CHATHAM HOUSE

Chatham House, 10 St James's Square, London SW1Y 4LE
T: +44 (0)20 7957 5700 E: contact@chathamhouse.org
F: +44 (0)20 7957 5710 www.chathamhouse.org
Charity Registration Number: 208223

CENTRE ON GLOBAL HEALTH SECURITY WORKING GROUP PAPERS

Development Assistance for Health: Quantitative Allocation Criteria and Contribution Norms

Trygve Ottersen, Aparna Kamath,
Suerie Moon and John-Arne Røttingen

February 2014 (revised August 2014)

WORKING GROUP ON FINANCING | PAPER 3

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London SW1Y 4LE
T: +44 (0) 20 7957 5700
F: +44 (0) 20 7957 5710
www.chathamhouse.org

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ABOUT THE AUTHORS

Trygve Ottersen is a postdoctoral fellow at the Department of Global Public Health and Primary Care at the University of Bergen. His research concentrates on priority setting, health financing and global health. He is currently also working with the WHO Consultative Group on Equity and Universal Health Coverage and with the Norwegian Committee on Priority Setting in the Health Sector. He received his MD and PhD from the University of Bergen and has been a Fulbright scholar at Harvard Medical School and the Harvard University Program in Ethics and Health.

Aparna Kamath is a Master's degree candidate at the Harvard School of Public Health and a Research Assistant for the Forum on Global Governance for Health at the Harvard Global Health Institute. Her research interests lie in advancing innovative access to medicines measures and aid effectiveness mechanisms in the global health agenda. She received her BA from Smith College, USA. Previously, she worked with the Foundation for Research in Health Systems and the World Health Organization to launch health technologies for improved maternal and child health service delivery in India.

Suerie Moon is the Research Director and Co-Chair of the Forum on Global Governance for Health at the Harvard Global Health Institute; Lecturer in the Department of Global Health and Population, Harvard School of Public Health; and Project Co-Director, Innovation and Access to Technologies for Sustainable Development, Sustainability Science Program, Harvard Kennedy School of Government. She teaches on global governance and health and consults for various non-profit and intergovernmental organizations. Dr Moon received her MPA from Princeton's Woodrow Wilson School of Public and International Affairs and her PhD from the Harvard Kennedy School of Government.

John-Arne Røttingen is the Director of the Division of Infectious Disease Control at the Norwegian Institute of Public Health; Professor of Health Policy at the Department of Health Management and Health Economics, Institute of Health and Society, Faculty of Medicine, University of Oslo; Visiting Professor at the Department of Global Health and Population, Harvard School of Public Health; and Institute Visiting Scholar at the Harvard Global Health Institute. He is Associate Fellow at the Centre on Global Health Security, Chatham House; research associate of the European Observatory on Health Systems and Policies; Chair of the Board of the Alliance for Health Policy and Systems Research; a member of the Scientific Oversight Group of the Institute for Health Metrics and Evaluation, University of Washington, Seattle; and a member of the International Advisory Committee for the Global Burden of Disease study. He has been Director General of the Norwegian Knowledge Centre for the Health Services; Oxford Scholar at Wadham College; and Fulbright Fellow at Harvard Kennedy School. He received his MD and PhD from the University of Oslo, his MSc from Oxford University and his MPA from Harvard University.

ABBREVIATIONS

ΔU5MR	Reduction in under-five mortality rate
5% gap	Conditional government health expenditure per capita gap from $86
AFD	French Development Agency
BMZ	German Federal Ministry for Economic Cooperation and Development
BODr	Burden of disease rate
CIESIN	Center for International Earth Science Information Network
DAC	OECD Development Assistance Committee
DAH	Development assistance for health
DFID	Department for International Development, United Kingdom
EU	European Union
EVI	Economic Vulnerability Index
GAVI	GAVI Alliance
GDP	Gross domestic product
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
GHE	Government health expenditure
GHEpc	Government health expenditure per capita
GHEpc gap	Government health expenditure per capita gap from $86
Gini	Gini index
GNI	Gross national income
GNIpc	Gross national income per capita
CPIA	Country Policy and Institutional Assessment
CPR	Country Performance Rating
HDI	Human Development Index
HIC	High-income country
IALE	Inequality-adjusted life expectancy
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IDAf	International Development Association formula
IFC	International Finance Corporation
IHME	Institute of Health Metrics and Evaluation
IMF	International Monetary Fund
IRAI	IDA Resource Allocation Index
JICA	Japan International Cooperation Agency
LDC	Least developed country
LIC	Low-income country
LMIC	Lower-middle-income country
LuxDev	Luxembourg Agency for Development Cooperation
MCC	Millennium Challenge Corporation
MDGs	Millennium Development Goals

MIC	Middle-income country
Norad	Norwegian Agency for Development Cooperation
ODA	Official development assistance
OECD	Organisation for Economic Co-operation and Development
PBA	Performance-based allocation
PEPFAR	United States President's Emergency Plan for AIDS Relief
PPR	Portfolio Performance Rating
QWIDS	Query Wizard for International Development Statistics
SDR	Special Drawing Right
Sida	Swedish International Development Cooperation Agency
TRAC	Targets for Resource Assignments from the Core
U5MR	Under-five mortality rate
UMIC	Upper-middle-income country
UN	United Nations
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WEO	*World Economic Outlook* (IMF)
WHO	World Health Organization
YCELP	Yale Center for Environmental Law and Policy
YLLpc	Years of life lost per capita

EXECUTIVE SUMMARY

The challenge

The past two decades have witnessed a tremendous increase in total development assistance for health (DAH). Now, however, the DAH system is challenged on several fronts: by the economic downturn and the stagnation of DAH, by the epidemiological transition and the rise of noncommunicable diseases, and by the economic transition with the rise of many middle-income countries (MICs). These trends all challenge the normative framework for DAH and call for a careful assessment of allocation criteria and contribution norms. The need for such an assessment is further highlighted by the upsurge of proposals for new financing mechanisms for global health and by the ongoing discussion about the post-2015 development agenda.

The general objective of this paper is to examine allocation criteria and contribution norms for DAH. More specifically, it:

- Reviews the allocation criteria stated by major institutions and estimates distributional implications related to different criteria; and
- Reviews recognized contribution norms and, in the context of these, estimates total need and total available funds for DAH.

Criteria stated by major institutions

We examined the DAH allocation criteria explicitly emphasized by five multi- or polylateral institutions and 10 bilateral institutions charged with the distribution of DAH or aid more generally. This set of stated criteria is a useful starting point for any discussion on the normative framework for DAH.

We found that many institutions did not have specific criteria publicly available, and this was especially the case for the bilateral institutions. Given the current emphasis on transparency and accountability and the substantial resources involved, increased use of explicit, detailed criteria is needed.

More generally, all institutions seemed to employ criteria related to need as well as effectiveness. However, the relative emphasis given to each of these criteria varied. Even more pronounced was the variation in the specification of the two criteria or, more generally, the specific criteria and indicators emphasized by the various institutions.

Amid the variation, at least one specific criterion was explicitly emphasized by nearly all institutions. This was the criterion related to gross national income per capita (GNIpc), and this was particularly central to the determination of eligibility. However, the GNIpc threshold value, above which countries are deemed ineligible for aid, varied considerably: from $1,175 to $12,616. In comparison, low-income countries (LICs) and high-income countries (HICs) are for the fiscal year 2014 classified by the World Bank as having GNIpc ≤ $1,035 and ≥ $12,616, respectively.

As for what the institutions did not emphasize, there were at least two commonalities. Typically, institutions not specifically devoted to health did not have specific criteria for DAH and generally had few, if any, criteria directly related to health. Moreover, none of the reviewed institutions emphasized criteria directly related to economic inequalities or inequalities in health or health care.

Distributional implications of different criteria

We further looked at which countries should receive development assistance for health, based on specific criteria. For any discussion of and search for appropriate allocation criteria, it is crucial to understand how the criteria would potentially change the distribution of DAH. We therefore estimated, as a rough illustration, how DAH would be distributed according to each of 12 different allocation criteria. More specifically, we examined how each of the different criteria would redistribute the total amount of DAH currently available across countries and country categories.

We found, not surprisingly, that the estimated distribution of DAH across countries and country categories varied substantially depending on which criteria were applied. Compared to the current distribution, most criteria shifted DAH towards lower-middle-income countries (LMICs) and the top 10% of most populous countries, which also included many upper-middle-income countries (UMICs). More specifically, criteria related to absolute health needs (under-five mortality rate, years of life lost and burden of disease) and health inequality (inequality-adjusted life expectancy) advantaged LMICs and disadvantaged LICs compared to the current distribution. Moreover, when the Gini index for income was used as a criterion of need, huge amounts of DAH shifted towards UMICs, compared to the current distribution as well as to a GNIpc baseline distribution. These findings underscore, among other things, how the middle-income countries (MICs) challenge the normative framework for DAH. In particular, different criteria deal very differently with the MICs and the choice of criteria can have tremendous impact on the amount of DAH going to these countries as opposed to LICs.

Potential contribution norms

We also looked at the other side of the coin, i.e., which countries should contribute to development assistance for health, and how much they should contribute. In that regard, we describe two widely recognized contribution norms relevant for DAH: the 0.7% ODA/GNI target and the scale of assessments for the apportionment of the expenses of the United Nations. We further note that health ODA and DAH have recently represented 12% and 19% of total ODA, respectively. Against that background, we examine a norm according to which countries should provide DAH equivalent to at least 0.1% of their GNI. In 2010, only four OECD-DAC members met this 0.1% DAH/GNI target. If, instead, all of today's HICs had met this target in 2010, the total amount of DAH available would be at minimum $43 billion. This would have constituted more than a 50% increase in DAH, compared to the $28 billion actually available in 2010.

Required contributions among donors should plausibly also depend on the intensity of recipient need. We demonstrate different ways to estimate total need for DAH. For example, taking need to be represented by the gap between a $86 target of government health expenditure per capita (GHEpc) and current GHEpc, total need for DAH was estimated at $196 billion. Considering instead the shortfall from $86 if GHE in every country represented 5% of GDP, total need for DAH was estimated at $65 billion. These figures can be contrasted with the $28 billion of DAH that was actually available in 2010 and the $43 billion that would be available if all HICs met the 0.1% DAH/GNI target described. When a range of other metrics of need was also considered, estimated total need for DAH varied from $30 billion to $202 billion. This indicates how total need may vary with the choice of metric as well as whether LMICs and UMICs are included among the potential recipients of DAH.

Another crucial choice in the development of contribution norms is the donor inclusion threshold, i.e. that above which a country should become a donor. Assuming full compliance with the 0.1% DAH/GNI norm, we show how minimum total DAH available would vary from $40 billion to $58 billion depending on the threshold and to what extent MICs are included as donors. Moreover, we show how certain thresholds would imply that many required donors are among the present DAH recipients. For example, if all HICs and UMICs were obliged to contribute, 50 out of 124 required donor countries would have been actual DAH recipients in 2010.

Conclusions

The system of development assistance for health is challenged on several fronts, and well-founded allocation criteria and contribution norms are more important than ever. This paper provides three kinds of input to the assessment and improvement of the normative framework for DAH: the criteria emphasized by major distributors of DAH, the distributional implications of potential criteria and the implications of different contribution norms.

The wide variation in criteria emphasized by different institutions and the wide variation in implications from the different criteria and norms underscore the importance of more critical reflection on the normative framework for DAH. In particular, clarifying the role that MICs should play in that framework is crucial, not only for those countries, but for the entire DAH system.

1. INTRODUCTION

Development assistance for health

Development assistance for health (DAH) can be defined as 'financial and in-kind contributions for activities aimed at improving health in low- and middle-income countries' (IHME 2012). It has an important, yet varied role in these countries. In 2009, external financing accounted for 25.9% of total health expenditure in low-income countries, 2.7% in lower-middle-income countries and 0.2% in upper-middle-income countries (Moon and Omole 2013). The past two decades have witnessed a tremendous increase in total DAH: from $5.7 billion in 1990 to $28.2 billion in 2010 (IHME 2012).[1] Now, however, we seem to have reached a plateau of no growth over the last couple of years (IHME 2012). This happens in the face of persisting health needs as well as new challenges, including those accompanying processes of globalization and the double burden of communicable and non-communicable disease in developing countries (Boutayeb 2006; Frenk et al. 2011).

Against this background, the importance of a well-functioning DAH system is evident. In particular, we want a system in which total funds match total need, donors contribute fairly, and funds are allocated fairly and optimally among recipient countries. To these ends, appropriate allocation criteria and contribution norms are indispensable.

Quantitative criteria and norms

Development assistance for health allocation criteria and contribution norms are typically linked to particular institutions; but they can also be more general. While allocation criteria guide the allocation of DAH across recipient countries, contribution norms indicate the required effort by each donor country. These criteria and norms can be implicit or explicit.

Explicit criteria and norms generally have a number of advantages. Compared to implicit ones, explicit criteria and norms can facilitate transparency, accountability and public deliberation. In addition to being valuable in themselves, these effects are likely to also further the development of better and more appropriate criteria and norms. Explicit criteria and norms and accompanying public debate also have the potential to foster greater agreement on criteria and norms and may improve the coordination of DAH allocations and contributions.

Quantitative criteria and norms are particularly apt for being explicit, and criteria and norms related to quantitative scales are central to the DAH enterprise. Against this background, there have been surprisingly few, if any, comprehensive reviews of such criteria and norms and also surprisingly few analyses of their implications. Moreover, the following ongoing processes, two of which have already been mentioned, reinforce the call for a review and analysis of quantitative DAH allocation criteria and contribution norms:

- The economic downturn and the stagnation of DAH (IHME 2012);
- The epidemiological transition, from which many developing countries face the double burden of communicable and non-communicable diseases (Boutayeb 2006; Frenk et al. 2011);
- The upsurge of initiatives for new financing mechanisms for global health, which require some contribution norms and typically involve some allocation criteria (Ooms et al. 2006; CEWG 2012; Gostin and Friedman 2013; Moon and Omole 2013);
- The shaping of the post-2015 development agenda (Task Team for the Global Thematic Consultation on Health in the Post-2015 Development Agenda 2013); and

1 All dollar figures refer to US dollars.

- The economic transition with the rise of several middle-income countries (MICs).[2] Their number is increasing, and the economies of some of these countries are growing rapidly (Keijzer et al. 2013). At the same time, within-country inequality is typically increasing and about 75% of the world's poor are now living in MICs (Sumner 2012a; Alkire et al. 2013). These changes may affect the legitimate role of MICs in the DAH system, something that can have a profound impact on them and on the system.

Objectives

The ongoing trends, together with the general importance of fair and appropriate criteria and norms, motivated this paper. The general objective of the paper was to examine allocation criteria and contribution norms for development assistance for health. More specifically, there were two parallel sets of sub-objectives. With respect to allocation criteria, we wanted to:

- Review criteria currently in use;
- Estimate total need for DAH related to different criteria; and
- Estimate distributional implications of these.

With respect to contribution norms, we wanted to:

- Review currently recognized contribution norms;
- Estimate total available funds related to different norms; and
- Estimate the distribution of required contributions related to these.

For each sub-objective, we also wanted to give special attention to the role of MICs.

Outline

This paper consists of three main sections. Section 2 addresses allocation criteria. Here, we review criteria currently used by major multilateral, polylateral and bilateral institutions, and we estimate the distributional implications related to these and other criteria. Section 3 examines contribution norms. We review norms currently recognized and we estimate total funds generated and the pattern of required contributions related to different norms. We also estimate total need related to different allocation criteria. Section 4 addresses the cross-cutting issues of MICs and within-country inequalities. We consider how different allocation criteria and contribution norms deal with these issues and how, at the same time, these issues highlight critical aspects of the criteria and norms and of the entire DAH enterprise.

2 The classification of countries will be discussed below.

2. ALLOCATION CRITERIA

Development assistance for health allocation criteria, as they will be defined here, are simply criteria meant to guide the allocation of DAH. This prescriptive or normative role can be contrasted with that of descriptive criteria or determinants, which are used to explain how DAH is or has been allocated, a divide mirrored in the literature on aid allocation (McGillivray 2004). The criteria of interest in this paper are those that prescribe the allocation of DAH or aid more generally across countries as opposed to, for example, diseases. Under a broad understanding of DAH allocation criteria, they encompass 'eligibility criteria' as well as 'selectivity criteria'.[3]

Income classification schemes are central to most discussions of allocation criteria. In the World Bank classification for fiscal year 2014, countries are categorized according to 2012 gross national income per capita (GNIpc). Countries with GNIpc ≤ $1,035 are defined as low-income countries (LICs); countries with GNIpc $1,036–$4,085 and GNIpc $4,086–$12,615 are classified as lower-middle-income countries (LMICs) and upper-middle-income countries (UMICs), respectively; and countries with GNIpc ≥ $12,616 are defined as high-income countries (HICs) (WB 2013).[4]

In this section, we first describe key overarching criteria and how more specific criteria can be usefully classified on that basis. We thereafter outline the criteria stated by major institutions responsible for the allocation of DAH or of aid more generally. Against that background, we discuss key similarities and differences. In the final sub-section, we report on estimated distributional implications of different criteria.

Overarching criteria

Two overarching criteria pervade the allocation schemes used by the major distributors of development assistance for health: a need criterion and an effectiveness criterion.[5] Many specific criteria can be usefully subordinated to one of these.

Need criteria

According to need criteria, aid is to be allocated to countries with the greatest need. Need typically relates to and decreases with the current level of development or with the projected level of development in the absence of the assistance. Accordingly, the precise content of need criteria depends on how development is understood and measured. For example, if level of development is measured in terms of GNIpc, need decreases with GNIpc. Likewise, under alternative, more health-related interpretations, need may decrease with the level of the Human Development Index (HDI) or life expectancy at birth or increase with under-five mortality rate (U5MR) or burden of disease.[6]

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3 In the literature as well as in policy documents, many different terms are used to refer to what is here broadly defined as allocation criteria. This includes 'eligibility criteria,' which have the following two characteristics. First, the eligibility criteria typically apply early in the allocation process. Second, the criteria are typically linked to a binary decision, as opposed to a more graded response. While eligibility criteria can usefully be seen as a subcategory of allocation criteria, it is important to note that certain institutions contrast the former with the latter. For example, according to the United Nations Development Programme (UNDP), 'allocation criteria' are those criteria employed after the application of 'eligibility criteria' (UNDP 2012b). Allocation criteria can also significantly overlap with 'selectivity criteria,' especially under a broader understanding of the latter (McGillivray 2003; Amprou et al. 2007; Guillaumont 2008).

4 Several alternative classifications exist, many of which heavily or primarily depend on income (Nielsen 2013; Sumner 2013).

5 As will be described, terminology varies considerably.

6 Several lists of alternative need criteria exist (Anderson 2008; Leo 2010; Basu et al. 2014).

Need as described so far may be labelled 'development need' and refers directly to the relevant metric of development. However, the need for assistance can also be understood in terms of the country's capacity to further develop without aid: the lower that capacity, the greater the need.[7] So understood, 'capacity need' can be distinguished from development need. The content of capacity need criteria will depend on how development is understood and measured, and on what indicators reflect a country's capacity to further develop as understood. For example, if development is measured in terms of HDI and natural resources are considered one key determinant of country's capacity to improve its HDI, then a relevant need criterion can be linked to presence or absence of such resources.[8]

It is worth noting that specific need criteria also can be usefully categorized according to whether they are purely economic criteria or not and whether they are health-related or not. Moreover, need criteria, as described here, can overlap significantly with what is sometimes called 'equity criteria' (Guillaumont 2008).

