Child Mortality: Share of the World Population Dying in, Versus Surviving, the First 5 Years of Life (1800–2017)



Note. Copied from Our World In Data, using data from The World Bank and Gapminder (Roser & Mispy, 2017).

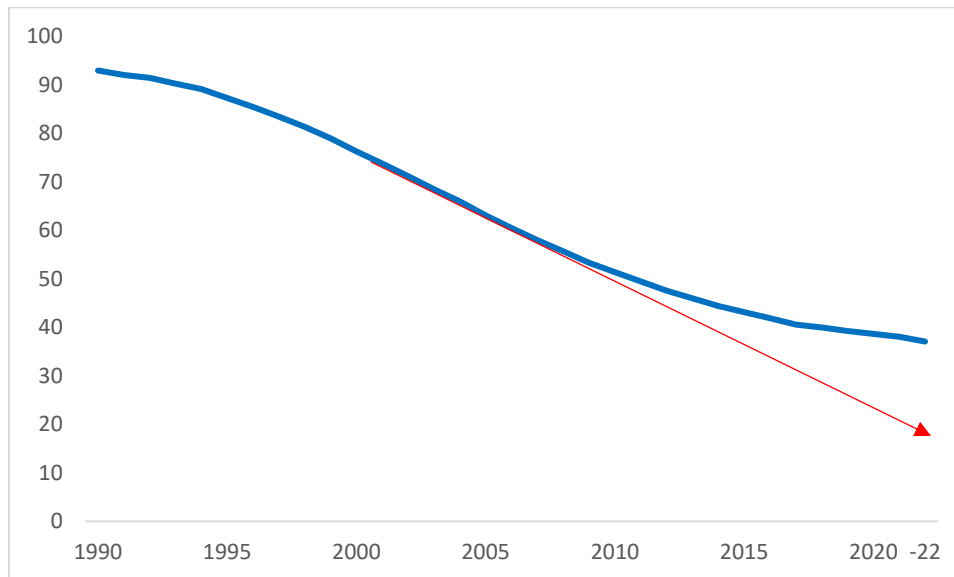
Figure 1 shows that U5M has been declining steadily throughout the last two centuries, with the exception of two decades of global increase in the middle of the 19th century (Roser & Mispy, 2017). U5M decreased even during two world wars and three global recessions (1929, 1982, 2008).

This does not rule out, of course, that temporary increases occur at national level as a result of crisis, conflict or disaster. In Uganda, for example, U5M increased between 1971 and 1980 under the dictatorship of Idi Amin. Kenya saw an increase of U5M between 1987 and 1993, a period of repression following constitutional changes in 1986.

But globally, U5M decreased even in the COVID years, as Figure 2 shows.

Figure 2

Under 5 Mortality, World, 1990–2021 (per 1,000 Live Births)



Note. Source: World Bank, World Bank Open Data. (2023). Mortality rate, under-5 (per 1,000 live births) [Data file]. Retrieved from <https://data.worldbank.org/indicator/SH.DYN.MORT> . The source for the value for 2022 is a UNICEF press release of March 2024: <https://data.unicef.org/topic/child-survival/under-five-mortality/>

The red arrow has been drawn by the author based on scenario called “continuing current trends”, put forward by the United Nations Inter-agency Group for Child Mortality Estimation. (2021).

Thus, U5M is an indicator that is *bound* to decline, partly as a result of enhanced child policies and partly as a result of families’ improving living conditions with more hygiene, safe water, and better nutrition (in section 3, the determinants of U5M will be discussed in more detail). Therefore, what we must look for are accelerations and decelerations within that continuous decline. An acceleration is good news in that it means that less children died than the long term trend predicted, while decelerations are causes for concern as they suggest avoidable child deaths at large scale.

Figure 2 does indeed reveal such a deceleration. While the downward trendline became steeper and steeper between 1990 and 2000, it began to flatten around 2005. The red arrow has been drawn based on the scenario called “continuing current trends”, put forward by the United Nations Inter-agency Group for Child Mortality Estimation. (2021). This arrow provides a rough indication of the levels of U5M that the world *would* have seen had the deceleration not occurred.

The space between the trendline and the red arrow symbolizes the number of children that died as a result of the slowdown. Considering that U5M in absolute numbers is in the order of 5 million per year globally(2020), we conclude that the aggregate death toll (2005 – 2022) is substantial. Moreover, U5M is always the tip of an iceberg; when living conditions are so dire that many children die, an even larger number of children survive only barely, failing to develop to their full potential. *So whatever it was that caused the slowdown, it’s implications are of biblical proportions.*

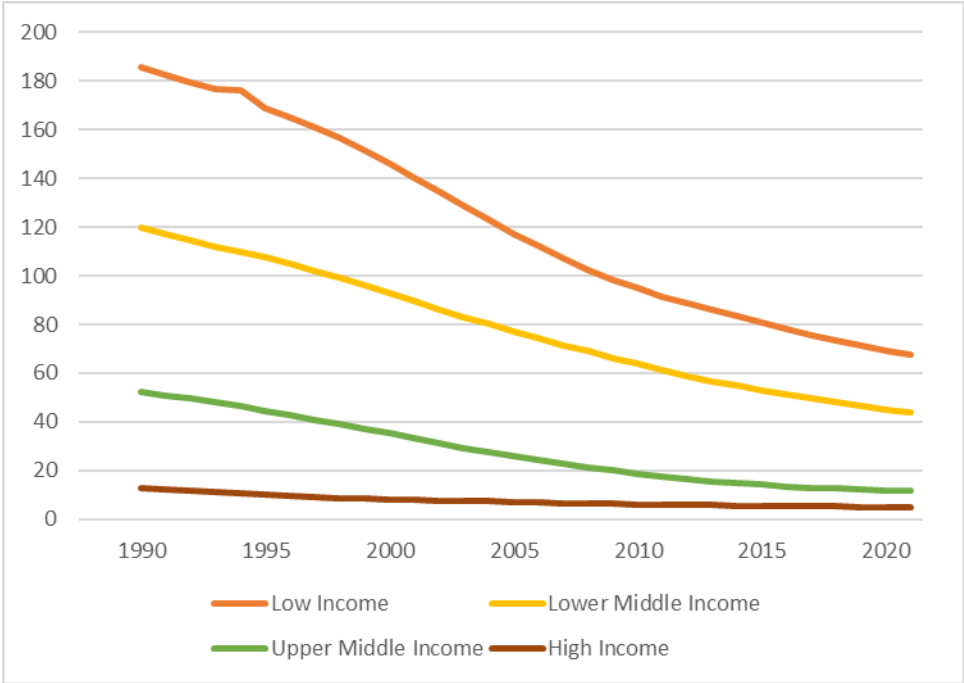
However, one might object that U5M is not only bound to decrease but also bound to slow down *within* its decrease. The idea behind this argument is that most indicators of human development

go through a phase of rapid improvement which is then followed, typically, by a prolonged completion phase. Vaccination rates, for example, may at first increase quite rapidly if authorities start by focusing on densely populated areas. But it is more challenging to reach remote communities and to persuade parents who are adverse to vaccination for religious and cultural reasons. Whether this principle – sometimes referred to as the “highest hanging fruit” – also applies to the global trendline in Figure 2, can be analyzed by means of a breakdown by country income category.

1.3 Trends in U5M by country income category

Figure 3 presents trends in U5M in 1990–2019 for the four country income groups as defined by the World Bank (Hamadeh at al., 2021).

Figure 3
Under 5 Mortality, by Income Group, 1990–2021 (per 1,000 Live Births)



Note. Source: World Bank, World Bank Open Data. (2023). Mortality rate, under-5 (per 1,000 live births) [Data file]. Retrieved from <https://data.worldbank.org/indicator/SH.DYN.MORT>

We first focus on the (brown) trendline for high income countries. Figure 3 shows that after a slight decrease between 1990 and the turn of the century, U5M in high income countries tends to stabilize at a level of 5 deaths per 1,000 live births. One could pose the question whether this can be regarded as a kind of absolute lower limit and a touchstone for the rest of the world. A confirmative answer to that question would be controversial for two reasons. First, one could take a radical stance by

saying that 5 deaths per 1,000 live births are still 5 too many; the goal should be zero. Second, some high income countries have built their wealth on the exploitation of some countries that now lag behind in the process of U5M reduction. However, these two considerations do not take away the fact that high income countries have had ample time and opportunity to reduce child mortality, and if this results in a flat trend line at around 5 deaths per 1,000 live births, this could *perhaps* be seen as a global reference point. In every society there will always be some children with serious birth defects, children born to pockets of poverty, and children belonging to minorities that are adverse to the use of some government health services.

So let us assume, just for the sake of arguing, that an U5M rate of 5 is the lower bound of this indicator. On this assumption, one could argue that the deceleration in the (green) trendline of upper middle-income countries is “simply” caused by the fact that these countries are closing in on the benchmark set by high income countries.

But this cannot be argued for the lower-middle income countries (yellow trendline) and low income countries (orange trendline). The latter countries show a clear slowdown in the reduction of U5M that starts somewhere around 2005, and they seem to be headed for stabilization at a level of 60 deaths per 1,000 live births rather than of 5. Figure 3 shows that the deceleration in the global trendline (Figure 2) is borne mainly by the low-income countries. Although these countries are home to less than 10% of the world population, their share of the global burden of child mortality is 56%². For a better understanding of what happened in low income countries in this period, subsection 1.4 examines a different kind of indicator, while zooming in on the sub-regional level.