Effectiveness criteria

According to effectiveness criteria, aid is to be allocated to countries where aid will be, maximally or sufficiently, effective. Effectiveness can here be defined in terms of development gains, e.g. health improvement, and as increasing with the size of those gains.[9] Need criteria must be complemented with effectiveness criteria because assistance to those most in need is not necessarily the most effective use of resources and is sometimes very ineffective. As with the need criteria, the effectiveness criteria depend on how development is understood and measured. For example, if development is measured in terms of the HDI, effectiveness will increase with the increase in HDI from the aid in question. In practice, specific effectiveness criteria rarely refer directly to a comprehensive metric of development. Instead, these criteria typically relate to various indicators of expected effectiveness that represent demonstrated improvements in the past or country characteristics believed to generally increase the effectiveness of aid.[10]

Cross-cutting criteria

There are also several allocation criteria that defy the effectiveness and need categories. These either have little direct relation to effectiveness or need, or they relate substantially to both.

Criteria that relate substantially to both effectiveness and need may relate to the two in the same way or in opposing ways. Examples of the latter may include criteria linked to the quality of policy and governance, e.g. health-system performance measures. While poor quality of policy and governance may decrease the effectiveness of aid, it may, at the same time, increase the need for aid owing to low domestic capacity for making progress without external assistance. In

7 Related distinctions are described elsewhere (Darcy and Hofmann 2003; Anderson 2008). For example, in discussing measures of need, Edward Anderson makes a distinction between 'measures of deprivation' and 'measures of a country's ability to obtain revenue from sources other than aid' (Anderson 2008).

8 It is worth noting that the content of the two types of need criteria may converge. If development is measured (partly) in terms of GNIpc, development need criteria will (partly) refer to level of GNIpc. However, if development is (partly) measured in terms of U5MR and GNIpc is considered a key determinant of the country's capacity to reduce that rate, GNIpc may also be an element of capacity need criteria.

9 Effectiveness can be defined in terms of the achievement of any objective and may thus go beyond development gains. Moreover, costs or inputs can be taken into account more explicitly by considering cost-effectiveness or efficiency.

10 The concept of aid performance sometimes corresponds to that of effectiveness as used here and at other times reflects a wider set of concerns.

contrast, criteria linked to economic structural vulnerability[11] may harbour no conflict between need and effectiveness. This is suggested by the claim that vulnerability so defined increases need, but also represents a situation in which aid may be particularly effective (Guillaumont 2008).

Many other specific criteria also cut across effectiveness and need, of which four are particularly important. First, there are criteria related to population size. A large population may drive need as well as effectiveness in either direction.[12] Second, there are criteria related to the expected amount of aid from other donors. Increasing amounts are likely to reduce capacity need, while they may decrease or increase effectiveness depending on absorptive capacity and the interaction of aid from different donors. Third, there are criteria related to universality or equality in aid recipiency among countries. These criteria have no obvious relation to either effectiveness or need. Fourth, there are criteria emphasizing the distinction between a country's effort and circumstances (Llavador and Roemer 2001; Cogneau and Naudet 2007). These criteria will typically relate to need and guide aid toward countries whose need is due to unfavourable circumstances, i.e. factors over which the government or the people exert little or no control.[13]

In addition to these specific criteria, there is also a general distinction that cuts across effectiveness and need, and that is particularly relevant with respect to the bilateral institutions. This is the distinction between criteria primarily related to donor interest and those primarily related to recipient need (Berthelemy 2006). Criteria emphasizing donor interest include those focusing on political and economic ties with the recipient country, while criteria emphasizing recipient need may focus on poverty and unmet health needs in the recipient country.

Finally, it is worth noting that several aid allocation criteria can be seen as a form of conditionality. Conditionality has traditionally involved requirements with respect to future policy in the recipient country; but it may also accommodate requirements with respect to the present or the past and with respect to outcomes as well as policies (Koeberle et al. 2005; Temple 2010).

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11 Economic vulnerability can be defined in terms of the risk for a country to have its development hampered by exogenous shocks and related instabilities of economic variables (Guillaumont 2011). Such vulnerability can be considered structural to the extent that it rests on persisting factors and features and is not the result of current or recent policies (Guillaumont 2011). Structural economic vulnerability can be measured in terms of the Economic Vulnerability Index (EVI). This index is used by the Committee for Development Policy (CDP) in the identification of least developed countries (LDCs); a category of low-income developing countries that face severe structural impediments to growth. In addition to the EVI, inclusion in this category depends on GNI per capita and the Human Assets Index (HAI) (CDP/UN DESA 2008). After 1991, inclusion has also depended on population size as countries with a population of more than 75 million have been excluded.

12 Total development needs in the population will generally increase with population size, while capacity need may decrease with population size because of the particular challenges facing small countries, economies of scale, or fixed costs and threshold effects. However, population size may also pertain to effectiveness. For example, effectiveness may increase with population size, owing to certain fixed costs or costs that do not increase proportionally with that size.

13 The underlying idea is that such countries are less responsible for their predicament and thus more deserving of aid. One challenge for such an approach is to separate effort and circumstances adequately in a feasible way. It has been suggested, for example, that circumstances can be represented by structural vulnerability (Guillaumont 2008), while effort can be represented by present policies. Even so, another challenge is the extent to which citizens can be seen as responsible for their governments' actions, especially in the absence of democracy.

Allocation criteria of multilateral and polylateral institutions

This section outlines the allocation criteria stated by major multi- and polylateral[14] distributors of aid and development assistance for health.[15] These criteria are a useful starting point for any discussion on and search for appropriate allocation criteria. The institutions examined are the GAVI Alliance (GAVI), the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM), the United Nations Development Programme (UNDP), the United Nations Children's Fund (UNICEF), and the International Development Association (IDA) of the World Bank. Table 1 summarizes the criteria put forward by these institutions. It must be kept in mind that the way institutions actually distribute aid may depart quite significantly from what is suggested by their stated criteria.

Table 1: Allocation criteria explicitly emphasized by multilateral and polylateral institutions

	Typical impact on allocation	GAVI	GFATM	UNDP	UNICEF	IDA
Metric of criteria primarily related to need						
GNIpc	–	●	●	●	●	●
Population	+	●		●	●	●
Disease burden	+		●			
U5MR	+				●	
Other sources of funding	+/–		●			●
Conflict	+					●
Sub-Saharan Africa	+				●	●
Least-developed countries	+			●	●	
Underserved and most-at-risk populations	+		●			
Metric of criteria primarily related to effectiveness						
Performance	+	●	●		●	●
Efficiency/value for money/ high impact	+	●	●			
Metric of criteria primarily reflecting conditionality						
Domestic cofunding	+	●	●			
Health share of government expenditure	+	●				

14 'Polylateral' here refers to relations between states and non-state entities. More specifically, Geoffrey Wiseman has defined polylateralism as '[t]he conduct of relations between official entities (such as a state, several states acting together, or a state-based international organization) and at least one unofficial, nonstate entity in which there is a reasonable expectation of systematic relationships, involving some form of reporting, communication, negotiation, and representation, but not involving mutual recognition as sovereign, equivalent entities' (Wiseman 2010).

15 Emphasis is put on initial allocations, as opposed to criteria for renewal or adjustments. Likewise, we do not emphasize graduation criteria or allocation criteria applicable upon graduation.

GAVI Alliance

The GAVI Alliance is a public-private partnership involving a wide range of actors and whose primary objective is to increase immunization coverage in developing countries. From its inception in 2000 through 2012, GAVI has committed $7.5 billion and claims to have supported the immunization of 370 million children (GAVI 2013c). GAVI's allocation process has three central stages:

- Determination of eligibility to apply;
- Assessment of applications; and
- Ranking of applications recommended by the Independent Review Committee (IRC).[16]

To be eligible to apply, countries must have GNIpc equal or below $1,550 (GAVI 2013d).[17] As of July 2013, 56 countries met this criterion (GAVI 2013d). Other criteria vary somewhat with the type of assistance provided, and in the following we will focus on new vaccine support. An additional eligibility criterion for such support is that coverage for the third dose of the diphtheria-tetanus-pertussis vaccine (DTP3) must be equal to or above 70%, with the exception of applications for vaccines for Meningitis A, Yellow Fever and Measles Rubella (GAVI 2013d). While the basic eligibility criterion can be seen as primarily concerned with need, the latter criterion may primarily relate to commitment, demonstrated performance and expected effectiveness.

For the assessment of applications, a different set of criteria apply (GAVI 2013b). Among these criteria is burden of disease, but its exact role in the assessment is not specified. There are also various criteria particular to individual vaccines, including demonstrated ability to reach specific coverage thresholds for specific vaccines in the past. Moreover, there is a cofinancing requirement that applies to most vaccines and that can be seen as a form of conditionality. Countries are assigned to one of three groups on the basis of GNIpc and the required cofinancing for each group increases with that measure. Finally, the GAVI application guidelines explicitly set out how funding levels will tend to increase with the size of the target population.

In situations of resources scarcity, not all applications recommended by the IRC may receive funding. For the use in such situations, GAVI established in 2010 a pilot prioritization mechanism (GAVI 2010; GAVI 2013a). This mechanism ranks recommended applications according to an index motivated by the following four objectives and calculated from a corresponding set of four criteria:

- Maximize health impact: deaths averted by 1000 vaccinated;
- Maximize value for money: cost per death averted;
- Reinforce financial sustainability: government commitment to health in terms of health share of government expenditure; and
- Support countries with the greatest need: GNIpc.

These criteria are weighted 30%, 30%, 25% and 15% respectively. The explicit linking of objectives and criteria clearly indicates how at least three of the criteria are directly related to effectiveness and need. In addition to the four criteria encapsulated in the index, the pilot prioritization mechanism includes one criterion operating as a constraint: when resources are scarce, a maximum of one proposal per country is to be approved in each application round. GAVI sees this as a proxy for equity among countries. As of July 2013, this constraint was the only component of the pilot prioritization mechanism that had been used.[18]

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16 The allocation criteria used by the GAVI Alliance are described on its website (GAVI 2013d; GAVI 2013a) and in *GAVI Alliance Country Eligibility Policy* (GAVI 2009), *GAVI Alliance Pilot Prioritisation Mechanism* (GAVI 2010) and *Guidelines for Applications: New and Underused Vaccines Support 2013* (GAVI 2013b).

17 GNIpc is based on the World Bank Atlas method. Some exceptions from the threshold apply for graduating countries (GAVI 2013b).

18 This is according to the GAVI secretariat.

The Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM)

GFATM is a major public-private partnership in global health. According to its own estimates, it channels 21%, 82% and 50% of the international financing against AIDS, tuberculosis and malaria respectively (GFATM 2013a). More generally, a total of $3,3 billion of DAH was channelled through GFATM in 2010 (IHME 2012). It is currently revising its allocation criteria in order to 'ensure an appropriate focus is placed on countries with the highest disease burden and least ability to pay, while retaining the global reach of the Global Fund' (GFATM 2012). Full implementation of the new funding model is supposed to begin in late 2013, and many details are currently not available. At present there is a transition phase in which certain countries have been invited to apply and key elements of the new model are being tested (GFATM 2013b).

The new funding model will involve at least four different stages at which different sets of allocation criteria will apply:[19]

- Determination of eligibility;
- Application of counterpart financing requirements;
- Assessment by the Technical Review Panel (TRP); and
- Determination of grant size.

As for eligibility, the new funding model will rely on criteria similar to those that have applied up to now (GFATM 2013e).[20] The basic criterion will relate to GNIpc and the World Bank income classification. Income class will determine whether the country also has to meet a criterion related to disease burden. LICs and LMICs will be eligible irrespective of disease burden, while UMICs must have a disease burden classified as 'severe' or 'extreme.'[21] This classification has been based on several indicators, including HIV prevalence, tuberculosis notification rate, and malaria mortality rate. For MICs, there will also be certain requirements with respect to the focus of the proposal's budget. LMICs have to focus at least 50% of the budget on special groups defined as 'underserved and most-at-risk populations,' special interventions defined as 'highest impact interventions within a defined epidemiological context,' or both. UMICs have to target 100% of the budget on such groups or interventions. The eligibility criteria, as described here, appear to emphasize country need, both in terms of economic development and economic capacity and in terms of health.

The counterpart financing requirements have also varied with income classification and will remain unchanged (GFATM 2013e). The government's contribution to the national disease programme, as a share of total government and Global Fund financing, will have to be at least 5% for LICs, 20% for lower LMICs, 40% for upper LMICs and 60% for UMICs (GFATM 2011a). This can be seen as a form of policy conditionality.

Under the new funding model, eligible countries will be invited to submit a concept note early in the application process (GFATM 2013e). The TRP will then make recommendations on the

19 Most aspects of the previous model are described in *Policy on Eligibility Criteria, Counterpart Financing Requirements, and Prioritization of Proposals for Funding from the Global Fund* (GFATM 2011a). The new funding model is outlined on the GFATM website (GFATM 2013c).

20 Several special provisions will no longer apply. The previous criteria are primarily described in *Policy on eligibility Criteria* (GFATM 2011a) and slightly revised elsewhere (GFATM 2011b). The criteria outlined in the following are those that have applied to the General Funding Pool. The new model will not distinguish between a general and targeted pool, but will integrate the current restrictions of the latter pool in the new allocation formula (GFATM's Strategy, Investment and Impact Division, personal communication, February 2013). Moreover, the criteria outlined have not necessarily applied to regional proposals or cross-cutting health system strengthening proposals.

21 At least up to now, UMICs designated under the 'small island economy' exception to the IDA eligibility criteria have not had to meet this requirement. G-20 UMICs with less than 'extreme' disease burden have not been eligible. UMICs not listed on the OECD's DAC list of ODA recipients have been ineligible to apply for funding for HIV/AIDS proposals with some few exceptions.

technical merit of the proposed activities (GFATM 2013c). The exact criteria to be used by the TRP in the future are not yet available.

Following the review, the secretariat will determine the upper ceiling of the grant before the proposal is submitted to the board for final approval (GFATM 2013d). That amount will include indicative as well as incentive funding (GFATM 2013c). The indicative funding amount for each country will be set on the basis of an allocation formula incorporating GNIpc and disease burden (GFATM 2013d) and of a number of qualitative criteria, including availability of other funding sources, absorptive capacity and past performance (GFATM 2013e). A novel aspect of the new funding model is that each country will also be classified into one of four 'country bands' on the basis of GNIpc and disease burden (GFATM 2013d). Countries within the same band will compete for any available incentive funding.[22] This separate kind of funding is supposed to reward well-performing programmes with a potential for increased, quantifiable impact (GFATM 2013e). Beyond what has been outlined here, many details of the new funding model are yet to be made public.

United Nations Development Programme (UNDP)

The UNDP is the UN's global development network. It is present in 177 countries and territories, and manages a budget of nearly $5 billion (UNDP 2013b). Health is central to 'its agenda, as reflected in the Millennium Development Goals (MDGs) and the Human Development Index (HDI). The regular programme resource allocations by the UNDP are made within the framework of targets for resource assignments from the core (TRACs).[23] TRAC 1 refers to the annual level of regular programme resources targeted to be available for an individual country.[24] This level is determined by eligibility criteria, allocation criteria and distributional targets.

To be eligible to receive TRAC 1 resources in the period 2008–13, GNIpc in 2005 had to be at or below $5,500 (UNDP 2012a). For the period 2014–17, UNDP has adopted the World Bank high-income threshold to determine eligibility (UNDP 2012b; UNDP 2013d). To be eligible, average GNIpc in 2008–11 will have to be at or below $12,475 (UNDP 2013c).[25] The UNDP will continue to further divide countries into LICs and MICs.

The minimum annual allocation will vary with GNIpc and the presence of a UNDP country office (UNDP 2013d). More specifically, there will be different minimum allocations for LICs, MICs with GNIpc below $6,660 and MICs with GNIpc above $6,660 (UNDP 2013d).

Beyond the minimum, allocation among eligible countries is based on a formula that is basically the product of two weights related to GNIpc and population size respectively (UNDP 2011; UNDP 2012b).[26] The GNIpc weight decreases with GNIpc to a level of GNIpc from which the weight remains constant (UNDP 2011; UNDP 2012b). More specifically, the GNIpc weight decreases at a decreasing rate from 9.31 at GNIpc of $0 to 0.250 at GNIpc of $1,464 and then remains constant (UNDP 2011). The population weight increases with population size up to a threshold from which the weight remains constant (UNDP 2011; UNDP 2012b). More specifically, the weight increases at a decreasing rate from 0.050 at 0 million to 6.450 at 1 billion

22 According to GFATM's Strategy, Investment and Impact Division (personal communication, February 2013).

23 Key aspects of UNDP's current and future resource allocation policy are described in *Mid-term Review of the Programming Arrangements* (UNDP 2010); *Second Review of the Programming Arrangements, 2008–2013* (UNDP 2012a); *Information Note on the 2008–2013 Programming Arrangements* (UNDP 2011); *Programming Arrangements, 2014–2017* (UNDP 2012b); and *Decisions Adopted by the Executive Board in 2012* (UNDP 2013d).

24 The TRAC is a three-tiered system, in which TRAC 2 and 3 serve purposes different from TRAC 1 and depend on different, less precise allocation criteria. TRAC 2 is designed to provide the administrator with the flexibility to allocate resources to high-impact, high-leverage activities in order to strengthen national capacities to achieve the MDGs. Resources are allocated at the discretion of UNDP senior management and according to non-formula-based allocation criteria. TRAC 3 is designed to provide a critical capacity to respond quickly and flexibly to the needs of countries affected by conflicts and natural disasters. There is no specific allocation formula for TRAC 3.

25 Countries with GNIpc above this threshold are assigned net contributor country (NCC) status. In the process of revising the threshold, an eligibility criterion based on the Human Development Index (HDI) was also considered.

26 A bonus supplement is applied to this product if the country has LDC status (UNDP 2011).

and then remains constant (UNDP 2011). Given the nature of the two weights, the formula can be seen as primarily related to country need. For the period 2014–17, the formula will be modified and the current weighting system for GNIpc and population size will be replaced by a simpler system. More specifically, the new formula is supposed to involve a smoother decrease and increase of the GNIpc and the population weights respectively (UNDP 2012b). In any case, future allocations are supposed to respect the same distributive requirements across country categories as before: LICs are supposed to receive between 85% and 91% of total resources, MICs between 9% and 15% and the cross-cutting category of least-developed countries (LDCs) at least 60% (UNDP 2012b).[27]

United Nations Children's Fund (UNICEF)

UNICEF is a UN organization concentrating on the protection of children's rights and the satisfaction of children's basic needs. Improving the health of the world's children is one core objective. It manages a total budget of approximately $3.9 billion (UNICEF 2013a) and has an explicit system for the allocation of its regular resources.[28] The system consists of an eligibility criterion, three core criteria and two distributional targets. Eligible countries are those that have not achieved high-income status, according to World Bank data and definitions. All eligible programme countries will have a minimum annual allocation of $850,000 (UNICEF 2013b). Beyond this minimum, resources among countries with a UNICEF-supported country programme are allocated on the basis of three core criteria: U5MR, child population, and GNIpc.[29] More specifically, the allocation to a country tends to increase with U5MR and child population and decrease with GNIpc (UNICEF 1997b; UNICEF 2008). In addition to the three criteria, there are two distributional targets motivated by the objective to favour children in low-income countries. According to these targets, at least 60% and 50% of the regular resources are to be allocated to LDCs and countries in sub-Saharan Africa respectively. The core criteria as well as the distributional targets may all be considered as primarily responding to country need. Exceptions to the sets of criteria described here include certain multi-country programmes and 7% of the regular resources for programmes that are set aside for more flexible allocation. These resources are supposed to be allocated so as to encourage excellence in the quality of performance in one or more of the areas of work and priorities of UNICEF, to respond to emerging opportunities and to avoid sudden changes in level of regular resources allocation to individual countries.