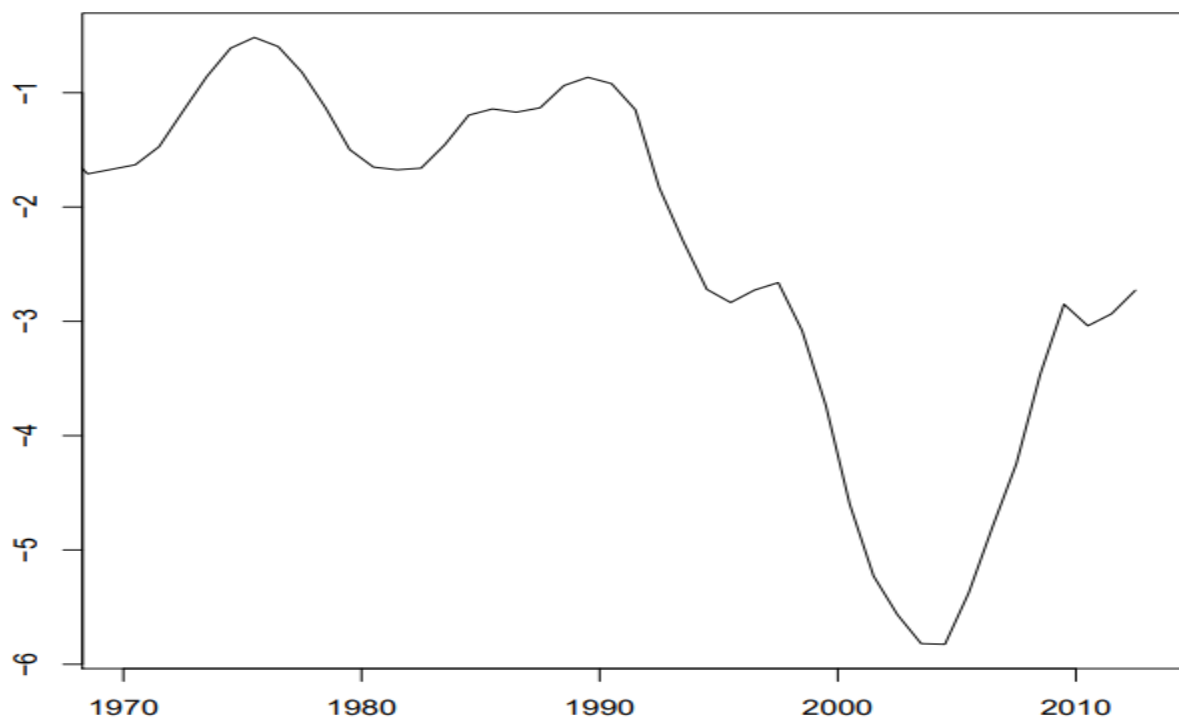
1.4 Annual rates of change in U5M, by sub-region

Wang et al. (2014) have presented data on U5M at sub-regional level and in a format that differs from the regular rates such as those in figures 1, 2 and 3. Wang and his team calculated *annual rates of change* in U5M. This is the percentage by which U5M in a country or (sub)region has increased or decreased compared with the year before. Since U5M usually decreases, this indicator usually has a negative value; and the lower the better. As an example, Figure 4 presents annual rates of change in U5M in Eastern sub-Saharan Africa.

² Calculated by the author using data from the Statistical Tables of the 2022-report of the United Nations Inter-agency Group for Child Mortality Estimation (2021).

Figure 4

Annualized Rate of Change in Under-5 Mortality Rate in Eastern sub-Saharan Africa, 1970–2013



Note. Source: copied from Wang et al. (2014), Figure 2b on page 24.

Figure 4 illustrates how annual rates of change allow us to identify trend-breaks with more precision. From 1990 until 2003, so it appears, U5M has not only decreased in Eastern sub-Saharan Africa, but also decreased at an ever higher pace. After 2004, U5M still decreased (as it usually does), but now at an ever lower pace.

Wang et al. present a total of 21 figures such as Figure 4. Tables 1 and 2 summarize their findings. Table 1 contains the sub-regions where a turning point can be observed, mentioning the year in which that happened, while Table 2 contains the sub-regions without a clear turning point.

Table 1. Sub-regions with trend-breaks, and year of trend-break

Asia, Central	2005
Asia, South	2012
Europe, Eastern	2005
Latin America, Andean	1998
sub-Saharan Africa, Central,	2004
sub-Saharan Africa, Eastern	2003/4
sub-Saharan Africa, Southern	2009
sub-Saharan Africa, Western	2005

Source. Compiled by the author using data from Wang et al. (2014)

Table 2. Sub-regions without trend-break

Asia Pacific, High-income
East Asia
Asia, Southeast,
Australasia
Caribbean
Europe, Central
Europe, Western,
Latin America, Central
Latin America, Southern
Latin America, Tropical
North Africa/Middle East
North America, High-income
Oceania

Source. Compiled by the author using data from Wang et al. (2014)

The outcomes of this exercise are broadly consistent with earlier findings. The sub-regions in Table 1 are consistently the poorer ones within their larger region. In Asia, it concerns the center and the south, not the richer countries in the east. In Latin America, it concerns the countries in the Andes, not the ones with more favorable geographic conditions. On the African continent, it concerns the countries south of the Sahara, not the mediterranean ones. In Europe, it concerns the former Eastern Block, not the center and the west.

To investigate the possible link between IECD and the decelerations in U5M, we now examine an overview of IECD policies and plans, by country and year of adoption.

1.5 Adoptions of IECD policies and plans by country and year

Vargas-Barón et al. (2022) present an overview of countries that adopted policies, strategies, laws and regulations aimed at integrating ECD services. What clearly emerges from this overview is that the prevalence of IECD is much higher in low and lower-middle income countries than it is in high income countries, with a strong concentration in sub-Saharan Africa. Particularly remarkable is the high prevalence of IECD in country categories such as highly indebted poor countries; least developed countries; and especially in countries affected by emergency and crisis.