The International Development Association (IDA)

The IDA is the World Bank's main lending and grant mechanism for the poorest countries. Annual commitments have averaged around $15 billion over the last years (IDA 2013a). Improving health is central to the bank's mission (WB 2007), and total DAH in 2012 has been estimated to $0.9 billion (IHME 2012). The allocation process of the IDA consists basically of two components:[30] determination of eligibility to access resources and a performance-based allocation system.

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27 According to UNDP and Fernandel Carbonell (personal communication), it is not very common that the formula yields distributions that conflict with these distributive requirements. However, if they do, small adjustments are made to the weights.

28 Key aspects of this system are described in *Allocation of General Resources with the Implementation of the Modified System, beginning in 1999* (UNICEF 1997a); *Report on Implementation of the 'Modified System for Allocation of Regular Resources for Programmes' Approved by the Executive Board in 1997* (UNICEF 2008); and *Report on Implementation of the Modified System for Allocation of Regular Resources for Programmes* (UNICEF 2012). The system only applies to the general resources for programmes, as opposed to resources for the support budget or to supplementary funds (UNICEF 1997a).

29 At least two-thirds of regular resources for programs are supposed to be allocated on the basis of these three criteria. In 2012, over 81% of these resources were allocated in this way (UNICEF 2012).

30 The allocation criteria used by the IDA are described on their website (IDA 2013b) and in *Report from the Executive Directors of the International Development Association to the Board of Governors* (IDA 2011).

Two eligibility criteria determine which countries can access IDA resources. First, GNIpc must be below an annually updated threshold, which for the fiscal year 2012 was $1,175. Second, the country must lack creditworthiness to borrow on market terms and consequently need concessional resources to finance the country's development programme. Both criteria can be considered primarily related to need.

To determine allocation among eligible countries, the IDA employs what it calls a performance-based allocation (PBA) system. This system consists essentially of base allocations and a PBA formula.[31] The base allocation component ensures that every eligible country receives at minimum SDR 3 million per year.[32] The amount of resources beyond the base allocation is determined by the PBA formula, which has three arguments: the IDA's Country Performance Rating (CPR), population size and GNIpc. As the name of the formula suggests, CPR is intended to be the main determinant. The CPR is itself based on the Country Policy and Institutional Assessment (CPIA) rating and the Portfolio Performance Rating (PPR). The CPIA evaluates each country's policy and institutional framework and consists of 16 criteria grouped into four equally weighted clusters: economic management, structural policies, policies for social inclusion and equity, and public-sector management and institutions. All criteria are shown in Table 2. The PPR is supposed to reflect the health of the IDA projects portfolio and decreases with the percentage of problem projects in the country. On the basis of CPIA rating and PPR, the CPR is calculated as follows:

$$CPR = (0.24CPIA_{A\text{-}C} + 0.68CPIA_{D} + 0.08PPR)$$

where $CPIA_{A\text{-}C}$ is the average ratings of CPIA clusters A to C, and $CPIA_{D}$ is the rating of CPIA cluster D.

Table 2: CPIA criteria

A. Economic management
• Macroeconomic management • Fiscal policy • Debt policy
B. Structural policies
• Trade • Financial sector • Business regulatory environment
C. Policies for social inclusion
• Gender equality • Equity of public resource use • Building human resources • Social protection and labour • Policies and institutions for environmental sustainability
D. Public sector management and institutions
• Property rights and rule-based governance • Quality of budgetary and financial management • Efficiency of revenue mobilization • Quality of public administration • Transparency, accountability and corruption in the public sector

31 There are also two additional steps required to arrive at a country's 'final' allocation that can be considered part of the PBA system. First, grant allocations are discounted by 20%, and 13% of this discounted amount is reallocated to all IDA-only countries, excluding gap and post-conflict countries. Second, for countries eligible for debt cancellation under the Multilateral Debt Relief Initiative (MDRI), the debt service due in the relevant fiscal year is netted out from that year's allocation.

32 Dominica has been an exception (IDA 2010).

In addition to the CPR, two country characteristics – supposed to reflect country needs – are included in the PBA formula. The country allocation increases with population size (with an exponent of 1) and decreases with GNIpc (with an exponent of -0.125). Accordingly,

$$\text{IDA country allocation} = f(CPR^{5}, \text{population}, GNIpc^{-0.125})$$

The actual annual allocation to a given country also depends on the CPR, population and GNIpc of the other IDA countries as well as the size of the annual IDA envelope (IDA 2010).

There are several exceptions to the allocation criteria described here. Most of these can be seen as primarily responding to country need. First, the allocation to certain countries with access, or potential access, to the International Bank for Reconstruction and Development (IBRD) is capped. Second, countries emerging from severe conflict will be provided with additional resources, for which the explicit rationale is to support their recovery in a period of 'exceptional need' (IDA 2011). Third, exceptional allocations may be provided in the aftermath of severe natural disasters or economic crises. Fourth, eligible countries can qualify for exceptional allocations to help finance the cost associated with the clearance of arrears to IBRD, IDA or both.[33]

Allocation criteria of bilateral institutions

Of the $28.1 billion of development assistance for health provided in 2010, 75% ($21 billion) were disbursed by bilateral agencies (IHME 2012). In absolute dollar amounts, the top donors were the United States ($10 billion), the United Kingdom ($2.3 billion), France ($1.17 billion), Germany ($0.95 billion) and Japan ($0.87 billion) – together providing more than 54% of all DAH (IHME 2012). In terms of proportion of GDP, the leading group changes to include Norway (0.17%), Luxembourg (0.16%) and Sweden (0.11%) along with the United Kingdom (0.10%) and United States (0.09%) (IHME 2012).

This section outlines the allocation criteria explicitly emphasized by major bilateral distributors of aid and DAH.[34] The institutions examined are: the United States Agency for International Development (USAID), the President's Emergency Plan for AIDS Relief (PEPFAR) and the Millennium Challenge Corporation (MCC) in the United States; the UK Department for International Development (DFID), the French Development Agency (AFD), the German Federal Ministry for Economic Cooperation and Development (BMZ), the Japan International Cooperation Agency (JICA), the Norwegian Agency for Development Cooperation (Norad), the Luxembourg Agency for Development Cooperation (LuxDev) and the Swedish International Development Cooperation Agency (Sida). Table 3 summarizes the criteria emphasized by these institutions.

33 Fifth, exceptional allocations are provided for countries re-engaging with IDA after a prolonged period of inactivity on a basis of a strong transitional plan with concerted donor support. Sixth, there is a special provision for selected regional integration projects. In addition to these exceptions, IDA places special emphasis on sub-Saharan Africa and aims to direct more than half of its financial assistance to this region.

34 As noted above, it is often difficult to identify specific criteria for the allocation of DAH as opposed to the criteria for aid allocation more generally. In this section, we therefore primarily examine criteria for the allocation of ODA.

Table 3: Allocation criteria explicitly emphasized by bilateral institutions

	Typical impact on allocation	USAID	PEPFAR	MCC	DFID	AFD	BMZ	JICA	Norad	LuxDev	Sida
Metric of criteria primarily relating to recipient need											
GNIpc	–	●	●	●	●	●	●		●		●
HDI	–				●					●	
Disease burden	+	●	●								
Humanitarian crises	+				●	●			●		
Metric of criteria primarily relating to effectiveness											
Transparency	+			●	●		●		●		
Democracy	+	●		●			●	●	●		●
Good policy environment	+	●		●	●		●	●	●		●
Human rights	+			●	●		●	●	●		●
Impact	+							●			
Metric of criteria primarily relating to donor interest											
Political linkages	+					●	●	●	●		
Economic linkages	+						●	●	●		
Linguistic linkages	+					●					

United States Agency for International Development (USAID)

USAID, established in 1961, is the United States' primary foreign assistance agency. It works in diverse sectors including agriculture, environment and global climate change, science and technology, education and global health (USAID 2013b). The agency operates with an annual budget of $20.4 billion – the largest of all bilateral development agencies (USAID 2013a).

USAID does not provide detailed, explicit information on its allocation criteria. In the context of global health, allocation decisions primarily focus on the need and commitment of the recipient government towards the specific programme at hand, rather than more general needs for development (USAID 2006). More specifically, the Global Health Initiative of the Department of State and USAID's Strategic Plan for 2011–16 provide goals for USAID with respect to global health (USAID 2012) and the allocation of funds across countries related to these goals is based on criteria specific to the issue. For instance, HIV/AIDS resources may be allocated on the basis of criteria such as disease severity and magnitude. In addition, allocations are based on previous programme performance (USAID 2006).

United States President's Emergency Plan for AIDS Relief (PEPFAR)

PEPFAR, introduced in 2003, is committed solely to the purpose of creating sustainable programmes to combat HIV/AIDS, and to provide affordable treatment and care worldwide. Between 2008 and 2013, PEPFAR was authorized to utilize funds of $48 billion in meeting these goals (US Global Leadership Against HIV/AIDS). Its funds are primarily distributed according

to need criteria, with the majority of disbursed for programmes in the 22 countries with which it has developed partnership frameworks.

Eligibility for aid is determined on the basis of the size and demographics of the population with HIV/AIDS in high-prevalence countries in sub-Saharan Africa, Asia and Europe with inadequate financial resources (US Global Leadership Against HIV/AIDS; US Leadership Against HIV/AIDS; PEPFAR 2011). In other words, health needs as well as domestic capacity to respond to those needs appear to be central considerations. However, specific criteria for the allocation of resources across eligible countries are not publicly available.

Millennium Challenge Corporation (MCC)

The MCC was created by the US Congress in 2004 as an independent foreign aid agency to engage explicitly with countries committed to principles of good governance, economic freedom and investment in their citizens (MCC 2013). The MCC disburses close to $1 billion annually and has disbursed over $8.4 billion since its inception. The funds are provided through five-year compacts to countries that pass the candidacy and eligibility criteria and through short-term threshold programmes to countries aiming to improve their policy performance (MCC 2012b; MCC 2013). The MCC is unique in the extent of transparency of the candidacy and eligibility criteria used, and it publishes its methodology and criteria for approval by Congress and public comment.

First-line candidacy for aid is primarily based on need criteria and restricted to those countries classified as LICs or LMICs by the World Bank. In addition, candidate countries cannot be subject to legal prohibitions that restrict economic assistance under the Foreign Assistance Act of 1961 (MCC 2012a). These legal prohibitions may be due to a variety of factors, including volatile government systems, drugs-trafficking or human-trafficking issues, or budget transparency issues (MCC 2012a).

Subsequent eligibility for aid from among the candidate countries is based on cross-cutting criteria of just and democratic governance, the recipient government's investments in its people and economic freedom. The satisfaction of these criteria is measured by different policy indicators, developed by independent third-party institutions (MCC 2012c). The indicators used in the fiscal year 2013 are listed in Table 4.

Table 4: Indicators used by MCC to determine eligibility

Ruling justly
• Civil liberties (Freedom House) • Political rights (Freedom House) • Control of corruption (World Bank/Brookings Institution WGI) • Government effectiveness (World Bank/Brookings Institution WGI) • Rule of law (World Bank/Brookings Institution WGI) • Freedom of information (Freedom House/FRINGE Special/Open Net Initiative)
Investing in people
• Immunization rates (WHO and UNICEF) • Public expenditure on health (WHO) • Girls' education (UNESCO) • Primary education completion (Scorecard LICs) • Secondary education enrolment (Scorecards LMICs) • Public expenditure on primary education (UNESCO and national sources) • Child health (CIESIN and YCELP) • Natural resource protection (CIESIN and YCELP)

Encouraging economic freedom
• Business start-up (IFC) • Land rights and access (IFAD and IFC) • Trade policy (Heritage Foundation) • Regulatory quality (World Bank/Brookings Institution WGI) • Inflation (IMF WEO) • Fiscal policy (IMF WEO) • Access to credit (IFC) • Gender in the economy (IFC)

To be eligible, a country must attain a score greater than the median score of its income group (either the LIC or LMIC scorecard) on at least half of the indicators, as well as above the median on the control-of-corruption indicator. Missing indicator values are considered worse than the median. An exception to the median rule is inflation; countries must have an inflation rate below 15%. Moreover, for the political rights, civil liberties and immunization indicators, country performance is gauged against an absolute threshold, as opposed to the median score. The board also takes into consideration whether a country passes at least one indicator in each of the three categories. In addition to the objective eligibility rules, the MCC reserves the right to exercise its own discretion in determining the final list of countries that pass this stage. In the past, the MCC has used this discretionary power to exclude countries that were deemed inappropriate recipients of aid, such as China, India and Bhutan, and to include countries that were very close to qualifying.

Department for International Development (DFID), United Kingdom

DFID was set up in 1997 with an aim to end extreme poverty around the world. It provided £4.2 billion in bilateral assistance in 2010–11, supporting projects in health, human rights, education, climate change, food security, government transparency and accountability, and more (DFID 2011b). DFID focuses its aid in countries according to recipient country need, expected effectiveness of aid and strategic fit with UK government priorities, in order to prioritize those countries where aid could make the greatest impact (DFID 2011a). In addition, the UK government has committed to spending at least 30% of aid in fragile and conflict-affected states by 2014–15 (DFID 2011a).

DFID primarily utilizes the OECD's ODA-eligibility criteria to gauge country need. Eligibility for ODA under OECD guidelines comprises all LICs and MICs as defined by the World Bank (OECD 2012a). The list encompasses all LDCs as defined by the UN, and excludes G8 members, European Union (EU) members and countries with a firm accession date for entry into the EU. Further allocation criteria include commitment by recipient governments to poverty reduction and the MDGs, human rights, good governance, and transparency and accountability (DFID 2011a). These criteria primarily emphasize effectiveness in aid allocation.

French Development Agency (AFD)

The AFD, the main implementing agency for France's bilateral aid, provides funding and technical assistance to enhance sustainable development around the world. In 2012, it funded 648 projects worldwide, providing about €6.9 billion in aid (AFD 2013). French bilateral aid is concentrated in sub-Saharan Africa (60% of the bilateral budget) and the Mediterranean basin (20% of the bilateral budget) for a variety of needs-based and geopolitical reasons.

For sub-Saharan Africa, the prioritization of recipient countries is determined by linguistic ties and the income level of the country. French aid for health is concentrated in 14 priority countries, primarily from the list of LDCs, to support the achievement of the MDGs. Aid to the Mediterranean region is more largely motivated from geopolitical considerations, with France involved in the Union of the Mediterranean. Moreover, the fragility of many states in this region, so close to the EU, is a important driver of aid (Directorate-General of Global Affairs 2011).

In addition, France provides 10% of the budgetary aid to other crisis countries in the Middle East and Afghanistan, in order to promote peacekeeping and stave off humanitarian crises, and 10% to emerging countries, in order to strengthen cooperation and dialogue with these economies (Directorate-General of Global Affairs 2011).

German Federal Ministry for Economic Cooperation and Development (BMZ)

The BMZ is the German agency for international development and is guided by the principles of reducing poverty, promoting equitable forms of globalization and building peace. It provides over €3 billion in official bilateral assistance every year (BMZ 2013), developing projects to improve health, human rights, environment and governance around the world. BMZ guides Germany's strategy regarding development assistance and implements bilateral programmes through the German Society for International Cooperation (GIZ), which provides technical assistance, and the German Bank for Reconstruction (KfW), which disburses grants and loans (E2Pi 2011). Eligibility criteria for German bilateral aid are based on political, fiduciary and macroeconomic indicators developed by the BMZ to minimize risk and facilitate smooth disbursement of aid for long-term sustainability (BMZ 2008).

The Catalogue of Criteria developed by the BMZ consists of five broad areas of good-governance policies, including human rights, democracy, transparency and efficiency, pro-poor and sustainable governance, and a cooperative stance to the international community (BMZ 2008). Since 2007, all partner countries have been assessed annually against these criteria and the assessment determines Germany's level of engagement with them (BMZ 2009a).

DAH allocated is also based on the needs of the partner country, Germany's health priorities and special areas of competence – which include health systems strengthening, HIV/AIDS prevention and treatment, and sexual and reproductive health – and the division of labour among donors operating in the partner country (BMZ 2009b).

Japan International Cooperation Agency (JICA)

JICA was established in 2003 to promote inclusive and dynamic development as a means to reduce poverty, improve governance and achieve human security globally. It disbursed over $6.2 billion, 59% of its total official development assistance, in bilateral aid in 2011 (JICA 2012).

Officially, Japan does not specify priority countries, and details on the criteria for aid eligibility and allocation are not readily available. More generally, however, JICA employs good-governance criteria (trends toward democratization and respect for human rights) in the allocation of ODA in order to maximize the effectiveness and sustainability of aid (JICA Research Institute 2013). Allocations are also based on an *ex ante* evaluation of the relevance and projected outcome of the aid assistance scheme (JICA 2012). Considerations in this regard include the extent to which the proposed allocation of aid is suited to the priorities and policies of the target nation, and the perceived effectiveness of the programme in achieving its set objectives. In addition, *ex post* evaluations of relevance, effectiveness, impact efficiency and sustainability are taken into account (JICA 2012). Finally, geopolitical considerations and trade ties appear to be emphasized (JICA 2012).

Norwegian Agency for Development Cooperation (Norad)

Norad is a specialized directorate under the Norwegian Ministry of Foreign Affairs with a mandate to focus on poverty-reduction strategies around the world. As a proportion of GDP, Norway provides most development assistance in the world, with approximately 21 billion Norwegian kroner (approximately 3.6 billion US$) allocated to development aid in 2012 (excluding multilateral aid) (Norad 2013).

Norad is supposed to allocate resources for development assistance using need and good-governance criteria (Norad 2013). Poverty is one of the main criteria for the allocation of aid, and Norad's main partner countries are chosen from among the LDCs with relatively stable governments. In addition, the Norwegian government regularly evaluates partner countries

in terms of human rights, democratization, corruption and quality of public administration in order to assess the potential effectiveness of aid (Norad 2013). With respect to health, the government also evaluates the countries' implementation of strategies to accelerate progress toward the MDGs (Norad 2013).

A large part of Norwegian aid (55% in 2002) is provided as emergency relief, humanitarian assistance and democratization and transitional assistance. This part is subject to allocation criteria different from those applying to the partner countries discussed above, and the criteria used vary with the situation at hand (Norad 2013).

Luxembourg Agency for Development Cooperation (LuxDev)

LuxDev is the implementing agency for Luxembourg's bilateral assistance with a mission to eradicate poverty and ensure sustainable development in all spheres. It disbursed more than €78 million to 95 projects and programmes in 14 countries in 2012 (LuxDev 2013c). Development assistance through LuxDev is concentrated in nine 'privileged partner' countries on the basis of needs-related criteria (LuxDev 2013a). In addition, LuxDev supports development programmes in five project-countries – Rwanda, Mongolia, Serbia, Montenegro and Kosovo – following a policy of geographical concentration (LuxDev 2013a).

Privileged partner countries are selected on the basis of the Human Development Index (HDI) value. For 2009, these countries included Burkina Faso, Mali, Niger, Senegal, Cape Verde, Laos, Vietnam, Nicaragua and El Salvador (LuxDev 2013b). However, these countries are not those with the very lowest HDI value, and not all privileged partner countries fall in the category of 'low human development.'

Swedish International Development Cooperation Agency (Sida)

Sida implements Sweden's development policy and poverty reduction strategies through programmes to promote democracy, human rights, health and social development and peace and security in 33 countries. It planned to disburse approximately 18 billion Swedish kroner (approximately 2.8 billion US$) in 2013, which is about half of the development assistance from the Swedish government (Sida 2013). The allocation of aid through Sida is primarily a political directive from the Ministry of Foreign Affairs, utilizing needs-based and good-governance criteria (Sida 2010). Following a policy of political coherence, eligibility for aid is limited to those countries included in the list of OECD-DAC recipients and in which the partner organizations work on a democratic basis in accordance with the sentiments expressed in the Universal Declaration of Human Rights (Sida 2010).