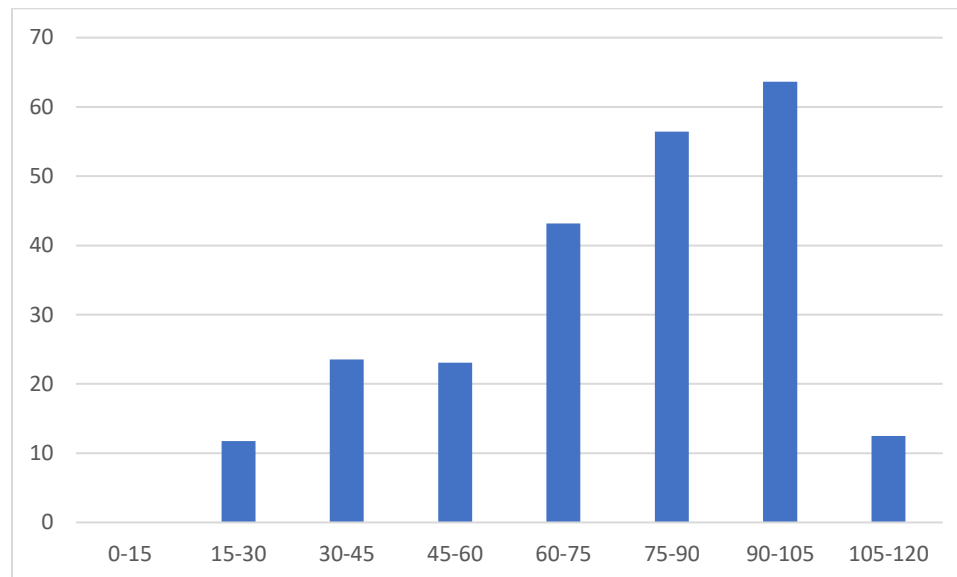
Personal observations of the author of this paper are that the IECD movement has been strongly donor-driven and that countries that are free of donor-pressure have rarely adopted IECD policies.

To underpin these personal observations, Figure 5 distributes those countries that had an integrated ECD policy in place in 2019 according to Vargas-Barón et al. over six brackets of country fragility using data retrieved from the website of the Fragile States Index (2024). This website presents the scores of 179 countries on an index based on 12 indicators of country fragility; the scores range from 0 (lowest degree of fragility) to 120 (highest degree).

Figure 5 shows a clear positive correlation between fragility and the chance of having an integrated ECD strategy in place³.

Figure 5.

The share of countries with an integrated policy (by 2019) by bracket of fragility (2023)



Sources. Compiled by the author using data from Vargas-Barón et al. and from the Fragile States Index website visited on March 28, 2024.

Notes. The fragility scale that ranges from 0 to 120 was first divided into six equal intervals. The 179 countries for which values are available for the index were then distributed over the six intervals and counted. Next, the countries reported by Vargas-Barón were distributed over the six intervals. For each interval, finally, the number of countries with an integrated policy was divided by the total number of countries in that interval. E.g. 64% of the very fragile countries in the bracket of 90 to 105 have an integrated policy, against only 12% of the much less fragile countries in the bracket of 15 to 30. Montserrat and Vanuatu appear in the data from Vargas et al. but not on the website of Fragile Countries Index. Some other very small countries have been omitted as well. Bosnia and Herzegovina was omitted because it is not true that this country has an integrated ECD policy in place⁴. The same goes for France⁵.

The pattern observed in Figure 5 can be seen as counter-intuitive. IECD is a complex governance concept that the author of this report would not have been able to apply in his own days as a policymaker. One would expect that IECD had originated in the more advanced government

³ The fact that this correlation does not extend into the highest bracket of fragility might be explained by the possibility that public life there is so disrupted that a regular process of policy development cannot take place.

⁴ During extensive fieldwork by the author in Bosnia and Herzegovina, which took place years after the supposed adoption of the integrated policy, the policy was never mentioned by any of the interviewees. The country does have a very small number of unscalable holistic ECD centers, but rather than being an ECD system, these centers were an obstacle to system development.

⁵ France has its longstanding Ecole Maternelle. This magnificent kindergarten model is universal and well-embedded in the wider policy architecture, but it is a kindergarten - an institution - not a policy. There is no integrated ECD policy in France. See page 3 of: <https://firstyearsfirstpriority.eu/wp-content/uploads/2020/12/Fact-sheet-France-2020.pdf>. In fact, the Ecole Maternelle underscores the point that local integration can only succeed if there is no pre-integrated policy at national level. This point is elaborated in section 2.1.

administrations, to spread only slowly to the more fragile countries. An explanation for the fact that Figure 5 shows precisely the opposite pattern is that IECD is a donor's whim, forced upon fragile countries, and accepted by those countries in the expectation of financial support⁶.

There are exceptions, however. “Chile Crece Contigo” and “De Cero a Siempre” (Colombia) are homegrown IECD strategies that arose from a long tradition of policy development and planning within a community of experienced legislators who have learned to respond to the needs of their compatriot population. But such words cannot be said or written about the vast majority of the strategies, policies and plans reported by Vargas-Barón et al. (2022).

Vargas-Barón et al. (2022) present the years of adoption of IECD plans and policies, per country. These years appear to be *broadly* consistent with the years of the trend-breaks in Table 1 of this paper. A precise comparison between years of the trend-breaks and the years of IECD adoption is not possible because the decelerations that IECD causes in U5M reduction can occur both several years before the year of adoption and several years thereafter, as the next section clarifies.

2. The pathways from IECD to U5M

This section addresses the question *how* IECD caused the slowdowns in the reduction of U5M. Clearly, it was never the deliberate intention of the proponents of IECD to cause these slowdowns, so the quest is for unintended side effects.

The pathways that lead from IECD to slowdowns in policy development and implementation have been described in detail in a paper titled “The Governance of ECD: Lighting the LAMP of Locally Adaptable Mono-sectoral Policies” which is available at www.janvanravens.com under Global Reports. More than a critique of IECD, the paper is a plea for its alternative called LAMP, which is an occasional name for a widely applied governance concept for policy development in a multi-sectoral context. This section summarizes that paper's critique of IECD, first addressing the phase before the adoption of the integrated policy, and then the implementation phase thereafter.

2.1 Delays in policy development and decision making

Holistic child development requires access to ECD services from multiple sectors. But multi-sectorality is by no means unique to ECD. All fields of policy are multi-sectoral - with the sole exception of the military - and ECD would be able to benefit from lessons learned elsewhere on how to make multi-sectorality and decentralization work together for the best possible outcomes. In short, programs must be provided by the national government on a stand-alone basis, and it should be the Local Self-Government (LSG) that decides how to shape and configure these programs. Not only *can* programs remain separate, they *must* remain separate in order to give LSGs the space to create the service configurations that best fit local needs, circumstances and preferences. If local autonomy is not respected - if policies are pre-integrated at national level across ministries - this causes the following problems.

⁶ “The Governance of ECD. Lighting the LAMP of Locally Adaptable Mono-sectoral Policies”, by Jan van Ravens (2024). This paper can be found at www.janvanravens.com under Global Reports.

Integration of programs - disintegration of ministries. If a ministry of education cedes power and budget regarding preschool education to some other legal entity, it creates a precedent. Stakeholders from other parts of society will claim influence on other ministerial departments such as those of primary, secondary, vocational and higher education and training. Departments will become detached from the ministerial core that performs critical functions such as budget maximization, teacher HRM, quality assurance, public affairs, legislation. No minister will allow this, which explains why ministers either resist IECD, or, which is worse, pay lip service to IECD for a few years in the hope for donor support.

Accountability to Parliament. One of the fundamentals of parliamentary democracy is that ministers must at all times be accountable to Parliament in ensuring that policy objectives are met and budgets are properly spent. A minister cannot be accountable for an outsourced policy over which he/she has lost control. This is another reason to either resist IECD or pay lip service to it.

Multiplication of complexity in decision making. Whilst reaching agreement on mono-sectoral policies is already complex since it requires consensus between policy makers, clients, providers and stakeholders within one sector, the complexity is multiplied under IECD since it requires consensus between the same groups of actors but from multiple sectors. It is practically impossible that such a large and diverse collection of actors agrees upon a complex and extensive policy document at one single moment in time.

Increased rigidity (1). Countries rarely have the fiscal space for increased spending across the board. In one year, the ministry of health may obtain a structural budget increase, and in another year it is the ministry of social affairs or of education that is the lucky one. Over a longer period of time this leads to ECD-wide progress. But if an integrated policy claims budget increases for all relevant ministries in one and the same year, the result may be that the entire claim fails.

Increased rigidity (2). If a flaw is discovered in a mono-sectoral policy, it is relatively easy to organize feedback loops and correct the flaw. But if a flaw occurs in one of the components of an integrated policy over which hard-won consensus has been reached within a broad range of stakeholders, corrections may require renegotiation in that plenary. The risk is that flaws remain unaddressed.

Tactical maneuvering. Integrated policies increase the risk of dysfunctional behavior. An example: a teachers union may resist a budget increase in the area of health or social protection if they fear that this will limit the fiscal space for an increase of their own salaries.

Unclear legal status. If ECD policies are outsourced from education, health and protection ministries and brought together in another legal entity, this may concern a First Lady's office, an interministerial coordinating body, or an existing ministry with a coordinating role. Whatever the choice is, the result is that ECD ends up in the hands of an entity with an unclear legal status, with poorly defined responsibilities vis-à-vis Parliament, and with unclear links with the Treasury and the field ministries that traditionally govern ECD.

If the policy process gets paralyzed for the reasons just mentioned, this will slow down progress towards lower levels of U5M. Nutrition programs, for example, fail to be scaled up during the impasse. They may not be discontinued altogether so that U5M increases, but the budget-lines are frozen pending the new integrated policy, so that the movement towards ever higher coverage of nutrition programs is interrupted. Nutrition no longer contributes to further U5M reduction.

2.2 After adoption of the policy: the birds-on-an-elephant problem

When the integrated policy is finally adopted, new slowdowns occur because of the “birds-on-an-elephant” problem. Normally, some of the essential ECD services such as immunization, birth assistance, nutrition, growth monitoring, deworming, promotion of exclusive breastfeeding, and parental assistance can be rolled out relatively easily and at relatively low costs. These are the birds. A notoriously slowly expanding service is preschool education. It is labor intensive and it requires substantial upfront investment in classrooms, inventory and materials. Integrating the quickly expanding and lifesaving ECD services in one policy and/or plan together with preschool, is like forcing birds to travel on the back of an elephant. The birds will slow down to the pace of the elephant.

This problem is exacerbated by the fact that many children in the Global South are in an unregistered preschool (van Ravens and Crouch, 2024). IECD causes these children – most of them are in the lower SES quintiles – to miss out on health services, because one cannot integrate a government service in an illegal institution. Many others are in legal private preschools where most of the enrolled children are in the higher SES quintiles and already have access to healthcare. This means that IECD only “lands” in public preschool education, which is no longer expanding. By connecting preschool and healthcare, the preschool crisis spills over to healthcare.

Since decelerations occur both before and after adoption, and over varying lengths of time, the dates of policy adoption provided by Vargas-Barón et al. (2022) do not match exactly with the turning points in annual rates of change provided by Wang et al. (2014). Moreover, there is the problem of failed attempts to adopt an integrated ECD policy. In Laos, for example, the author of this paper participated in a process to develop an integrated policy. But this country does not appear in the overview by Vargas-Barón et al., which suggests that the policy was never adopted. Yet the policy process was paralyzed for years. There may be more countries like Laos.