Similarities and differences

From the review, one clear finding is that many institutions do not have *specific* criteria publicly available. This is particularly the case for the bilateral institutions. Especially against the background of the current emphasis on transparency and accountability, this lack of explicit criteria is worrisome and should be addressed.

Among the institutions that explicitly emphasize certain specific criteria, important differences are displayed in Table 1 and Table 3. While not completely exhaustive, the tables do provide useful illustrations. Also indicated by the two tables is that all institutions had criteria seemingly related to the two overarching concerns for need and effectiveness. The review, however, also suggests that the relative emphasis given to each of those two concerns varied considerably.

One specific criterion stood out as explicitly emphasized by nearly all institutions: the GNIpc criterion. This was particularly central to the determination of eligibility. However, the GNIpc threshold value, above which countries are deemed ineligible for aid, varied considerably: from $1,175 (IDA) to $12,616 (UNICEF). In comparison, LICs and HICs are for the fiscal year 2014 classified by the World Bank as having a GNIpc ≤ $1,035 and ≥ $12,616 respectively. Accordingly, the range of eligibility thresholds spanned nearly the entire range of GNIpc for MICs.

As for what the institutions do not emphasize, there are at least two commonalities. Typically institutions not specifically devoted to health do not have specific criteria for DAH and generally have few, if any, criteria directly related to health. Moreover, none of the reviewed institutions emphasize criteria directly related to economic inequalities or inequalities in health or health care.

Distributional implications of different criteria

As described, multiple criteria are currently guiding the allocation of development assistance for health. In addition, many other criteria have been proposed in the literature. For any discussion of and search for proper allocation criteria, it is crucial to understand how each potential criterion influences the distribution of DAH. Even if no single criterion is sufficient alone, the distribution following the application of a single criterion indicates how that criterion will affect the distribution when part of a set. We therefore estimated, as a rough illustration, the distributions of DAH following several single criteria and one criteria set using a very simple model. For each criterion or set, the question was the following: how will the total amount of DAH currently available be distributed across countries and country categories if only this criterion or set is applied? We also examined how those distributions differ from the current distribution of DAH.

Criteria

Twelve criteria were examined. Their content is best appreciated by seeing an allocation criterion as constituted by a metric and a rule. The metric of a criterion is the country characteristic with which the criterion is directly concerned, e.g. level of GNI per capita. The rule of a criterion specifies how the metric and the amount of DAH are related. Basic definitions of the 12 criteria, in terms of metric and rule, and two general adjustments, are described below. The criteria are summarized in Table 5.

- *GNIpc:* According to this criterion, DAH increases with decreasing GNIpc. In the context of DAH, GNIpc is particularly relevant as an indicator of domestic capacity to address health needs.[35] World Bank data for 2011 (current US$, Atlas method) were used.
- *Under-five mortality rate (U5MR):* According to this criterion, DAH increases with the U5MR. U5MR is a key indicator of absolute, severe deprivation in health. World Bank data for 2011 were used.
- *Years of life lost per capita (YLLpc):* According to this criterion, DAH increases with YLLpc. YLLpc is an indicator of average health deprivation in terms of length of life, but does not include deprivation in terms of quality. We defined YLLpc as the difference between a reference level of life expectancy and life expectancy at birth in 2011. In line with the Global Burden of Disease Study 2010, a reference level of 86.0 years was used (Murray et al. 2012). World Bank data on life expectancy for 2011 were used.
- *Burden of disease rate (BODr):* According to this criterion, DAH increases with the BODr, i.e. the number of disability-adjusted life years (DALYs) per 100,000. BODr is an indicator of average health deprivation in terms of length of life as well as quality of life. Data on BODr for 2010 were obtained from the Institute of Health Metrics and Evaluation (IHME) (IHME 2013).

35 External assistance typically constitutes part of GNIpc. However, in line with current practice, including the practice of the institutions reviewed above, we did not exclude this part of GNIpc even when considering domestic capacity.

- *Government health expenditure per capita (GHEpc):* According to this criterion, DAH increases with decreasing GHEpc. GHEpc is a valuable indicator of the short-term capacity to address domestic health needs.[36] World Bank data on health expenditure per capita (current US$) and public health expenditure (% of total health expenditure) for 2012 were used.

- *Government health expenditure per capita gap from $86 (GHEpc gap):* According to this criterion, DAH increases with the shortfall of GHEpc from $86. This gap indicates the lack of resources for even providing a minimum package of health services. The reference level of $86 in 2012 terms is a recently updated figure[37] of the estimate of the Taskforce on Innovative International Financing for Health Systems (HLTF) (HLTF 2009b). That figure is supposed to indicate total health expenditures per capita (THEpc) needed in LICs in 2015 to ensure coverage for a relatively limited set of key health services, largely focusing on the conditions targeted explicitly by the MDGs for health. In this paper, however, $86 is taken to represent the minimum level of GHEpc.[38]

- *Conditional government health expenditure per capita gap from $86 (5% gap):* According to this criterion, DAH increases with the shortfall of GHEpc from $86 that would exist if GHE in the country represented 5% of GNI. A GHE/GNI ratio of at least 5% has been suggested as a useful target for government health expenditure (McIntyre and Meheus 2014).[39]

- *IDA Resource Allocation Index (IRAI):* According to this criterion, DAH increases with the IRAI. The IRAI is based on the Country Policy and Institutional Assessment (CPIA), which evaluates performance in terms of the quality of a country's policy and institutional framework, as was described above. IRAI is typically seen as an indicator of expected aid effectiveness. World Bank data for 2011 were used.

- *Reduction in under-five mortality rate (ΔU5MR):* According to this criterion, DAH increases with recent reduction in U5MR and more specifically the reduction between 2005 and 2011. U5MR reduction can be seen as an indicator of demonstrated effectiveness in general and possibly a rough indicator of expected aid effectiveness. World Bank data for 2005–11 were used.

- *Gini index (Gini):* According to this criterion, DAH increases with the Gini index for income. The Gini index itself increases with income inequality. One rationale for DAH to increase with this index is that a high score reflects, among other things, that many people fall below the average level of income, that some people fall far below that average or some combination. Income inequality is relevant for DAH primarily because of the correlation between income and health and the fact that a very low income can make health services unaffordable. World Bank data for 2009 or the most recent year available were used.

- *Inequality-adjusted life expectancy (IALE):* According to this criterion, DAH increases with decreasing IALE. This measure discounts life expectancy according to the level of inequality in life expectancy (UNDP 2013e). Data are available in the UNDP's Human Development Reports, where the index is scaled so that the minimum and maximum value are set to 0 and 1 respectively (UNDP 2013a). Data for 2011 were used.

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36 When using GHE as an indicator of domestic capacity, one must keep in mind that external resources constitute part of GHE in many LICs and MICs. Moreover, the GHE figures used in this paper are not adjusted for purchasing power.

37 This is according to McIntyre and Meheus (2014, forthcoming).

38 GHE may better reflect the resources available for high-priority interventions than total health expenditures (THE), as private expenditures may less often be targeted to such interventions. For example, Working Group 1 of the Taskforce on Innovative International Financing for Health Systems (HLTF) assumed that 50% of increases in private spending contribute to meeting the costs of guaranteed benefits, while they noted that the evidence on what private spending purchases is very weak (HLTF 2009a).

39 More precisely, they suggested a GHE/GDP ratio of at least 5%.

- *IDA formula (IDAf):* According to this criterion, DAH increases with the output of the IDAf. That formula was described above and is supposed to reflect need as well as expected effectiveness. World Bank data on CPR for 2011 were used.

For most of the need-related criteria, two adjustments were made. First, a rank-dependent cut-off was applied. More specifically, those 20% of the countries that were best off were excluded and received no DAH. Second, rank-dependent weights were applied. Among those not otherwise excluded, countries were ranked from best off (rank 1) to worst off. The worst-off country was assigned a weight of 2 relative to the best-off country included, and the weights for other countries decreased proportionally with their rank. The two adjustments were made in order to incorporate the widespread belief that the worse off should have some special priority and to do so in a simple manner that retained an intuitive grasp of how the criteria work.

Table 5: Properties of criteria examined

Name of metric and criteria	Abbreviation	Effect on DAH	Cut-off	Weighting
Need-related criteria				
GNI per capita	GNIpc	–	•	•
Under-five mortality rate	U5MR	+	•	•
Years of life lost per capita	YLLpc	+	•	•
Burden of disease rate	BODr	+	•	•
Government health expenditure per capita	GHEpc	–	•	•
Government health expenditure gap from $86	GHEpc gap	+		•
Conditional government health expenditure gap from $86	5% gap	+		•
Effectiveness-related criteria				
IDA Resource Allocation Index	IRAI	+		
Reduction in under-five mortality rate	ΔU5MR	+		
Other				
Gini index	Gini	+	•	•
Inequality-adjusted life expectancy	IALE	–	•	•
IDA formula	IDAf	+		

Estimation procedure

The procedure used to model distributions relied heavily on proportional relationships so as to facilitate an intuitive understanding of the criteria and their implications. For criteria according to which DAH increases with the metric and that are unrelated to population size, the following procedure was used. Among countries not excluded by the rank-dependent cut-off, we posited that DAH for a given country i (D_i) increase proportionally with DAH per capita (d_i) and population size s_i. We further assumed that d_i increase proportionally with a constant a that applied for every country, the rank-dependent weight for the country (w_i), and the level of the metric for the country (m_i).

$$(1)\quad D_i = d_i\, s_i = a w_i\, m_i\, s_i$$

We imposed the constraint mentioned above according to which the sum of DAH across all countries N must equal total DAH currently available. More specifically, this was defined as the total amount of DAH in 2010 – with the exception of Occupied Palestinian Territory – that could be attributed to specific countries according to Institute of Health Metrics and Evaluation (IHME) (IHME 2012).[40] That total was $13,671,452,031.

$$(2)\quad \sum_i^N D_i = \sum_i^N a w_i\, m_i\, s_i = a \sum_i^N w_i\, m_i\, s_i = 13{,}671{,}452{,}031\ \text{US\$}$$

40 The occupied Palestinian Territory was generally excluded from our estimations owing to lack of data.

We solved equation (2) for each criterion to find *a*. With *a* identified, we calculated the distribution of DAH, i.e. the amount of DAH for each country *i*, by using equation (1).

The procedure was slightly modified for criteria according to which DAH decreases with the metric, such as the GNIpc criterion. For these criteria, m_i was replaced by m_i^{-1}. For the criterion related to the IDA formula, which pays direct reference to population size, s_i was removed from equations (1) and (2). When an estimate of m_i for a given country was unavailable, DAH actually received in 2010 was used to calculated the constant *a* as well as overall DAH for country categories.

Findings

Table 6 shows the estimated distribution of DAH in terms of absolute levels across country categories. Results for individual countries are shown in Table A1 in the Appendix.

Table 6: Distribution of DAH from different allocation criteria – absolute levels (million US$)[41]

Criterion / Country category	Current	GNIpc	U5MR	YLLpc	BODr	GHEpc	GHEpc gap	5% gap	IRAI	ΔU5MR	Gini	IALE	IDAf
LDCs	6,171	7,106	4,822	3,645	4,272	6,103	4,750	9,399	2,831	3,494	1,810	3,752	2,184
LICs	6,235	7,143	4,414	3,463	4,083	6,244	4,838	9,613	2,710	3,332	1,625	3,538	2,262
LMICs	4,602	5,591	8,361	6,936	7,983	6,965	8,833	4,059	8,159	6,192	2,537	6,762	8,668
UMICs	2,834	938	897	3,273	1,606	463	1	0	2,803	4,147	9,510	3,371	2,741
IDA-eligible countries	8,191	7,938	6,874	5,136	6,069	6,846	5,770	10,107	3,932	4,830	3,074	5,280	2,965
Sub-Saharan Africa	7,730	6,295	5,947	4,530	5,390	4,056	3,859	7,455	3,661	4,104	3,133	4,544	3,284
20% highest BODr	4,956	4,212	4,722	3,495	4,301	2,615	2,562	4,642	2,487	2,921	2,332	3,639	2,010
20% lowest LE	5,090	4,239	4,757	3,533	4,253	2,692	2,577	4,675	2,561	2,948	2,420	3,695	2,120
20% lowest GHEpc	5,652	7,258	4,702	3,608	4,232	6,994	5,478	9,716	3,043	3,451	1,356	3,716	2,171
10% lowest GNIpc	2,668	4,417	2,244	1,622	2,019	2,448	1,885	5,144	1,048	1,514	794	1,695	823
10% highest GNIpc	814	0	248	665	836	7	0	0	814	804	2,783	672	814
10% largest pop.	4,282	7,435	8,084	8,931	8,250	8,912	9,656	6,296	8,546	9,623	8,526	8,881	8,987
N with zero DAH	1	27	28	28	28	27	73	83	1	2	24	26	1

It is interesting to compare the results shown in Table 6 directly with the current distribution of DAH. Table 7 demonstrates the relative changes in DAH for country categories when the estimated distribution is compared with the current distribution. The relative changes for individual countries are shown in Table A2 in the Appendix.

41 Abbreviations used for the criteria are explained above. For country categories, '20% highest BODr' refers to the 20% of the countries that have the highest burden of disease rates; '20% lowest LE' refers to the 20% of the countries that have the lowest average life expectancies; '20% lowest GHEpc' refers to the 20% of the countries that have the lowest government health expenditures per capita; '10% lowest GNIpc' and '10% highest GNIpc' refer to the 10% of the countries that have the lowest and highest gross national incomes per capita, respectively; and '10% largest pop.' refers to the 10% of the countries that have the largest populations.

Table 7: Distribution of DAH from different allocation criteria – difference from current levels (%)

Criterion / Country category	GNIpc	U5MR	YLLpc	BODr	GHEpc	GHEpc gap	5% gap	IRAI	ΔU5MR	Gini	IALE	IDAf
LDCs	15	-22	-41	-31	-1	-23	52	-54	-43	-71	-39	-65
LICs	15	-29	-44	-35	0	-22	54	-57	-47	-74	-43	-64
LMICs	21	82	51	73	51	92	-12	77	35	-45	47	88
UMICs	-67	-68	15	-43	-84	-100	-100	-1	46	236	19	-3
IDA-eligible countries	-3	-16	-37	-26	-16	-30	23	-52	-41	-62	-36	-64
Sub-Saharan Africa	-19	-23	-41	-30	-48	-50	-4	-53	-47	-59	-41	-58
20% highest BODr	-15	-5	-29	-13	-47	-48	-6	-50	-41	-53	-27	-59
20% lowest LE	-17	-7	-31	-16	-47	-49	-8	-50	-42	-52	-27	-58
20% lowest GHEpc	28	-17	-36	-25	24	-3	72	-46	-39	-76	-34	-62
10% lowest GNIpc	66	-16	-39	-24	-8	-29	93	-61	-43	-70	-36	-69
10% highest GNIpc	-100	-70	-18	3	-99	-100	-100	0	-1	242	-18	0
10% largest pop.	74	89	109	93	108	125	47	100	125	99	107	110

Unsurprisingly, the GNIpc criterion shifted DAH away from the countries best off in terms of income, namely the UMICs, and toward the LICs and the LMICs. The health-related need criteria (U5MR, YLLpc, BoDr) shifted DAH toward the LMICs and away from the LICs and partly the UMICs. Interestingly, these criteria also shifted DAH away from the 20% of the countries with the highest disease burden rate and the lowest life expectancy. As for the effectiveness criteria (ΔU5MR and IRAI), these shifted DAH away from those same country categories as well as away from the LICs. Finally, the most pronounced departure from the current distribution was generated by the Gini criterion. This criterion shifted large amounts of DAH toward the UMICs and the 10% of the countries with the highest GNIpc.

As suggested by this discussion, and as is evident from the table, most country categories other than LMICs, UMICs, and the 10% with the largest population would have a reduction in DAH compared to current levels. This trend and many of the specific results were driven by the assumption of proportionality with respect to population size. Compared with today's situation, this assumption will tend to favour large countries. As most of the largest countries are LMICs or UMICs, it is not surprising that increased emphasis on population size translate into an increased emphasis on MICs.[42] Moreover, of the 10 most populous countries included, only one country was among those 20% of the countries with the lowest life expectancy and with the highest BODr respectively. More generally, the importance of population size is further indicated by the consistent increase in DAH observed across all criteria for the 10% of the countries with the largest population.

Quite irrespective of population size, Table 7 does indicate how DAH varies across criteria for given country categories. However, to reduce the impact of population size in the comparison of criteria, we also calculated how the distribution from the various criteria differed from a GNIpc baseline distribution. The baseline distribution was that resulting from the GNIpc criteria described above with only one modification: no rank-dependent cut-off was applied, i.e. no country was excluded. Relative differences compared to this baseline are shown in Table 8 for country categories. Relative changes for individual countries are shown in Table A3 in the Appendix.

42 Of the 10 most populous countries included in our analysis, only one is a LIC, five are LMICs and four are UMICs.

Table 8: Distribution of DAH from different allocation criteria – difference from GNIpc baseline (%)

Criterion / Country category	GNIpc	U5MR	YLLpc	BODr	GHEpc	GHEpc gap	5% gap	IRAI	ΔU5MR	Gini	IALE	IDAf
LDCs	4	-29	-47	-37	-11	-30	38	-58	-49	-73	-45	-68
LICs	4	-36	-49	-40	-9	-29	40	-60	-51	-76	-48	-67
LMICs	0	49	24	42	24	58	-28	45	10	-55	21	55
UMICs	-23	-26	169	32	-62	-100	-100	131	242	683	178	126
IDA-eligible countries	4	-10	-33	-21	-10	-25	32	-49	-37	-60	-31	-61
Sub-Saharan Africa	4	-2	-25	-11	-33	-36	23	-40	-32	-48	-25	-46
20% highest BODr	4	16	-14	6	-36	-37	14	-39	-28	-43	-10	-51
20% lowest LE	4	16	-14	4	-34	-37	14	-37	-28	-41	-10	-48
20% lowest GHEpc	4	-33	-48	-39	0	-21	39	-56	-51	-81	-47	-69
10% lowest GNIpc	5	-47	-61	-52	-42	-55	22	-75	-64	-81	-60	-80
10% highest GNIpc	-100	72	361	480	-95	-100	-100	464	457	1,829	365	464
10% largest pop.	-2	7	18	9	18	28	-17	13	27	13	17	19

As is evident from the table, most criteria still shifted DAH from LICs and toward LMICs. This is unsurprising since the GNIpc baseline used inherently disadvantaged higher incomes. What may be less expected, however, is that not even the health-related need criteria clearly and unambiguously favoured the 20% of the countries with the highest disease burden rate and the lowest life expectancy respectively. Underlying this finding is the combination of three features: the assumption of proportionality, the correlation between GNIpc on the one hand and U5MR, YLLpc and BODr on the other, and the fact that the ratios in GNIpc between the countries in question and other countries are greater than the corresponding ratios in YLLpc and BODr.

To illustrate how the latter point is related to the use of very different natural scales, we employed linear transformation so that the ratio between the highest and lowest observed values among all countries was 10 for every metric.[43] The relative differences between the estimated distributions from the criteria so transformed and the GNIpc baseline are shown in Table 9 for country categories. The relative changes for individual countries are shown in Table A4 in the Appendix.