Thus, a precise study of the link between IECD and U5M can only be carried out by means of an in-depth retrospective policy analysis at country level of a sample of countries, including some that attempted an IECD policy but never achieved it. The study should examine, during the various phases of policy development and implementation, the development of:

- Outcome indicators such as U5M;
- The coverage of services such as preschool, social protection programs, immunization, nutrition, deworming, growth monitoring, skilled birth assistance, et cetera;
- The budget-lines of these services;
- The prevalence of diseases that some of these health services are meant to prevent.

Such a study is highly recommended; in the absence of it we revert to an indirect approach.

3. Rejection of alternative explanations

In section 1 it was established that decelerations occurred in the reduction of U5M and that these decelerations coincided broadly – in place and time - with the adoption of IECD policies. Section 2 explained how IECD can cause such decelerations. This is not sufficient to conclude with 100% certainty that there is causality. But there is a degree of likelihood, and this degree of likelihood

can be increased by means of the method of “rejection of alternative explanations”. In popular language we ask: if it wasn’t IECD that caused the decelerations, then what was it?

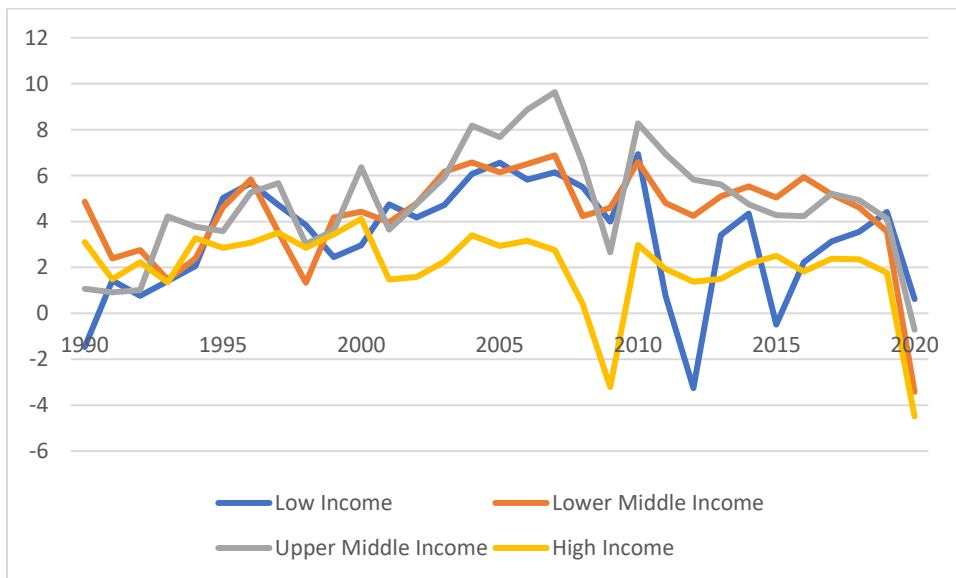
In this section we review possible alternative causes for the decelerations. We first discuss the possibility that (a lack of) economic growth played a role (3.1). This is followed by a review of determinants of U5M suggested by the literature (3.2). And finally we consider the role of some major developments and trends such as pandemics, climate change, and increased fragility (3.3). For each of these possible causes we ask: did this actually occur in that particular place and time and could it have played a role in the slowdown of U5M reduction?

3.1 “It’s the economy”

Investigating data from 2000 to 2010, French (2016) claims that “the slowdown in the annual growth in Gross Domestic Product (GDP) per capita at the end of the decade mirrors the slowdown in the downward trend in under-five mortality.” In other words, the Great Recession of 2008 might have caused the deceleration. A minor objection against this claim is that the beginning of the slowdown (2005) preceded the recession (2008). This does not fully falsify the claim because the gap between the blue trendline and the red arrow in Figure 2 was narrow between 2005 and 2008; it is possible that an insignificant development initiated the deceleration in 2005 and that the recession exacerbated it from 2008 onwards. A much more substantial objection against the claim comes forward in Figure 6, presenting trends in annual GDP growth by country income category.

Figure 6

GDP Growth (Annual %), by Income Category, 1990–2020



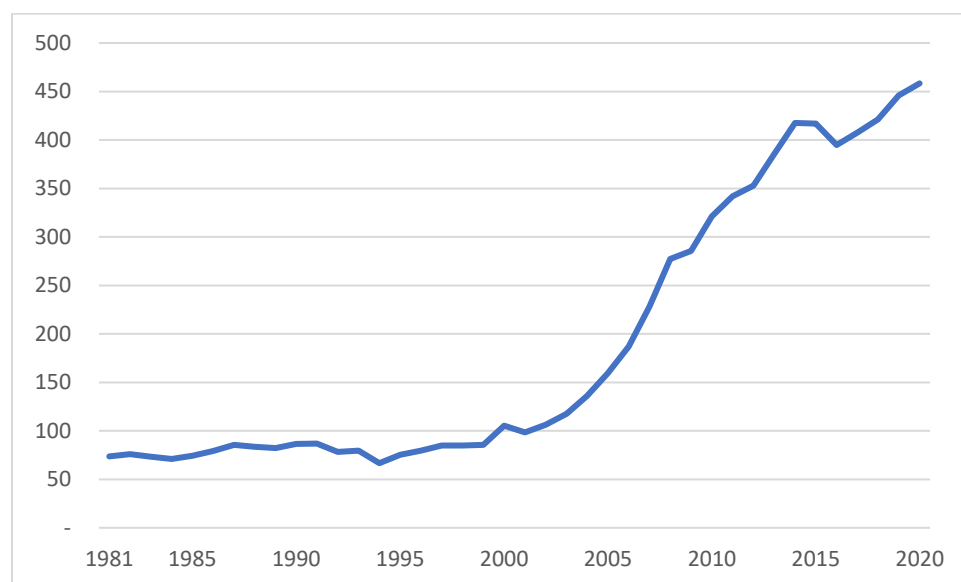
Note. Source: World Bank, World Bank Open Data. (2022). GDP growth (annual %) [Data file]. Retrieved from <https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=XM>