43 The only exception was the IDA formula.

Table 9: Distribution of DAH from different allocation criteria with transformed scales – difference from GNIpc baseline (%)

Criterion / Country category	GNIpc	U5MR	YLLpc	BODr	GHEpc	GHEpc gap	5% gap	IRAI	ΔU5MR	Gini	IALE
LDCs	7	7	-10	6	-15	11	103	-40	-28	-58	12
LICs	7	0	-13	3	-13	15	110	-39	-31	-62	7
LMICs	3	16	-3	9	14	23	-32	16	-15	-65	-11
UMICs	-22	-52	31	-34	-21	-100	-100	21	103	316	21
IDA-eligible countries	6	23	4	23	-12	10	81	-30	-20	-41	27
Sub-Saharan Africa	5	44	27	52	-16	1	82	-9	-9	-14	52
20% highest BODr	5	72	51	88	-14	2	74	-9	-2	-1	104
20% lowest LE	5	73	52	86	-14	3	75	-5	-1	4	107
20% lowest GHEpc	7	0	-16	-2	-10	21	100	-38	-32	-70	1
10% lowest GNIpc	8	6	-11	12	-29	-4	136	-51	-35	-60	20
10% highest GNIpc	-100	29	104	157	-90	-100	-100	170	236	881	76
10% largest pop.	-1	-9	-4	-12	7	6	-25	-4	7	-7	-13

Some of the most readily seen effects of transformation concern the health-related need criteria (U5MR, YLLpc, BODr). In particular, these criteria now consistently assigned much more DAH to the countries with the highest rate of disease burden and the lowest life expectancy. It is also worth noting how the Gini criterion still produced a massive shift in DAH toward UMICs and the 10% of the countries with the highest GNIpc.

Overall, the results provide several general lessons for the assessment and choice of allocation criteria. Most obviously and quite unsurprisingly, the distributions of DAH across countries and country categories vary substantially across the criteria. More specifically, compared with the current distribution, most of these criteria tend to shift DAH toward LMICs and the 10% most populous countries, which also mostly include UMICs. Sensitivity analyses showed that this tendency also applies across a range of different rank-dependent cut-offs and different rank-dependent weighting schemes. Finally, compared with both the current baseline and the GNIpc baseline, many criteria tend to shift substantive amounts of DAH towards large MICs with pronounced within-country inequalities. This is clearly seen with the respect to the Gini criterion. The role of MICs and within-country inequalities is further discussed below.

3. CONTRIBUTION NORMS

While the allocation criteria are concerned with the distribution of total development assistance for health, the contribution norms are concerned with the generation of funds. More specifically, contribution norms specify the amount of development assistance for health that each country is obliged to provide.[44] As with the allocation criteria, these contribution norms are prescriptive rather than descriptive, i.e. they are not meant to merely describe common practice. Moreover, the norms need not be legal norms. The purpose and the role of the contribution norms are often multifaceted. In particular, they should ensure sufficient total funds as well as promote fairness among donors. In this context, both the donor inclusion threshold – that determines which countries that are required to contribute – and the relative contributions among required donors are crucial.

There are classically two broad categories of contribution norms: capacity-related norms and benefit-related norms. The former are often specified in terms of ability to pay, while the latter concern the benefits accruing to the contributor. More specifically, the required contribution may increase with the extent to which the contributor benefits from some specific arrangement, e.g. research and development. However, required contributions may also be made dependent on the benefits from the world's general economic and political arrangements. Moreover, in some contexts, benefits may be construed in terms of burdens imposed on others, as in the case of pollution.[45] In the context of DAH and aid more generally, however, capacity-related norms dominate.

A few explicit and quantitative contribution norms exist for ODA and for global public goods. In this section, we will start by describing two such norms. Against that background, we discuss two critical issues for the assessment and specification of contribution norms: sensitivity to recipients' need and donor inclusion threshold related to ability to pay. In the context of sensitivity to need, we also estimated total need for DAH related to different metrics.

Current norms

Today, there are at least two widely recognized contribution norms that can be usefully linked to development assistance for health: the 0.7% ODA/GNI target and the scale of assessments for the apportionment of the expenses of the United Nations.

The 0.7% target

The 0.7% ODA/GNI target figures prominently in the international aid discourse and has done so for decades. The target originated in the 1969 report of the Commission on International Development (the Pearson Report) (Pearson et al. 1969). The central recommendation of that report is that

> *[e]ach developed country should increase its commitments of official development assistance to the level necessary for net disbursements to reach 0.70 per cent of its Gross National Product by 1975 or shortly thereafter, but in no case later than 1980.*

Since then, numerous countries have promised to make efforts toward that target, and in 2005 several countries unilaterally pledged not only to make such efforts, but to actually reach the target by 2015 (Clemens and Moss 2007). As of 2011, however, only five OECD-DAC countries have achieved that goal: Denmark, Luxembourg, the Netherlands, Norway and Sweden (OECD 2012b).

The 0.7% ODA/GNI target can be related quite directly to DAH if it is assumed that a fixed proportion of ODA should be health ODA or DAH. As for health ODA, it constituted on average

44 Norms of contribution are sometimes described as norms for burden-sharing.

45 Required contributions can also be made sensitive to more concrete harms, including historical harms to, for example, former colonies.

12% of total ODA in 2007–11.[46] Combined with the ODA/GNI target, that suggests a target for health ODA of 0.084% of GNI. However, DAH goes beyond health ODA and includes additional sources of funding and channels of assistance, including foundations and non-governmental organizations. The ratio between DAH and total ODA was on average 19% in 2007–10.[47] Linking this ratio to the ODA/GNI target suggests a DAH target of 1.3% of GNI. Against this background and given that the contribution norm is meant to apply to countries, examination of a 0.1% DAH/GNI norm can be a useful starting point, i.e. a norm according to which countries should provide DAH equivalent to 0.1% of their GNI.

In 2010, only four OECD-DAC members met this 0.1% DAH/GNI target.[48] If, instead, all of today's high-income countries had met this target in 2010, the total amount of DAH available would at minimum be $43 billion (2010 US$).[49] This would have been more than a 50% increase of the $28 billion actually available for DAH in 2010 (IHME 2012).

United Nations scale of assessments

The United Nations devises a scale of assessments for the contributions of member states to the regular budget (UN 2012; UN 2013). This scale specifies for each country the proportion of that budget to be paid. Although the regular budget does not necessarily finance aid, the scale of assessments can shed some light on the specification of DAH contribution norms.

The fundamental principle underlying the scale of assessments is ability to pay. Accordingly, the scale is primarily based on estimates of GNI. In addition, two adjustments and three constraints are applied. First, there is a debt-burden adjustment to reflect the impact of repayment of debt on ability to pay. Second, there is a low per capita income adjustment whose purpose is to prevent anomalous assessments resulting from the use of national income. As for the constraints, there is a minimum assessment rate of 0.001%, a maximum assessment rate for each LDC of 0.01% and a maximum assessment rate for each non-LDC of 22% of the total budget.

Similar to the 0.7% target, the UN scale of assessments puts exclusive emphasis on one single donor characteristic, namely ability to pay. In contrast to the 0.7% target, however, the UN scale of assessments lets the contribution rate vary across contributors. The emphasis on ability to pay highlights the question about the relevance of recipient need, and the use of a flat contribution rate highlights the importance of carefully selecting the donor inclusion threshold.

Sensitivity to recipient need

As noted, the two norms described above focus exclusively on donor characteristics. This may be useful for promoting fairness among contributors when the target for total funds is already established. However, few, if any, will argue that that target and the contribution norms are independent of the condition of the potential recipients. More specifically, the strength of the obligation to assist typically increases with the need for assistance.

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46 The proportions for each year were 0.117, 0.115, 0.123, 0.123 and 0.124 respectively. Data were compiled from OECD's Query Wizard for International Development Statistics (QWIDS) (OECD 2013). More specifically, figures on disbursements to developing countries from all donors and through all channels were used. Health ODA was calculated as the sum of the categories 'Health, Total' and 'Population Policies/Programmes & Reproductive Health, Total'.

47 The proportions for each year were 0.187, 0.186, 0.186 and 0.190 respectively. Estimates of total ODA were compiled from OECD's QWIDS as described above. Estimates of total DAH were compiled from the Institute of Health Metrics and Evaluation (IHME) (IHME 2012).

48 This claim is based on IHME estimates of DAH/GDP ratios (IHME 2012). The four countries were Norway (1.70%), Luxembourg (1.62%), Sweden (1.08%) and the United Kingdom (1.03%).

49 World Bank data on GNI, Atlas method, for 2010 were used together with the income classification for the fiscal year 2013. Eleven out of 70 high-income countries were not included in the estimate owing to lack of data.

Total need for development assistance for health is plausibly reflected by many of the metrics discussed in the context of allocation criteria. Estimating total need on the basis of these metrics is obviously a complex task and will depend crucially on the specification of the rule, i.e. the relation between the metric and need for DAH in absolute terms. Some metrics, however, lend themselves quite naturally to certain simple rules. In particular, this is the case with the metric of GHEpc. As described above, GHEpc is a valuable indicator of the capacity to address domestic health needs. As was also described, $86 can be seen as a reasonable minimum level of GHEpc needed to provide a minimum of basic services.

Accepting this figure, one way to approximate the need for DAH in each country is to consider the gap between the $86 target and current GHEpc. Total need for DAH can then be calculated by aggregating the product of this gap and the population size for each country. With this procedure, total need for DAH was estimated at $196 billion.[50] As described above, one may also consider the shortfall from $86 given that GHE represents 5% of GDP. With this modification, total need for DAH was estimated at $65 billion.[51] These figures can be contrasted with the $28 billion of DAH that was actually available in 2010 and the $43 billion that would be available if all HICs met the 0.1% DAH/GNI target described above.

Shortfalls in GHEpc can also be utilized to estimate total need for DAH related to other metrics of need. One approach of this kind was recently described by Sanjay Basu and colleagues (Basu et al. 2014). They estimated the minimum total need for funds related to different metrics given that every country received funds proportional to its fraction of worldwide need with respect to the relevant metric and given that every low-income country received funds at least equal to $50 per person per year. A modified approach can be used to estimate total needs from the need-related metrics and criteria described above. In our model,

- All countries not classified as high-income in 2010 were included;[52]
- Each country received DAH in proportion to population size and the metric in question; and
- The five countries worst off with respect to the metric in question had to receive DAH so that their average shortfall in GHEpc from $86 was completely closed (given their average level in the metric in question). In other words, the sum of average current GHEpc and average DAHpc for these countries had to be at least $86.

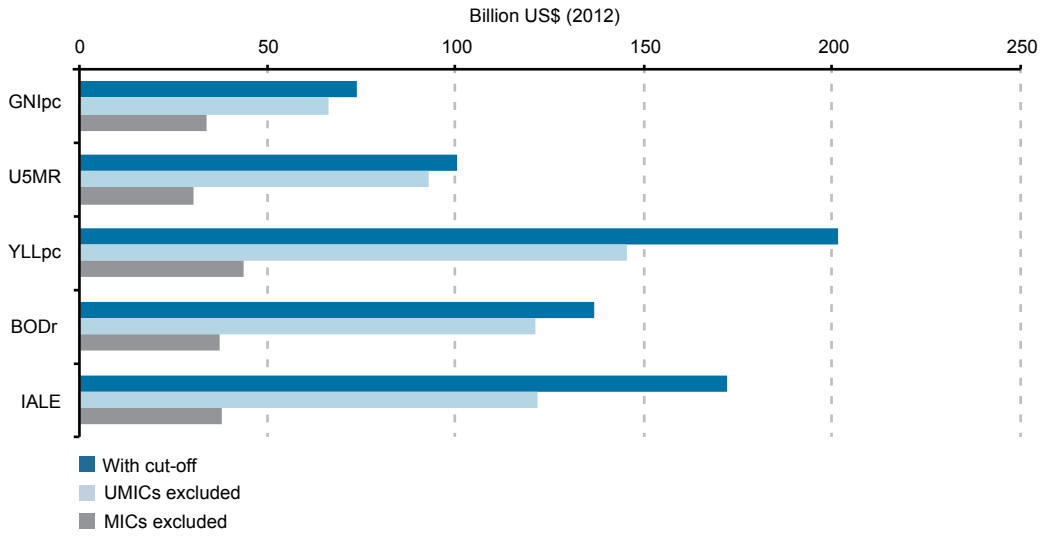
The last constraint was used to determine the proportionality constant *a* shown in equation (1) above. This constant was then applied to all countries in accordance with the second condition. The second and third conditions were thus key drivers of total need in the model. In contrast to the model used above for estimating distributions, no rank-dependent weighting was applied. The estimated total need for DAH related to the different metrics is shown in Figure 1.

50 These calculations are based on GHEpc (current $US) and population size data from the WHO Global Health Expenditure Database.

51 Calculations are based on GDP (current $US), GHEpc (current $US) and population size data from the WHO Global Health Expenditure Database. Gorik Ooms and colleagues have used a somewhat similar approach to estimate additional ODA for health required to achieve a GHEpc of $35 (Ooms et al. 2006). One crucial difference, however, is that they aggregated differences between that target and GHEpc provided that health expenditure represented 15% of total government expenditure.

52 The same countries were included in the analysis of the distributional implications of different allocation criteria. These are also the countries included in *Financing Global Health 2012* by the Institute for Health Metrics and Evaluation (IHME) (IHME 2012). The only exception is the occupied Palestinian Territory, which was excluded from our analyses owing to limited data availability.

Figure 1: Estimated total need for DAH related to different metrics of need



Dark blue bars indicate total need when rank-dependent cut-offs, as described above, have been applied. Light blue and grey bars indicate total need without a rank-dependent cut-off, but with UMICs and all MICs excluded respectively.

As indicated by the figure, when LMICs are included, estimated total need for DAH related to every criterion exceeds the $28 billion of DAH actually available in 2010 as well as the $43 billion that would be available if all HICs met the 0.1% DAH/GNI target. In contrast, when all MICs were excluded, estimated total need falls within the range of $30 to $44 billion. These estimates are all very uncertain for several reasons. In particular, the logic underlying the calculation of the proportionality constant and assuming a linear relationship are questionable. In addition, total need estimates were sensitive to even minor changes in the calculation procedure. There is thus a need to build more robust models for estimating total need on the basis of metrics like these and which are fitted to sufficient data sets.

Inclusion threshold related to ability to pay

If total need for development assistance for health has been established and contribution norms are to be related to ability to pay, a crucial question is: what is the threshold of ability to pay above which the obligation to contribute arises? In other words, what should be the donor inclusion threshold?

This is a difficult normative question in numerous respects. However, if one finds the 0.1% DAH/GNI target reasonable, a useful initial examination is to survey some well-known thresholds for classifying countries and to estimate the impact of these thresholds on total available funds.

One class of potential thresholds is directly linked to national income per capita. Among these, two obvious candidates are the World Bank's high-income country threshold, at GNIpc of $12,616, and the lower threshold for UMICs, at GNIpc of $4,086 for the fiscal year 2014 (World Bank 2013). Another class of potential thresholds is directly linked to the idea of 'developed country'. Indeed, as described above, the Pearson Report calls on contributions from 'each developed country' (Pearson et al. 1969). That report, however, did not fully specify what is meant by 'developed'.

In contrast, several current institutions have proposed such a specification (Nielsen 2013). Among the best known is that of the UNDP, which is based on the HDI. Countries are ranked in terms of their HDI and on that basis divided into four quartiles: very high, high, medium and

low human development (UNDP 2013a). Another classification is that of the IMF, which divides countries into advanced economies on the one hand and emerging-market and developing economies on the other. The classification is, according to the IMF, not based on strict criteria, but has evolved over time. As of 2012, 35 countries or territories were listed as advanced economies (IMF 2012).[53]

The effect of the different thresholds can be illustrated by estimating total available country-provided funds related to these, given full compliance with the 0.1% DAH/GNI target among the qualifying countries. The results are shown in Table 10, together with the number of qualifying donors related to the different thresholds that *received* DAH in 2010. In addition to the thresholds discussed, we also estimated total available funds if only OECD members or only DAC members were donors.

Table 10: Inclusion thresholds and total available funds given full compliance with the 0.1% DAH/GNI target

Group	N donors	Total DAH (million US$)	N donors also DAH recipients (2010)
High-income countries (HICs)	70	43,369	0
High + upper-middle-income countries (HICs + UMICs)	124	57,774	50
Very high human development	47	43,148	4
Very high + high human development	94	51,403	43
IMF advanced economies	35	41,437	0
DAC country members	24	40,412	0
OECD members	34	43,486	3

Table 10 indicates, not surprisingly, that total funds increase substantially with the inclusion of UMICs or countries classified as having 'high human development'. The table also suggests, however, that with the inclusion of these groups, many countries are likely to be both donors and recipients of DAH. This poses a range of challenges to the DAH system. It also accentuates the importance of assessing allocation criteria and contribution norms in tandem, as the fairness and appropriateness of the overall system crucially depend on both.

It is possible, of course, to go beyond a flat rate and vary the DAH/GNI requirement among the countries included. As described, the UN assessment scale involves a variable rate. In the same vein, the contribution norms can be made more progressive by letting the DAH/GNI requirement increase with GNIpc.

53 The World Trade Organization (WTO) also operates with a distinction between 'developed' and 'developing' country, but denies that there is any associated formal definition (WTO 2013). Instead, WTO members announce for themselves whether they are 'developed' or 'developing' countries.

4. WHAT ROLE FOR MIDDLE-INCOME COUNTRIES?

Middle-income countries (MICs) are, according to the World Bank classification, those countries with GNIpc between $1,036 and $12,615 (World Bank 2013). Among these, countries with GNIpc of $1,036–4,085 and GNIpc of $4,086–12,615 are classified as lower-middle-income countries (LMICs) and upper-middle-income countries (UMICs) respectively (World Bank 2013). As noted above, the role of MICs is changing in several respects, and any discussion of the normative structure of the system of development assistance for health should therefore pay particular attention to these countries.

As for the role of MICs, it is, at least, clear that they are increasing in number. Since the World Bank instituted the LMIC and UMIC categories in 1987, the number of MICs has increased from 77 to 108 (Keijzer et al. 2013). While new countries have come into existence since the 1990s, the increase is principally due to the fact that LICs have graduated into the MIC category (Keijzer et al. 2013). This includes several of the world's most populous countries: China (MIC status from 1999), Indonesia (re-graduated in 2003), India (2007), Nigeria (2008) and Pakistan (2008) (Glennie 2011).

This trend has given rise to a state of affairs that may appear paradoxical in several respects. One is that most of the world's extreme poor no longer live in the world's poorest countries. In 2008, 70% and 80% of the world's poor lived in MICs given the $1.25 and $2 international poverty lines respectively (Sumner 2012b). A parallel situation can be seen with respect to multi-dimensional poverty as well as health (Alkire et al. 2013; Glassman et al. 2013). In this context, it is also interesting to note that two MICs (India and South Africa) in 2010 were both foreign aid donors and among the top 10 recipients of DAH (IHME 2012).

Given the central role of MICs in terms of total population, total need and total economic resources, it is useful to examine more closely how different allocation criteria and norms deal with these countries. To this end, we will examine the implications of different criteria and norms for the MICs themselves as well as for the DAH system as a whole.

Implications for middle-income countries

From the estimations above, it became evident that different criteria and norms have very different implications for the net flow of development assistance for health to MICs. As for the allocation criteria, LMICs are favoured by all criteria except the Gini and 5%-gap criteria compared with the current distribution. UMICs, in contrast, are disadvantaged by most criteria, but benefit enormously from the Gini criterion, which implies more than a 200% increase in DAH. Compared with a GNIpc baseline, LMICs still benefit from all criteria except the Gini and 5%-gap criteria. UMICs now benefit even more from the Gini criterion, but are also advantaged by several health-related need criteria, including YLLpc, BODr and IALE. In short, compared with a criterion emphasizing capacity to address domestic health needs, UMICs tend to benefit from criteria emphasizing absolute health needs or inequality in health or income. As described above, with scale transformation the picture becomes somewhat more mixed.

With respect to norms, one of the central questions discussed above was whether to include UMICs among the required donors. For the MICs, and the UMICs in particular, the combined effect of different criteria and different norms on net DAH can be profound. The range of possible effects can be illustrated by estimating the net flow of funds resulting from different combinations of the most and the least favourable criteria and norms. To do so, we assumed that:

- The total amount of DAH equals the current total amount ($28,159 million);
- The DAH/GNI rate is the same for all donors;[54] and
- The most-pro MIC and least-pro MIC allocation criteria can be adequately identified from Table 6, i.e. based on the absolute amount of DAH received.

The estimated net flows to MICs are shown in Table 11.

54 With all HICs and UMICs included, this rate will have to be approximately 0.05% to reach the current total amount.

Table 11: Net flow to MICs given different criteria and norms (million $)

		Allocation criterion	
		Most pro-MIC (Gini)	Least pro-MIC (5% gap)
Norm	Most pro-MIC (no MICs)	12,047	4,059
	Least pro-MIC (UMICs included)	5,026	-2,962

As the table indicates, the allocation criteria found to be the most and the least advantageous to the MICs were the Gini and the 5%-gap criterion respectively. Evidently, criteria as well as norms influence the net flow and the overall variation can be quite dramatic. From Table 12, a similar picture can be seen with respect to UMICs. Both tables underline the importance of considering criteria and norms simultaneously.

Table 12: Net flow to UMICs given different criteria and norms (million $)

		Allocation criterion	
		Most pro-UMIC (Gini)	Least pro-UMIC (5% gap)
Norm	Most pro-UMIC (no MICs)	9,510	0
	Least pro-UMIC (UMICs included)	2,488	-7,021

Implications for the DAH system

The way in which the criteria and norms deal with the MICs does not only affect these countries or the distribution of a fixed pooled of resources. The approach to the MICs is also likely to have a profound impact on the overall DAH system. As illustrated above, the inclusion or exclusion of MICs seriously affects the total need for DAH. Likewise, the inclusion or exclusion of UMICs among DAH donors may seriously affect total funds available. Again, the range of possible net effects can be illustrated by combining different donor inclusion thresholds with different estimations of total need. As for thresholds, we estimated total funds available if all HICs met the 0.1% DAH/GNI target ($43 billion) and total funds if all HIC and UMICs met that target ($58 billion). With respect to total need, we used the average estimate across all metrics of need in Figure 1 when only the rank-dependent cut-off was applied ($137 billion) and the average estimate across all metrics when all MICs were excluded ($36 billion). Accordingly, Table 13 illustrates how the balance between total needs and total available funds may vary with the roles assigned to MICs.

Table 13: Gap between total need and available funds given different roles of MICs (million $)

		Total need for DAH	
		Most pro-MIC (only rank-dependent cut-off)	Least pro-MIC (MICs excluded)
Norm	Most pro-MIC (no MICs)	93,537	-6,976
	Least pro-MIC (UMICs included)	79,131	-21,381

As indicated by the table, the inclusion of MICs in the estimation of total need has a particularly profound effect. The balance between available funds and those needed, however, also depends on whether MICs are included among the donors.

The underlying challenge

The implications for MICs as well as for the overall system of development assistance for health are important to consider whenever evaluating and reforming the normative framework for DAH. Fundamental to the question of MICs is the more general challenge of how the DAH system should deal with countries that have mid-level GNIpc combined with great absolute health needs and often profound within-country inequalities in health, income and wealth. This challenge partly resides in that a high GNIpc – relative to LICs – typically indicates a greater capacity to address domestic health needs without DAH. Against this background, there seems to be a good reason for DAH to decrease with increasing GNIpc. Correspondingly, there seems to be good reason for the obligation to contribute to increase with increasing GNIpc. At the same time, many of the countries in question have great unmet health needs; and these needs are no less real even if the country has a mid-level GNIpc. Given that the standard purpose of DAH is to respond to such needs, these countries appear to have a strong independent claim on DAH. As for large within-country inequalities, these may reflect poverty and absolute health needs as well as a capacity to respond through redistributive policies. How to balance the concern for capacity and the concern for absolute needs is at the very basis of the question of how to address MICs. Moreover, this question of balancing is also fundamental to the role of the many criteria and norms addressed in this paper. Accordingly, that question should be high on the agenda for future research.

5. CONCLUSION

The system of development assistance for health is challenged on several fronts, and well-founded allocation criteria and contribution norms are more important than ever. This paper has provided three kinds of input to the assessment and improvement of the normative framework for DAH: the criteria emphasized by major distributors of DAH, the distributional implications of potential criteria and the implications of different contribution norms.

With respect to the allocation criteria emphasized by major institutions, we found that several institutions did not have specific criteria publicly available. Among the institutions that did, we found substantial variation in what criteria were emphasized. Moreover, the criterion most frequently emphasized – the GNIpc criterion – was specified very differently across institutions. In particular, the GNIpc threshold value, above which countries are deemed ineligible for aid, varied considerably: from $1,175 to $12,616. As for what the institutions did not emphasize, two commonalities were found. Institutions not specifically devoted to health did typically not have specific criteria for DAH and generally had few, if any, criteria directly related to health. Moreover, none of the reviewed institutions emphasized criteria directly related to economic inequalities or inequalities in health or health care.

The estimation of distributional implications from different allocation criteria also demonstrated substantial variation. Compared with the current distribution, most criteria shifted DAH towards LMICs and the 10% most populous countries, which also include many UMICs. More specifically, criteria related to absolute health needs (under-five mortality rate, years of life lost and burden of disease rate) and health inequality (inequality-adjusted life expectancy) advantaged LMICs and disadvantaged LICs. Moreover, when the Gini index for income was used as a metric of need, huge amounts of DAH shifted towards UMICs compared with the current distribution as well as with a GNIpc baseline distribution. These findings underscore, among other things, how the MICs challenge the normative framework for DAH.

With respect to contribution norms, we examined a norm according to which donor countries are obliged to provide DAH equivalent to 0.1% of their GNI. This norm can be based on the well-known 0.7% ODA/GNI target combined with recent health ODA to ODA and DAH to ODA ratios. Given that required contributions among donors should plausibly also depend on the intensity of recipient need, we demonstrated different ways to estimate total need for DAH related to various metrics of need. Taking need to be represented by the gap between a $86 target of government health expenditure per capita (GHEpc) and current GHEpc, total need for DAH was estimated at $196 billion. Considering instead the shortfall from $86 if GHE in every country represented 5% of GDP, total need for DAH was estimated at $65 billion. These figures can be contrasted with the $28 billion of DAH that was actually available in 2010 and the estimated $43 billion that would be available if all HICs met the 0.1% DAH/GNI target. When a range of other metrics of need was also considered, estimated total need for DAH varied from $30 billion to $202 billion, indicating how that total varies with choice of metric as well as whether LMICs and UMICs are included among the potential recipients of DAH.

Finally, we examined how total available funds varied with the donor inclusion threshold, i.e. the threshold of ability to pay above which the obligation to contribute arises. Given full compliance with the 0.1% DAH/GNI norm, we showed how minimum total DAH available would vary from $40 billion to $58 billion depending on the threshold and to what extent MICs are included.

Overall, the wide variation in criteria emphasized by the different institutions and the wide variation in implications from the different criteria and norms underscore the importance of more critical reflection on the normative framework for DAH. In particular, clarifying the role of MICs in that framework is crucial, not only for those countries but for the entire DAH system.

APPENDIX: ESTIMATED DISTRIBUTIONS ACROSS COUNTRIES

Table A1: Distribution of DAH from different allocation criteria – absolute levels (million $)

Criterion / Country category	Current	GNIpc	U5MR	YLLpc	BODr	GHEpc	GHEpc gap	5% gap	IRAI	ΔU5MR	Gini	IALE	IDAf
Afghanistan	285	217	193	201	174	207	176	352	82	102	0	244	28
Albania	9	2	0	0	0	2	0	0	NA	3	6	0	NA
Algeria	2	22	52	49	0	7	0	0	NA	54	75	54	NA
Angola	73	14	209	117	101	9	0	0	54	79	125	129	11
Antigua and Barbuda	0	0	0	0	0	0	0	0	NA	0	NA	NA	NA
Argentina	111	0	0	0	0	0	0	0	NA	25	177	0	NA
Armenia	20	3	2	4	7	3	4	0	14	3	0	4	17
Azerbaijan	20	4	21	17	17	6	0	0	35	21	0	18	NA
Bangladesh	251	876	404	356	389	1,432	1,056	1,511	572	574	0	372	353
Belarus	15	4	0	18	38	2	0	0	NA	7	0	13	NA
Belize	1	0	0	0	1	0	0	0	NA	0	2	0	NA
Benin	101	53	65	45	47	38	45	90	34	31	25	45	34
Bhutan	2	1	2	2	2	1	0	0	3	2	2	2	4
Bolivia	55	18	28	27	23	5	0	0	38	28	62	25	26
Bosnia and Herzegovina	42	2	0	0	7	0	0	0	15	1	9	0	11
Botswana	79	0	2	11	5	0	0	0	NA	8	14	8	NA
Brazil	166	0	118	250	289	0	0	0	NA	350	1170	285	NA
Bulgaria	89	3	0	9	23	1	0	0	NA	6	0	0	NA
Burkina Faso	136	110	166	83	154	54	70	182	65	57	49	85	92
Burundi	83	179	82	54	60	54	50	162	28	22	0	59	17
Cambodia	185	76	34	51	38	89	85	130	54	76	39	46	29
Cameroon	49	66	175	119	125	70	89	90	67	32	56	123	34
Cape Verde	10	0	0	1	0	0	0	0	2	1	3	1	3
Central African Republic	17	39	52	31	48	40	29	61	13	5	28	34	5
Chad	49	51	139	75	110	117	77	84	30	23	34	95	6
Chile	3	0	0	0	0	0	0	0	NA	2	95	0	NA
China	239	726	0	1795	0	363	0	0	NA	2,452	4,873	1,906	NA
Colombia	222	18	34	55	0	0	0	0	NA	33	293	64	NA
Comoros	8	3	3	3	3	2	3	6	2	2	5	2	1
Congo	29	6	24	17	21	3	2	0	12	4	17	16	4
Congo, DR	346	1,572	807	463	586	686	453	1,318	191	179	269	558	56
Costa Rica	4	0	0	0	0	0	0	0	NA	1	24	0	NA
Côte d'Ivoire	156	72	168	108	155	60	84	100	65	55	75	103	27
Cuba	17	5	0	0	17	0	0	0	NA	2	NA	0	NA
Djibouti	8	3	5	4	4	1	0	3	3	1	3	4	2
Dominica	0	0	0	0	0	0	0	0	0	0	NA	NA	0
Dominican Republic	106	5	12	13	16	3	0	0	NA	14	49	16	NA
Ecuador	54	8	15	0	0	4	0	0	NA	15	68	17	NA
Egypt	71	103	78	114	150	88	117	0	NA	171	0	122	NA
El Salvador	75	5	4	10	9	2	0	0	NA	10	29	10	NA
Eritrea	49	60	21	20	25	60	36	84	12	15	NA	16	5
Ethiopia	704	1,105	402	354	394	786	558	1,431	311	485	0	335	319
Fiji	10	1	1	2	2	0	0	0	NA	1	3	2	NA
Gabon	5	0	6	5	8	0	0	0	NA	3	5	5	NA

Criterion / Country category	Current	GNIpc	U5MR	YLLpc	BODr	GHEpc	GHEpc gap	5% gap	IRAI	ΔU5MR	Gini	IALE	IDAf
Gambia	24	15	11	8	9	7	9	23	6	5	8	7	6
Georgia	38	5	4	6	11	4	6	0	20	5	15	6	29
Ghana	214	62	117	77	95	32	51	51	101	51	89	70	131
Grenada	0	0	0	0	0	0	0	0	0	0	NA	0	0
Guatemala	51	16	22	25	30	10	4	0	NA	24	88	27	NA
Guinea	37	113	89	56	72	89	66	161	31	48	30	58	12
Guinea-Bissau	25	12	19	11	13	20	11	20	5	4	4	14	2
Guyana	22	1	1	2	2	0	0	0	3	1	3	2	2
Haiti	153	60	43	37	49	64	59	103	31	31	68	34	11
Honduras	52	13	7	10	11	4	0	0	29	10	49	13	26
India	775	3,041	4,260	3,492	4,028	4,153	5,329	2,270	4,792	3,122	0	3,339	5,880
Indonesia	245	254	372	484	475	350	571	0	NA	459	0	447	NA
Iran	9	49	88	110	0	18	0	0	NA	126	205	121	NA
Iraq	74	16	61	73	63	14	0	0	NA	16	0	67	NA
Jamaica	31	2	2	4	4	1	0	0	NA	2	12	4	NA
Jordan	35	4	6	8	0	1	0	0	NA	5	14	9	NA
Kazakhstan	27	0	22	37	51	0	0	0	NA	21	0	33	NA
Kenya	615	203	181	190	165	172	200	345	164	168	186	170	161
Kiribati	5	0	0	0	0	0	0	0	0	0	NA	NA	0
Kyrgyzstan	37	25	8	11	16	7	10	41	21	9	13	12	14
Laos	44	23	14	16	20	21	27	35	23	22	16	15	17
Latvia	38	0	0	3	7	0	0	0	NA	2	6	0	NA
Lebanon	8	0	0	6	0	1	0	0	NA	4	NA	6	NA
Lesotho	59	6	11	15	20	1	0	7	8	13	12	13	7
Liberia	75	57	20	20	32	15	19	71	13	30	11	19	8
Libya	1	0	4	0	0	0	0	0	NA	7	NA	0	NA
Lithuania	0	0	0	4	8	0	0	0	NA	2	8	0	NA
Macedonia, FYR	10	1	0	0	4	0	0	0	NA	1	8	0	NA
Madagascar	135	214	71	54	81	138	120	309	69	78	78	51	38
Malawi	208	211	81	84	129	59	73	269	54	140	45	83	57
Malaysia	0	0	0	0	0	5	0	0	NA	11	120	0	NA
Maldives	1	0	0	0	0	0	0	0	1	1	1	0	1
Mali	159	83	167	80	114	59	68	140	51	52	0	89	50
Marshall Islands	0	0	0	0	0	0	0	0	0	0	NA	NA	0
Mauritania	9	14	25	14	14	7	11	22	11	2	11	14	7
Mauritius	2	0	1	2	2	0	0	0	NA	0	NA	0	NA
Mexico	178	0	68	0	0	0	0	0	NA	134	518	0	NA
Micronesia	0	0	0	0	0	0	0	0	0	0	1	0	0
Moldova	30	6	2	8	11	2	0	0	15	3	0	6	15
Mongolia	24	4	4	6	8	1	0	0	10	8	6	6	10
Montenegro	4	0	0	0	1	0	0	0	NA	0	0	0	NA
Morocco	76	35	54	52	57	31	35	0	NA	61	107	56	NA
Mozambique	449	231	159	149	196	103	118	347	91	163	98	147	97
Myanmar	93	NA	183	152	179	865	365	NA	NA	108	NA	135	NA
Namibia	127	1	5	8	9	0	0	0	NA	12	16	6	NA
Nepal	121	206	78	67	72	156	163	341	104	96	0	62	62
Nicaragua	68	14	7	0	0	4	2	7	23	9	19	8	20
Niger	49	194	135	83	145	121	98	260	57	134	32	87	49
Nigeria	699	327	1,335	929	1,176	356	545	10	573	972	752	986	330
North Korea	21	NA	41	55	52	NA	NA	NA	NA	NA	NA	47	NA
Pakistan	261	620	805	548	660	1,121	1,056	862	601	425	0	567	349

Criterion / Country category	Current	GNIpc	U5MR	YLLpc	BODr	GHEpc	GHEpc gap	5% gap	IRAI	ΔU5MR	Gini	IALE	IDAf
Panama	28	0	3	0	0	0	0	0	NA	2	19	0	NA
Papua New Guinea	92	17	23	24	31	4	0	11	24	10	36	20	13
Paraguay	26	6	7	10	0	2	0	0	NA	8	34	11	NA
Peru	70	14	22	0	0	7	0	0	NA	54	144	42	NA
Philippines	140	147	111	208	162	132	212	0	NA	119	350	177	NA
Romania	13	0	0	27	54	0	0	0	NA	34	0	0	NA
Russia	34	0	0	316	528	0	0	0	NA	128	449	243	NA
Rwanda	305	79	31	52	43	17	28	129	42	107	53	53	58
Samoa	7	0	0	0	0	0	0	0	1	0	NA	0	1
Sao Tome and Principe	5	1	1	1	0	0	1	1	1	0	1	0	0
Senegal	103	49	49	53	48	30	45	77	51	80	37	46	63
Serbia	18	5	0	11	19	0	0	0	NA	4	0	0	NA
Seychelles	0	0	0	0	0	0	0	0	NA	0	1	NA	NA
Sierra Leone	56	53	78	41	37	27	31	81	20	33	21	45	17
Solomon Islands	24	2	1	1	2	0	0	3	2	0	NA	1	1
Somalia	42	NA	121	57	69	NA	NA	NA	NA	0	NA	65	NA
South Africa	589	0	127	294	272	0	0	0	NA	307	366	223	NA
Sri Lanka	53	27	0	0	0	38	61	0	77	14	65	0	68
St. Lucia	1	0	0	0	0	0	0	0	1	0	1	NA	1
St. Vincent and the Grenadines	0	0	0	0	0	0	0	0	0	0	NA	NA	1
Sudan	138	115	236	161	148	108	159	107	108	76	91	151	NA
Suriname	12	0	1	1	1	0	0	0	NA	1	3	1	NA
Swaziland	64	1	8	8	10	0	0	0	NA	6	6	7	NA
Syria	16	27	13	0	0	29	46	0	NA	16	50	0	NA
Tajikistan	44	37	26	18	17	32	37	64	25	21	0	18	16
Tanzania	722	360	181	199	247	203	234	580	176	265	115	172	169
Thailand	64	41	0	0	110	21	0	0	NA	45	212	0	NA
Timor-Leste	25	1	4	4	3	2	3	0	4	6	0	4	1
Togo	28	64	50	32	40	22	28	97	21	13	0	30	12
Tonga	5	0	0	0	0	0	0	0	0	0	NA	0	0
Tunisia	9	7	7	0	0	3	0	0	NA	12	36	13	NA
Turkey	268	0	43	85	0	0	0	0	NA	129	216	100	NA
Turkmenistan	2	3	15	16	10	4	1	0	NA	10	17	14	NA
Uganda	432	325	196	183	174	249	207	491	135	167	133	173	130
Ukraine	50	46	0	89	169	15	0	0	NA	39	0	81	NA
Uruguay	5	0	0	0	5	0	0	0	NA	2	15	0	NA
Uzbekistan	28	66	74	67	62	31	44	39	100	35	67	66	54
Vanuatu	6	0	0	0	1	0	0	0	1	0	NA	0	1
Venezuela	3	0	16	0	0	7	0	0	NA	20	119	36	NA
Vietnam	252	237	88	0	0	131	212	212	355	104	198	0	416
Yemen	51	83	113	70	82	88	111	118	76	55	63	63	37
Zambia	285	42	69	88	96	13	16	56	49	112	78	89	36
Zimbabwe	183	91	50	77	88	NA	NA	149	29	65	63	62	NA

Table A2: Distribution of DAH from different allocation criteria – difference from current levels (%)