Figure 6 shows that while COVID-19 affected all four income groups more or less equally, the Great Recession of 2008 hit high and upper-middle income countries much harder than it hit low and lower-middle income countries (where the decelerations in U5M reduction occurred). In fact, growth in low- and lower-middle income countries is generally higher than in high income countries from 1995 onwards (though it became variable in low income countries after 2010).

The relation between GDP and U5M is the subject of a longstanding polemic, where some argue that GDP per capita such is the main determinant of U5M (Ravallion, 1997), while others claim that healthcare expenditure (hence expansion and improvement of healthcare interventions) is critical (Hanmer et al., 2003). Nevertheless, even the experts that defend the latter stance may want to confirm that it is GDP growth that creates the fiscal space for the strengthening of health systems. If we agree that GDP growth is important to U5M, this means that low and lower-middle income countries missed a tremendous opportunity to actually *accelerate* the reduction of U5M in recent decades. Figure 7 presents the joint GDP of low-income countries, showing an impressive increase from about 75 bln. in 2000 to 450 bln. in 2020. These countries could have increased their health budgets sixfold in that period by merely keeping these budgets constant as a share of GDP.

Figure 7

Joint GDP of Low-Income Countries (Billions, Current US\$) 1981–2020



Source: World Bank, World Bank Open Data. (2022). GDP (current US\$) [Data file]. Retrieved from <https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?locations=XM>

The question: what kept these countries from increasing healthcare spending? This question is relevant because low and lower-middle income countries *still* have the opportunity to use GDP growth to reduce U5M. It may seem counter-intuitive that GDP growth is higher in low income countries than it is in high income countries, but this is actually a phenomenon that was bound to

occur and that is bound to stay⁷. Unsurprisingly, the spectacular GDP growth coincided with unprecedented reduction of poverty: one of the only two Millennium Development Goals that were met. The other one is improvement of access to safe drinking water, which is another powerful driver of U5M reduction, as the next sub-section shows.

3.2 The literature on the determinants of U5M

In addition to GDP growth, there is a range of other factors that impact U5M as Kuruvilla et al. (2014) and Bishai et al. (2016) found. Both studies analyze progress between 1990 and 2010 by comparing the state of U5M in just these two years. The two studies did not analyze accelerations and decelerations within that period; their focus was instead on the identification of factors that determine U5M more in general. The health sector was found to account for 50% of the reduction in U5M between 1990 and 2010, whereas the remaining 50% was accounted for partly by non-health policy outcomes such as access to safe drinking water and mothers' education levels, and partly by contextual factors such as the fertility rate, female political and socioeconomic participation, and good governance. Both studies also found that increases in the coverage of health services accounted for 89% of the impact, while improvements in these services that enhance their effectiveness account for only 11% of the impact; quantity seems more influential than quality.

Based on the findings of Kuruvilla et al. (2014) and Bishai et al. (2016), the five most important driving forces were reviewed, in search of a development that may have caused the decelerations in U5M reduction⁸:

- Access to safely managed drinking water services. This increased steadily between 2000 and 2020 in low and lower-middle income countries with only a very minor slowdown from 2010–2011 in low-income countries⁹.
- The education level of mothers. This indicator can be assessed by means of the female primary education completion rate. In both lower and lower-middle income countries, this indicator began to increase sharply around the year 2000 and did not flatten until 2010¹⁰, which means that the education levels of mothers improved spectacularly until 2020.
- Fertility rates. These have decreased continuously from 1980 to the present in low income countries, with even an acceleration. The fertility trendline of lower-middle income

⁷ The economies of low income countries operate at lower levels of productivity than those of high income countries. But precisely for that reason they have more scope for increasing productivity by means of better education, more efficient organization of the labor process, and technological innovation. Whereas high income countries are always close to a ceiling, low income countries can make greater steps ahead. This is why we now see higher GDP growth rates in low income countries. True, the wealth gap between low and high income countries is likely to remain large for many years to come. But nurses, preschool teachers and social workers receive local salaries, which means that appointing ECD-workers is roughly as affordable in low income countries as it is in high income countries. What really counts for creating the fiscal space for expansion of ECD services is GDP growth, not GDP per capita.

⁸ The first four of the five were checked using the relevant indicators found at the World Bank's website World Bank Open Data. The fifth is from Wikipedia.

⁹ <https://data.worldbank.org/indicator/SH.H2O.SMDW.ZS?end=2023&locations=XM-XN&start=2000>

¹⁰ <https://data.worldbank.org/indicator/SE.PRM.CMPT.FE.ZS?end=2023&locations=XM-XN&start=1970>

countries began its decline 20 years earlier and reveals an almost inevitable yet modest slowdown from around 2005 onwards¹¹.