Criterion / Country category	GNIpc	U5MR	YLLpc	BODr	GHEpc	GHEpc gap	5% gap	IRAI	ΔU5MR	Gini	IALE	IDAf
Afghanistan	-24	-32	-29	-39	-27	-38	24	-71	-64	-100	-14	-90
Albania	-74	-100	-100	-100	-81	-100	-100	NA	-61	-25	-100	NA
Algeria	1,083	2,658	2,511	-100	247	-100	-100	NA	2,789	3,921	2,787	NA
Angola	-81	185	59	37	-88	-100	-100	-26	7	70	76	-84
Antigua and Barbuda	-100	-100	-100	-100	-100	-100	-100	NA	63	NA	NA	NA
Argentina	-100	-100	-100	-100	-100	-100	-100	NA	-78	60	-100	NA
Armenia	-87	-89	-82	-68	-85	-82	-100	-33	-83	-100	-78	-18
Azerbaijan	-80	9	-15	-11	-71	-100	-100	78	7	-100	-9	NA
Bangladesh	249	61	42	55	470	320	502	128	129	-100	48	41
Belarus	-76	-100	19	144	-90	-100	-100	NA	-55	-100	-15	NA
Belize	-84	-83	-100	-58	-93	-100	-100	NA	-78	45	-100	NA
Benin	-48	-35	-55	-54	-62	-56	-11	-67	-70	-75	-55	-67
Bhutan	-53	-7	-21	-30	-76	-85	-100	26	2	-18	-25	71
Bolivia	-67	-49	-51	-58	-91	-100	-100	-31	-49	12	-55	-52
Bosnia and Herzegovina	-95	-100	-100	-84	-100	-100	-100	-65	-98	-79	-100	-73
Botswana	-100	-97	-86	-93	-99	-100	-100	NA	-90	-83	-90	NA
Brazil	-100	-29	51	74	-100	-100	-100	NA	111	606	72	NA
Bulgaria	-97	-100	-89	-74	-99	-100	-100	NA	-93	-100	-100	NA
Burkina Faso	-19	22	-39	14	-60	-48	34	-52	-58	-64	-38	-33
Burundi	114	-1	-35	-28	-35	-40	94	-66	-73	-100	-29	-80
Cambodia	-59	-82	-73	-79	-52	-54	-30	-71	-59	-79	-75	-84
Cameroon	33	254	140	153	42	80	82	36	-35	13	149	-32
Cape Verde	-96	-95	-94	-100	-98	-100	-100	-79	-92	-75	-94	-72
Central African Republic	135	212	85	187	139	75	267	-21	-67	67	104	-71
Chad	4	185	54	127	141	59	73	-39	-52	-29	95	-87
Chile	-100	-100	-100	-100	-100	-100	-100	NA	-19	3,718	-100	NA
China	204	-100	652	-100	52	-100	-100	NA	927	1,941	698	NA
Colombia	-92	-85	-75	-100	-100	-100	-100	NA	-85	32	-71	NA
Comoros	-58	-57	-66	-63	-72	-64	-29	-75	-81	-35	-69	-92
Congo	-80	-15	-39	-25	-89	-92	-100	-58	-88	-41	-42	-85
Congo, DR	354	133	34	69	98	31	281	-45	-48	-22	61	-84
Costa Rica	-100	-100	-100	-100	-100	-100	-100	NA	-88	434	-100	NA
Côte d'Ivoire	-54	7	-31	0	-61	-46	-36	-58	-65	-52	-34	-83
Cuba	-72	-100	-100	4	-100	-100	-100	NA	-85	NA	-100	NA
Djibouti	-69	-38	-52	-55	-92	-96	-64	-64	-82	-67	-54	-81
Dominica	-88	-100	-100	-37	-95	-100	-100	33	-89	NA	NA	57
Dominican Republic	-95	-89	-88	-85	-97	-100	-100	NA	-87	-53	-85	NA
Ecuador	-86	-73	-100	-100	-92	-100	-100	NA	-72	27	-68	NA
Egypt	45	10	59	110	23	64	-100	NA	140	-100	71	NA
El Salvador	-93	-95	-86	-88	-97	-100	-100	NA	-87	-61	-86	NA
Eritrea	24	-57	-60	-49	22	-27	71	-76	-69	NA	-67	-89
Ethiopia	57	-43	-50	-44	12	-21	103	-56	-31	-100	-52	-55
Fiji	-93	-94	-82	-78	-96	-100	-100	NA	-95	-68	-85	NA

Criterion / Country category	GNIpc	U5MR	YLLpc	BODr	GHEpc	GHEpc gap	5% gap	IRAI	ΔU5MR	Gini	IALE	IDAf
Gabon	-100	21	8	66	-93	-100	-100	NA	-34	7	-5	NA
Gambia	-38	-52	-68	-62	-69	-64	-2	-73	-78	-67	-71	-74
Georgia	-87	-90	-85	-70	-88	-85	-100	-47	-87	-62	-83	-24
Ghana	-71	-45	-64	-55	-85	-76	-76	-53	-76	-58	-67	-39
Grenada	-100	-100	-100	5,221	428	-100	-100	10,543	678	NA	-100	10,887
Guatemala	-69	-58	-50	-41	-80	-93	-100	NA	-52	72	-47	NA
Guinea	209	144	52	97	143	80	341	-15	32	-17	59	-67
Guinea-Bissau	-52	-27	-55	-49	-23	-55	-21	-81	-85	-86	-45	-92
Guyana	-96	-94	-93	-90	-99	-100	-100	-88	-95	-86	-93	-93
Haiti	-61	-72	-76	-68	-58	-61	-33	-80	-80	-56	-78	-93
Honduras	-75	-86	-80	-79	-91	-100	-100	-43	-81	-6	-76	-50
India	293	450	351	420	436	588	193	519	303	-100	331	659
Indonesia	4	52	98	94	43	133	-100	NA	88	-100	83	NA
Iran	460	899	1,152	-100	104	-100	-100	NA	1,342	2,237	1,280	NA
Iraq	-78	-17	-2	-16	-81	-100	-100	NA	-79	-100	-10	NA
Jamaica	-95	-93	-87	-86	-98	-100	-100	NA	-94	-63	-86	NA
Jordan	-88	-83	-76	-100	-97	-100	-100	NA	-87	-60	-75	NA
Kazakhstan	-100	-19	40	91	-100	-100	-100	NA	-21	-100	23	NA
Kenya	-67	-71	-69	-73	-72	-67	-44	-73	-73	-70	-72	-74
Kiribati	-97	-95	-93	-93	-99	-100	-100	-94	-97	NA	NA	-96
Kyrgyzstan	-33	-77	-69	-57	-81	-72	11	-42	-76	-65	-67	-61
Laos	-48	-68	-63	-54	-52	-38	-22	-48	-50	-65	-67	-63
Latvia	-100	-100	-92	-83	-100	-100	-100	NA	-95	-85	-100	NA
Lebanon	-100	-100	-25	-100	-92	-100	-100	NA	-57	NA	-25	NA
Lesotho	-89	-81	-75	-65	-98	-100	-87	-87	-78	-80	-79	-87
Liberia	-24	-74	-74	-57	-81	-75	-5	-83	-60	-85	-75	-89
Libya	-100	474	-100	-100	-100	-100	-100	NA	816	NA	-100	NA
Lithuania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Macedonia, FYR	-88	-100	-100	-62	-95	-100	-100	NA	-85	-20	-100	NA
Madagascar	59	-47	-60	-40	2	-11	129	-49	-42	-42	-62	-72
Malawi	2	-61	-60	-38	-72	-65	30	-74	-32	-78	-60	-72
Malaysia	-100	-100	-100	-100	2,302	-100	-100	NA	4,715	53,600	-100	NA
Maldives	-87	-100	-100	-100	-95	-100	-100	5	-14	-26	-100	-19
Mali	-48	5	-50	-28	-63	-57	-12	-68	-67	-100	-44	-68
Marshall Islands	-77	-62	-10	-9	-100	-100	-100	-13	-68	NA	NA	-69
Mauritania	57	194	68	67	-22	24	153	32	-74	24	60	-14
Mauritius	-100	-66	-12	-6	-87	-100	-100	NA	-90	NA	-100	NA
Mexico	-100	-62	-100	-100	-100	-100	-100	NA	-25	191	-100	NA
Micronesia	-72	-41	-41	-39	-100	-100	-100	-21	-80	92	-44	-71
Moldova	-78	-92	-74	-62	-94	-100	-100	-51	-91	-100	-79	-49
Mongolia	-84	-83	-75	-66	-96	-100	-100	-59	-68	-74	-77	-60
Montenegro	-100	-100	-100	-70	-100	-100	-100	NA	-92	-100	-100	NA
Morocco	-55	-29	-32	-25	-60	-54	-100	NA	-19	41	-27	NA
Mozambique	-49	-65	-67	-56	-77	-74	-23	-80	-64	-78	-67	-78
Myanmar	NA	96	62	92	826	291	NA	NA	15	NA	44	NA
Namibia	-99	-96	-94	-93	-100	-100	-100	NA	-91	-87	-95	NA
Nepal	70	-35	-45	-40	29	35	182	-14	-21	-100	-48	-49
Nicaragua	-80	-90	-100	-100	-94	-97	-90	-66	-86	-72	-88	-71
Niger	295	174	69	195	146	100	430	16	173	-35	76	0

Criterion / Country category	GNIpc	U5MR	YLLpc	BODr	GHEpc	GHEpc gap	5% gap	IRAI	ΔU5MR	Gini	IALE	IDAf
Nigeria	-53	91	33	68	-49	-22	-99	-18	39	8	41	-53
North Korea	NA	92	157	145	NA	NA	NA	NA	NA	NA	123	NA
Pakistan	137	208	110	153	330	305	230	130	63	-100	117	34
Panama	-100	-89	-100	-100	-100	-100	-100	NA	-92	-30	-100	NA
Papua New Guinea	-82	-76	-74	-67	-96	-100	-88	-74	-89	-61	-78	-86
Paraguay	-76	-74	-62	-100	-92	-100	-100	NA	-70	33	-56	NA
Peru	-80	-68	-100	-100	-90	-100	-100	NA	-23	105	-40	NA
Philippines	4	-21	48	16	-6	51	-100	NA	-15	149	26	NA
Romania	-100	-100	113	323	-100	-100	-100	NA	165	-100	-100	NA
Russia	-100	-100	822	1,438	-100	-100	-100	NA	272	1,208	609	NA
Rwanda	-74	-90	-83	-86	-94	-91	-58	-86	-65	-83	-83	-81
Samoa	-97	-98	-96	-100	-99	-100	-100	-89	-99	NA	-96	-82
Sao Tome and Principe	-89	-79	-89	-91	-93	-89	-87	-88	-99	-81	-89	-91
Senegal	-52	-53	-48	-54	-71	-56	-25	-50	-23	-64	-55	-39
Serbia	-75	-100	-36	4	-100	-100	-100	NA	-77	-100	-100	NA
Seychelles	-100	-100	-77	-72	-100	-100	-100	NA	-100	26	NA	NA
Sierra Leone	-6	39	-27	-34	-52	-45	45	-64	-42	-63	-21	-69
Solomon Islands	-92	-98	-95	-93	-99	-100	-89	-93	-98	NA	-95	-96
Somalia	NA	189	36	65	NA	NA	NA	NA	-100	NA	56	NA
South Africa	-100	-78	-50	-54	-100	-100	-100	NA	-48	-38	-62	NA
Sri Lanka	-49	-100	-100	-100	-28	16	-100	47	-74	23	-100	30
St. Lucia	-100	-90	-100	-70	-100	-100	-100	-33	-96	-39	NA	-15
St. Vincent and the Grenadines	-91	-79	-64	-53	-97	-100	-100	-6	-97	NA	NA	21
Sudan	-16	71	17	7	-22	16	-22	-22	-45	-34	10	NA
Suriname	-100	-94	-92	-91	-100	-100	-100	NA	-96	-76	-92	NA
Swaziland	-98	-87	-87	-85	-100	-100	-100	NA	-91	-90	-89	NA
Syria	73	-17	-100	-100	87	193	-100	NA	3	223	-100	NA
Tajikistan	-15	-40	-59	-60	-27	-16	46	-42	-51	-100	-58	-64
Tanzania	-50	-75	-72	-66	-72	-68	-20	-76	-63	-84	-76	-77
Thailand	-37	-100	-100	71	-68	-100	-100	NA	-30	231	-100	NA
Timor-Leste	-96	-86	-83	-86	-92	-86	-100	-85	-77	-100	-85	-96
Togo	128	80	14	43	-21	2	248	-23	-55	-100	9	-57
Tonga	-98	-99	-97	-97	-100	-100	-100	-93	-99	NA	-97	-93
Tunisia	-21	-29	-100	-100	-70	-100	-100	NA	32	276	41	NA
Turkey	-100	-84	-68	-100	-100	-100	-100	NA	-52	-20	-63	NA
Turkmenistan	47	634	663	372	78	-49	-100	NA	372	725	599	NA
Uganda	-25	-55	-58	-60	-42	-52	14	-69	-61	-69	-60	-70
Ukraine	-8	-100	77	236	-71	-100	-100	NA	-23	-100	60	NA
Uruguay	-100	-100	-100	8	-100	-100	-100	NA	-48	218	-100	NA
Uzbekistan	134	163	138	121	9	54	38	254	24	138	133	92
Vanuatu	-95	-100	-92	-88	-98	-100	-100	-84	-96	NA	-92	-87
Venezuela	-100	524	-100	-100	164	-100	-100	NA	676	4,567	1,331	NA
Vietnam	-6	-65	-100	-100	-48	-16	-16	41	-59	-22	-100	65
Yemen	62	121	37	60	72	117	131	49	7	22	24	-28
Zambia	-85	-76	-69	-66	-95	-94	-80	-83	-61	-73	-69	-87
Zimbabwe	-50	-73	-58	-52	NA	NA	-19	-84	-64	-65	-66	NA

Table A3: Distribution of DAH from different allocation criteria – difference from GNIpc baseline (%)

Criterion / Country category	GNIpc	U5MR	YLLpc	BODr	GHEpc	GHEpc gap	5% gap	IRAI	ΔU5MR	Gini	IALE	IDAf
Afghanistan	4	-8	-4	-17	-1	-16	68	-61	-51	-100	17	-87
Albania	-6	-100	-100	-100	-32	-100	-100	NA	39	168	-100	NA
Algeria	-7	117	105	-100	-73	-100	-100	NA	127	216	127	NA
Angola	-6	1,328	697	588	-42	-100	-100	269	436	750	783	-22
Antigua and Barbuda	-100	-100	-100	-100	-100	-100	-100	NA	251	NA	NA	NA
Argentina	-100	-100	-100	-100	-100	-100	-100	NA	145	1,646	-100	NA
Armenia	-5	-21	27	128	5	25	-100	375	21	-100	55	484
Azerbaijan	-10	376	271	289	27	-100	-100	682	368	-100	298	NA
Bangladesh	3	-53	-58	-54	68	24	77	-33	-33	-100	-56	-59
Belarus	-12	-100	329	780	-64	-100	-100	NA	63	-100	206	NA
Belize	-7	3	-100	151	-56	-100	-100	NA	31	760	-100	NA
Benin	3	27	-12	-9	-25	-13	76	-34	-40	-50	-11	-34
Bhutan	-2	92	65	46	-50	-70	-100	161	111	70	55	256
Bolivia	-1	54	49	28	-71	-100	-100	111	55	241	39	45
Bosnia and Herzegovina	-8	-100	-100	175	-100	-100	-100	518	-66	269	-100	374
Botswana	-100	229	1,405	638	-45	-100	-100	NA	942	1,748	971	NA
Brazil	-100	171	476	566	-100	-100	-100	NA	709	2,602	559	NA
Bulgaria	-12	-100	203	635	-65	-100	-100	NA	88	-100	-100	NA
Burkina Faso	3	56	-22	45	-49	-34	71	-39	-47	-54	-20	-14
Burundi	5	-52	-68	-65	-68	-71	-5	-83	-87	-100	-65	-90
Cambodia	3	-55	-32	-49	19	14	75	-27	2	-47	-38	-61
Cameroon	1	169	82	92	8	36	38	3	-50	-14	89	-48
Cape Verde	-5	9	32	-100	-44	-100	-100	390	78	486	49	560
Central African Republic	4	38	-18	27	6	-23	63	-65	-85	-26	-10	-87
Chad	2	179	51	122	136	56	69	-41	-53	-31	91	-88
Chile	-100	-100	-100	-100	-100	-100	-100	NA	-37	2,870	-100	NA
China	-9	-100	125	-100	-54	-100	-100	NA	208	511	139	NA
Colombia	-11	65	170	-100	-100	-100	-100	NA	62	1,323	213	NA
Comoros	2	5	-17	-11	-32	-12	73	-41	-53	57	-25	-82
Congo	-2	308	192	262	-49	-63	-100	102	-40	185	178	-30
Congo, DR	6	-46	-69	-61	-54	-70	-11	-87	-88	-82	-63	-96
Costa Rica	-100	-100	-100	-100	-100	-100	-100	NA	-65	1,469	-100	NA
Côte d'Ivoire	1	135	52	118	-16	18	41	-8	-23	4	44	-63
Cuba	-11	-100	-100	227	-100	-100	-100	NA	-54	NA	-100	NA
Djibouti	0	98	54	45	-74	-86	15	16	-44	5	47	-40
Dominica	-12	-100	-100	380	-64	-100	-100	912	-17	NA	NA	1,093
Dominican Republic	-10	111	132	193	-40	-100	-100	NA	143	787	193	NA
Ecuador	-8	72	-100	-100	-49	-100	-100	NA	78	710	105	NA
Egypt	-2	-26	7	41	-17	10	-100	NA	62	-100	16	NA
El Salvador	-5	-38	79	57	-65	-100	-100	NA	76	415	79	NA
Eritrea	5	-63	-66	-56	4	-38	45	-79	-74	NA	-72	-91
Ethiopia	5	-62	-66	-63	-25	-47	36	-70	-54	-100	-68	-70
Fiji	-5	-21	147	215	-44	-100	-100	NA	-26	345	116	NA
Gabon	-100	1,303	1,158	1,827	-18	-100	-100	NA	665	1,147	1,006	NA
Gambia	4	-20	-47	-37	-48	-39	64	-55	-63	-45	-52	-57
Georgia	-3	-25	9	121	-14	12	-100	298	-3	187	26	463

Criterion / Country category	GNIpc	U5MR	YLLpc	BODr	GHEpc	GHEpc gap	5% gap	IRAI	ΔU5MR	Gini	IALE	IDAf
Ghana	0	87	24	53	-48	-18	-18	61	-19	43	12	110
Grenada	-100	-100	-100	467	-44	-100	-100	1,033	-17	NA	-100	1,070
Guatemala	-3	31	54	83	-37	-78	-100	NA	48	433	63	NA
Guinea	5	-17	-48	-33	-18	-39	50	-71	-55	-72	-46	-89
Guinea-Bissau	4	57	-3	9	65	-4	68	-58	-67	-70	18	-82
Guyana	-4	73	86	162	-69	-100	-100	232	24	278	101	92
Haiti	3	-27	-37	-16	9	1	76	-47	-47	16	-42	-81
Honduras	-1	-45	-21	-16	-67	-100	-100	122	-28	267	-5	94
India	0	40	15	32	36	75	-25	57	3	-100	10	93
Indonesia	-3	42	84	81	33	117	-100	NA	75	-100	70	NA
Iran	-7	67	109	-100	-66	-100	-100	NA	141	290	130	NA
Iraq	-9	241	305	249	-23	-100	-100	NA	-12	-100	270	NA
Jamaica	-9	27	139	156	-54	-100	-100	NA	22	591	160	NA
Jordan	-7	30	90	-100	-75	-100	-100	NA	4	213	99	NA
Kazakhstan	-100	348	674	957	-100	-100	-100	NA	337	-100	582	NA
Kenya	2	-9	-4	-17	-13	1	74	-17	-16	-6	-15	-19
Kiribati	-1	54	131	126	-80	-100	-100	93	3	NA	NA	47
Kyrgyzstan	2	-65	-53	-34	-72	-57	69	-12	-64	-47	-49	-41
Laos	2	-38	-28	-10	-6	21	53	1	-3	-31	-35	-27
Latvia	-100	-100	642	1,598	-100	-100	-100	NA	402	1,338	-100	NA
Lebanon	-100	-100	450	-100	-40	-100	-100	NA	214	NA	452	NA
Lesotho	1	84	137	229	-83	-100	19	23	114	87	102	20
Liberia	5	-63	-64	-40	-73	-66	32	-76	-44	-80	-66	-85
Libya	-100	271	-100	-100	-100	-100	-100	NA	492	NA	-100	NA
Lithuania	-100	-100	674	1,393	-100	-100	-100	NA	283	1,380	-100	NA
Macedonia, FYR	-8	-100	-100	190	-65	-100	-100	NA	16	513	-100	NA
Madagascar	5	-65	-74	-61	-32	-41	51	-66	-62	-62	-75	-81
Malawi	5	-59	-58	-35	-71	-63	34	-73	-30	-78	-59	-71
Malaysia	-100	-100	-100	-100	-31	-100	-100	NA	39	1,453	-100	NA
Maldives	-11	-100	-100	-100	-65	-100	-100	645	512	428	-100	473
Mali	3	109	0	43	-27	-16	75	-36	-35	-100	11	-37
Marshall Islands	-6	59	273	280	-100	-100	-100	264	35	NA	NA	31
Mauritania	2	91	9	8	-50	-19	65	-14	-83	-19	4	-44
Mauritius	-100	79	357	386	-34	-100	-100	NA	-50	NA	-100	NA
Mexico	-100	128	-100	-100	-100	-100	-100	NA	347	1,634	-100	NA
Micronesia	-4	103	103	108	-100	-100	-100	171	-31	556	92	0
Moldova	-1	-65	18	71	-72	-100	-100	124	-61	-100	-6	133
Mongolia	-2	4	57	110	-75	-100	-100	152	97	60	40	143
Montenegro	-100	-100	-100	429	-100	-100	-100	NA	46	-100	-100	NA
Morocco	-4	50	45	59	-15	-2	-100	NA	71	199	55	NA
Mozambique	5	-28	-32	-11	-53	-47	57	-59	-26	-56	-33	-56
Myanmar	NA	96	62	92	826	291	NA	NA	15	NA	44	NA
Namibia	-9	281	530	627	-100	-100	-100	NA	841	1,205	378	NA
Nepal	3	-61	-66	-64	-22	-18	71	-48	-52	-100	-69	-69
Nicaragua	-1	-48	-100	-100	-68	-85	-49	68	-33	39	-42	45
Niger	5	-27	-55	-21	-35	-47	41	-69	-27	-83	-53	-73
Nigeria	-1	305	182	257	8	65	-97	74	195	128	199	0
North Korea	NA	92	157	145	NA	NA	NA	NA	NA	NA	123	NA
Pakistan	1	31	-11	8	83	72	41	-2	-31	-100	-7	-43
Panama	-100	148	-100	-100	-100	-100	-100	NA	84	1,528	-100	NA
Papua New Guinea	0	34	40	84	-75	-100	-33	43	-40	115	18	-21

Criterion / Country category	GNIpc	U5MR	YLLpc	BODr	GHEpc	GHEpc gap	5% gap	IRAI	ΔU5MR	Gini	IALE	IDAf
Paraguay	-4	1	51	-100	-70	-100	-100	NA	18	423	73	NA
Peru	-10	41	-100	-100	-56	-100	-100	NA	241	810	168	NA
Philippines	-2	-25	40	9	-11	43	-100	NA	-20	135	19	NA
Romania	-100	-100	329	752	-100	-100	-100	NA	434	-100	-100	NA
Russia	-100	-100	920	1,601	-100	-100	-100	NA	311	1,347	684	NA
Rwanda	4	-59	-31	-44	-77	-63	70	-45	41	-30	-30	-23
Samoa	-4	-29	35	-100	-82	-100	-100	290	-62	NA	35	569
Sao Tome and Principe	1	89	3	-20	-37	2	22	8	-87	72	-3	-18
Senegal	2	1	11	-1	-38	-6	60	7	66	-22	-4	31
Serbia	-10	-100	127	268	-100	-100	-100	NA	-19	-100	-100	NA
Seychelles	-100	-100	582	724	-100	-100	-100	NA	-100	3,649	NA	NA
Sierra Leone	4	53	-19	-27	-47	-40	60	-60	-36	-59	-13	-66
Solomon Islands	2	-72	-28	-11	-89	-100	48	-9	-75	NA	-35	-52
Somalia	NA	189	36	65	NA	NA	NA	NA	-100	NA	56	NA
South Africa	-100	552	1,409	1,298	-100	-100	-100	NA	1,477	1,778	1,044	NA
Sri Lanka	-2	-100	-100	-100	39	125	-100	183	-49	138	-100	151
St. Lucia	-100	56	-100	373	-100	-100	-100	948	-34	850	NA	1,223
St. Vincent and the Grenadines	-11	104	248	351	-67	-100	-100	800	-70	NA	NA	1,056
Sudan	0	105	40	29	-6	38	-7	-6	-34	-21	31	NA
Suriname	-100	376	509	584	-100	-100	-100	NA	221	1,778	493	NA
Swaziland	-3	478	468	580	-79	-100	-100	NA	299	351	396	NA
Syria	-2	-53	-100	-100	5	65	-100	NA	-42	82	-100	NA
Tajikistan	3	-28	-51	-52	-12	1	76	-30	-41	-100	-50	-56
Tanzania	4	-48	-43	-29	-41	-32	68	-49	-24	-67	-50	-51
Thailand	-7	-100	-100	150	-53	-100	-100	NA	3	383	-100	NA
Timor-Leste	-6	281	340	263	121	258	-100	301	504	-100	305	8
Togo	4	-18	-48	-34	-64	-53	59	-65	-79	-100	-50	-80
Tonga	-5	-30	87	96	-72	-100	-100	334	-49	NA	84	315
Tunisia	-6	-16	-100	-100	-64	-100	-100	NA	57	348	67	NA
Turkey	-100	149	398	-100	-100	-100	-100	NA	655	1,162	483	NA
Turkmenistan	-8	362	380	197	12	-68	-100	NA	197	419	340	NA
Uganda	4	-37	-41	-44	-20	-33	58	-57	-46	-57	-44	-58
Ukraine	-4	-100	84	250	-70	-100	-100	NA	-20	-100	67	NA
Uruguay	-100	-100	-100	653	-100	-100	-100	NA	263	2,108	-100	NA
Uzbekistan	0	12	1	-6	-54	-34	-41	51	-47	1	-1	-18
Vanuatu	-3	-100	50	135	-52	-100	-100	213	-22	NA	52	166
Venezuela	-100	180	-100	-100	18	-100	-100	NA	248	1,991	541	NA
Vietnam	0	-63	-100	-100	-45	-10	-10	50	-56	-16	-100	76
Yemen	1	39	-14	0	8	36	45	-6	-33	-23	-22	-55
Zambia	1	65	110	129	-69	-62	33	15	167	86	111	-15
Zimbabwe	3	-43	-12	0	NA	NA	70	-66	-26	-28	-30	NA

Table A4: Distribution of DAH from different allocation criteria with transformed scales – difference from GNIpc baseline (%)

Criterion / Country category	GNIpc	U5MR	YLLpc	BODr	GHEpc	GHEpc gap	5% gap	IRAI	ΔU5MR	Gini	IALE
Afghanistan	7	17	43	21	-16	14	110	-66	-40	-100	197
Albania	-3	-100	-100	-100	22	-100	-100	NA	7	6	-100
Algeria	-4	43	0	-100	-36	-100	-100	NA	45	28	-2
Angola	-3	611	383	305	10	-100	-100	33	161	487	602
Antigua and Barbuda	-100	-100	-100	-100	-100	-100	-100	NA	200	NA	NA
Argentina	-100	-100	-100	-100	-100	-100	-100	NA	123	764	-100
Armenia	-2	-32	-36	16	48	-20	-100	223	-6	-100	-29
Azerbaijan	-7	168	83	77	95	-100	-100	336	145	-100	69
Bangladesh	6	-43	-55	-54	0	37	86	-30	-32	-100	-59
Belarus	-9	-100	109	350	-18	-100	-100	NA	43	-100	23
Belize	-4	-15	-100	16	-8	-100	-100	NA	9	441	-100
Benin	6	37	10	11	-18	1	91	-23	-36	-51	14
Bhutan	1	32	9	-12	-10	-73	-100	95	29	-6	-12
Bolivia	2	13	4	-19	-36	-100	-100	53	3	186	-17
Bosnia and Herzegovina	-5	-100	-100	27	-100	-100	-100	252	-25	54	-100
Botswana	-100	109	713	248	16	-100	-100	NA	361	1,071	437
Brazil	-100	102	143	161	-100	-100	-100	NA	323	1,414	147
Bulgaria	-9	-100	36	253	-21	-100	-100	NA	57	-100	-100
Burkina Faso	7	80	7	111	-28	-15	102	-14	-38	-48	18
Burundi	9	24	-2	10	-38	-17	142	-60	-63	-100	43
Cambodia	6	-46	-23	-48	-6	24	80	-22	-6	-52	-38
Cameroon	4	117	75	84	1	21	26	-18	-50	-34	120
Cape Verde	-2	-15	-34	-100	5	-100	-100	226	18	273	-33
Central African Republic	8	83	34	117	-17	15	121	-64	-72	33	116
Chad	5	152	67	156	12	57	65	-71	-49	-38	257
Chile	-100	-100	-100	-100	-100	-100	-100	NA	102	1,486	-100
China	-6	-100	7	-100	-4	-100	-100	NA	80	210	0
Colombia	-8	25	22	-100	-100	-100	-100	NA	41	781	26
Comoros	6	8	-8	-4	-19	-6	75	-61	-49	119	-25
Congo	2	155	106	157	-9	-69	-100	9	-42	101	93
Congo, DR	9	48	5	36	-33	-7	143	-75	-64	-44	113
Costa Rica	-100	-100	-100	-100	-100	-100	-100	NA	21	767	-100
Côte d'Ivoire	4	93	45	114	-7	6	29	-39	-32	-14	41
Cuba	-8	-100	-100	40	-100	-100	-100	NA	-4	NA	-100
Djibouti	4	59	38	24	-40	-84	5	-13	-46	-21	28
Dominica	-9	-100	-100	111	-18	-100	-100	463	20	NA	NA
Dominican Republic	-7	44	9	30	19	-100	-100	NA	60	408	22
Ecuador	-5	23	-100	-100	4	-100	-100	NA	30	376	-14
Egypt	1	-37	-40	-25	20	-26	-100	NA	6	-100	-43
El Salvador	-2	-43	-4	-25	-23	-100	-100	NA	17	220	-18
Eritrea	8	-35	-37	-19	-22	11	135	-90	-55	NA	-54
Ethiopia	9	-28	-31	-25	-26	3	138	-43	-26	-100	-38
Fiji	-2	-31	35	66	6	-100	-100	NA	-22	142	-2
Gabon	-100	577	528	884	62	-100	-100	NA	286	460	384
Gambia	7	10	-18	-2	-29	-11	119	-34	-50	-15	-30
Georgia	0	-37	-40	25	25	-25	-100	207	-21	62	-39
Ghana	3	45	1	22	-16	-32	-19	46	-32	10	-21

Criterion / Country category	GNIpc	U5MR	YLLpc	BODr	GHEpc	GHEpc gap	5% gap	IRAI	ΔU5MR	Gini	IALE
Grenada	-100	-100	-100	147	18	-100	-100	512	31	NA	-100
Guatemala	0	-4	-12	-2	7	-78	-100	NA	1	289	-20
Guinea	8	30	-5	26	-24	4	133	-63	-34	-58	12
Guinea-Bissau	7	90	44	65	-8	30	110	-59	-55	-69	202
Guyana	-1	19	6	48	-30	-100	-100	88	-8	126	0
Haiti	6	-14	-23	4	-11	19	94	-52	-41	71	-37
Honduras	2	-48	-51	-53	-30	-100	-100	60	-37	206	-48
India	3	12	-8	2	17	39	-25	35	-21	-100	-24
Indonesia	0	2	8	-3	53	36	-100	NA	13	-100	-16
Iran	-4	17	4	-100	-24	-100	-100	NA	48	79	0
Iraq	-6	104	110	63	38	-100	-100	NA	-1	-100	63
Jamaica	-6	0	16	14	-3	-100	-100	NA	10	278	10
Jordan	-4	-2	-7	-100	-40	-100	-100	NA	-3	28	-14
Kazakhstan	-100	170	271	400	-100	-100	-100	NA	165	-100	175
Kenya	6	-4	10	-9	-13	9	78	-1	-20	8	-6
Kiribati	2	11	63	52	-49	-100	-100	8	-22	NA	NA
Kyrgyzstan	5	-57	-54	-37	-39	-54	65	-6	-57	-58	-57
Laos	5	-37	-35	-20	-6	11	40	-12	-19	-50	-50
Latvia	-100	-100	207	643	-100	-100	-100	NA	265	426	-100
Lebanon	-100	-100	142	-100	28	-100	-100	NA	135	NA	111
Lesotho	4	49	120	217	-53	-100	9	3	48	83	118
Liberia	9	-28	-22	35	-42	-30	141	-59	-9	-65	-26
Libya	-100	166	-100	-100	-100	-100	-100	NA	286	NA	-100
Lithuania	-100	-100	223	542	-100	-100	-100	NA	220	463	-100
Macedonia, FYR	-5	-100	-100	34	-22	-100	-100	NA	6	219	-100
Madagascar	8	-41	-56	-33	-26	-1	131	-48	-43	-36	-64
Malawi	9	-23	-11	43	-40	-27	140	-50	9	-62	-5
Malaysia	-100	-100	-100	-100	43	-100	-100	NA	73	679	-100
Maldives	-8	-100	-100	-100	-20	-100	-100	264	199	121	-100
Mali	7	125	32	95	-19	3	98	-17	-30	-100	91
Marshall Islands	-3	13	111	104	-100	-100	-100	34	4	NA	NA
Mauritania	5	71	11	7	-23	-21	56	-26	-71	-29	2
Mauritius	-100	40	102	97	35	-100	-100	NA	31	NA	-100
Mexico	-100	72	-100	-100	-100	-100	-100	NA	181	802	-100
Micronesia	-1	34	18	12	-100	-100	-100	6	-30	398	-5
Moldova	2	-62	-21	13	-37	-100	-100	71	-53	-100	-48
Mongolia	1	-18	0	31	-42	-100	-100	65	22	-18	-25
Montenegro	-100	-100	-100	129	-100	-100	-100	NA	51	-100	-100
Morocco	-1	7	-20	-18	26	-34	-100	NA	12	65	-25
Mozambique	8	8	18	59	-32	-14	129	-29	-5	-27	41
Myanmar	NA	96	63	89	170	285	NA	NA	19	NA	25
Namibia	-6	123	245	290	-100	-100	-100	NA	317	799	121
Nepal	7	-46	-58	-57	-19	6	105	-37	-42	-100	-66
Nicaragua	3	-49	-100	-100	-32	-83	-41	38	-40	-4	-65
Niger	8	24	-10	65	-28	-1	137	-44	6	-77	4
Nigeria	2	172	125	190	15	23	-69	26	77	82	189
North Korea	NA	124	150	117	NA	NA	NA	NA	NA	NA	81
Pakistan	4	15	-19	-5	16	53	29	-27	-37	-100	-25
Panama	-100	74	-100	-100	-100	-100	-100	NA	70	818	-100
Papua New Guinea	3	8	13	48	-41	-100	-30	5	-44	89	-18
Paraguay	-1	-20	-19	-100	-33	-100	-100	NA	-9	249	-18

Criterion / Country category	GNIpc	U5MR	YLLpc	BODr	GHEpc	GHEpc gap	5% gap	IRAI	ΔU5MR	Gini	IALE
Peru	-7	9	-100	-100	-5	-100	-100	NA	96	421	11
Philippines	2	-36	-9	-38	16	-1	-100	NA	-32	51	-35
Romania	-100	-100	86	280	-100	-100	-100	NA	203	-100	-100
Russia	-100	-100	370	699	-100	-100	-100	NA	194	511	197
Rwanda	7	-42	1	-21	-45	-47	114	-16	49	8	9
Samoa	0	-38	-26	-100	-53	-100	-100	180	-45	NA	-35
Sao Tome and Principe	4	54	-10	-38	-12	-12	12	-24	-72	65	-26
Senegal	5	-5	10	-7	-17	-10	49	10	27	-37	-13
Serbia	-7	-100	4	66	-100	-100	-100	NA	5	-100	-100
Seychelles	-100	-100	190	231	-100	-100	-100	NA	-100	2,227	NA
Sierra Leone	8	107	36	22	-28	-8	123	-42	-19	-40	119
Solomon Islands	5	-65	-37	-24	-65	-100	35	-36	-65	NA	-51
Somalia	NA	154	47	81	NA	NA	NA	NA	-100	NA	126
South Africa	-100	250	720	642	-100	-100	-100	NA	548	1,116	501
Sri Lanka	1	-100	-100	-100	46	45	-100	83	-43	35	-100
St. Lucia	-100	23	-100	104	-100	-100	-100	478	18	355	NA
St. Vincent and the Grenadines	-8	44	63	103	-24	-100	-100	409	-7	NA	NA
Sudan	4	58	18	2	3	13	-11	-68	-41	-53	1
Suriname	-100	183	182	195	-100	-100	-100	NA	127	960	133
Swaziland	1	230	280	364	-49	-100	-100	NA	108	213	282
Syria	1	-54	-100	-100	34	6	-100	NA	-39	-15	-100
Tajikistan	6	-20	-46	-51	-12	12	84	-26	-39	-100	-52
Tanzania	7	-27	-14	7	-26	-5	116	-23	-11	-62	-31
Thailand	-4	-100	-100	14	-2	-100	-100	NA	-1	132	-100
Timor-Leste	-3	121	155	93	112	105	-100	84	188	-100	109
Togo	8	18	-13	9	-37	-27	125	-56	-65	-100	-19
Tonga	-2	-38	-3	-6	-36	-100	-100	143	-31	NA	-17
Tunisia	-3	-28	-100	-100	-21	-100	-100	NA	14	131	-27
Turkey	-100	88	108	-100	-100	-100	-100	NA	302	415	117
Turkmenistan	-5	159	162	39	70	-70	-100	NA	73	154	108
Uganda	8	-5	0	-7	-23	5	127	-25	-28	-33	1
Ukraine	-1	-100	4	106	-31	-100	-100	NA	-25	-100	-20
Uruguay	-100	-100	-100	193	-100	-100	-100	NA	191	975	-100
Uzbekistan	3	-8	-23	-34	-19	-45	-36	13	-48	-38	-35
Vanuatu	0	-100	-14	35	-8	-100	-100	89	-29	NA	-26
Venezuela	-100	110	-100	-100	127	-100	-100	NA	188	887	135
Vietnam	3	-59	-100	-100	-14	-25	-14	32	-53	-49	-100
Yemen	5	21	-23	-12	1	22	33	-33	-39	-44	-40
Zambia	4	38	101	121	-35	-63	21	1	83	92	161
Zimbabwe	7	-25	26	45	NA	NA	107	-87	-17	6	3

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T: +44 (0)20 7957 5700 E: contact@chathamhouse.org
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