- Female political participation, too, has been proven to contribute to U5M reduction. A proxy indicator is the proportion of seats held by women in national parliaments, which increased slowly from around 10% in the late 1990s to 24% in 2023 (in low- and lower middle income countries on average). Disappointing as this may be, there is no slowdown in this trend that could have contributed to the slowdown in U5M reduction¹².
- Good governance. The Democracy Index of the Economist Intelligence Unit can be used to assess this indicator. It shows remarkably flat lines for all of the world's regions between 2006 and 2022¹³. In sub-section 1.2 we noted the temporary increases of U5M in Uganda and Kenya as a result of serious political instability. If such would have occurred simultaneously in a larger number of countries, this could have contributed to the slowdowns in the reduction of U5M by country income category. But it would also have appeared as a dip in the Democracy Index, which we do not see.

The conclusion of this sub-section is that trends in the factors identified by Bishai et al. (2016) and Kuruvilla et al. (2014) do not provide an explanation for the deceleration in the reduction of U5M. On the contrary, conditions were favorable for a significant increase of child survival.

3.3 Pandemics, climate and fragility

The COVID-19 pandemic, devastating as it is to children, commenced long after the observed decelerations in U5M reduction. The HIV/AIDS pandemic started much earlier and it also had a strong negative impact on child well-being globally, as it led to more orphans, more single-parent families, more poverty, and overburdened health care systems. However, during the period that we investigate, the scale of the HIV/AIDS pandemic actually started to decrease¹⁴. Ebola's biggest outbreak in terms of death toll was in 2014, which is too recent to have been able to cause the observed changes in the trend of U5M. Earlier outbreaks of Ebola, although devastating for those who were affected, were not substantial enough for a significant impact on global U5M statistics¹⁵.

Compared to the sudden occurrences of pandemics, climate change is a more gradual process. Its impact on children is undeniable as it leads to failing crops, rising parental unemployment, and several other negative developments. However, the question is whether there is a reason to assume a significantly enhanced impact beyond 2005. If that were the case, it would have to be visible in the trend of undernourishment, but World Bank data show that this variable was continuously decreasing (despite climate change) in low-income countries during the first decade of the millennium, whereas in lower-middle income countries, it began to decrease in 2003¹⁶. It wasn't until 2013 that undernourishment began to increase in low-income countries, followed by lower-middle income countries in 2018.

¹¹ <https://data.worldbank.org/indicator/SP.DYN.TFRT.IN?locations=XM-XN>

¹² <https://data.worldbank.org/indicator/SG.GEN.PARL.ZS?locations=XM-XN>

¹³ https://ourworldindata.org/grapher/democracy-index-eiu?tab=chart&country=OWID_AFR~OWID_WRL~OWID_EUR~OWID_ASI~OWID_SAM~OWID_NAM

¹⁴ <https://data.worldbank.org/indicator/SH.DYN.AIDS.ZS?locations=XM-XN>

¹⁵ <https://www.cdc.gov/ebola/outbreaks/index.html>

¹⁶ <https://data.worldbank.org/indicator/SN.ITK.DEFC.ZS?locations=XM-XN>

Fragility, conflict, and violence are devastating to children for obvious reasons, but again the question is how it developed over time. The United Nations High Commissioner for Refugees (2024) monitors an indicator that it describes as the number of people (adults and children) who were forcibly displaced by persecution, conflict, violence, human rights violations or events seriously disturbing public order. This indicator has been relatively constant at around 40 million between the mid-1990s and 2011; it wasn't until 2012 that it began to increase towards 123 million in 2024.

This section looked for an alternative explanation for the decelerations in U5M and found the very opposite. All lights were green for an *accelerated reduction* of child mortality in the relevant period. Countries missed a historically unique opportunity to fulfil this promise.

4. Conclusions and discussion: who bears the burden of proof?

This paper does not provide incontestable scientific evidence that IECD caused the decelerations in U5M reduction. But it does demonstrate a high degree of probability that this has been the case:

- The paper shows that introduction of IECD *coincides* with slowdowns in U5M reduction;
- It presents the *pathways* that lead from the introduction of IECD to these slowdowns.
- It examined and *rejected alternative explanations*.

The question is: is all this reason enough to discontinue IECD, or should we wait for harder evidence (which may take years)? Behind this question lies another one: who bears the burden of proof? Do opponents need to prove that IECD fails, or do proponents need to prove that IECD works? An analogy may be helpful in answering this question.

Imagine that a pharmaceutical company develops a new medicine. Before it is launched it will have to be tested most thoroughly, first in the lab, then on animals, finally on humans. When the new medicine is finally authorized and launched, it sometimes happens that there are signals of negative side-effects, despite the testing. The response will be that the medicine is immediately withdrawn from the market, if not by the company itself, then by the relevant authorities. The withdrawal would take place before there is full and final evidence that the product is unsafe. *Indications* of side-effects are sufficient - the burden of proof is on the company.

A new medicine called IECD was launched without testing. True, there have been excellent randomized control trials that evaluate IECD at program level, but no study ever looked beyond the program. No study examined trends at macro-level and implications in terms of governance.

This paper takes that broader view and produces strong indications that IECD yields unacceptable side-effects. The paper recommends IECD's immediate withdrawal. More research is needed but should not be awaited. The implications for children are of biblical proportions.

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