

FUNGIBILITY OF DONOR ASSISTANCE TO LIBERIA:

Focusing on Aid to the Health Sector, a Case Study

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Health, Nutrition, and Population (HNP) Discussion Paper

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Health, Nutrition, and Population (HNP) Discussion Paper

Fungibility of Donor Assistance to Liberia: *Focusing on Aid to the Health Sector, a Case Study*

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The paper was prepared for the Health and Economy Program, Health, Nutrition, and Population Unit, the World Bank Group, Washington, DC, March 2014.
This work was funded by the Rockefeller Foundation Trust Fund.

Abstract: The main purpose of this work is to develop a case study assessing the recent patterns and impacts of ODA (official development assistance) and DAH (development assistance for health) to Liberia on overall government spending and domestic revenue generation as well as domestic government health spending. Specifically, the study will examine the recent flows of ODA and DAH resources into the country and test whether it is possible to determine the degree of fungibility in domestic budgetary expenditures and revenues, overall, as well as in domestic health budgetary spending and receipts (from internal and external sources) as a result of (or due to) ODA and DAH. The study will distinguish between targeted/earmarked aid and general budget support, and will attempt to distinguish commitments from actual disbursements (both for DAH and for government).

This study is intended to provide a basis for better understanding the interaction between different types of funding flows and the impact on government health spending as well as on the portion of domestic revenue generation that is allocated to health. We hope to present findings that can contribute to improved client and donor awareness and strengthen World Bank operations in Liberia's health sector.

Keywords: Official development assistance, development assistance for health, Liberia, fungibility.

Disclaimer: The findings, interpretations, and conclusions expressed in the paper are entirely those of the authors, and do not represent the views of the World Bank, its Executive Directors, or the countries they represent.

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ACKNOWLEDGMENTS

This report was prepared for the World Bank as part of the Health and Economy Program of the Human Development Network (HDNHE) led by Rafael Cortez (Task Team Leader, Senior Economist, Health, Nutrition and Population Department). The program and this work were funded by the Rockefeller Foundation.

The author would like to thank the peer reviewers, John Langenbrunner and George Schieber for their valuable comments on several drafts of the report, and feedback and guidance provided by the team of the Health and Economy Program.

The author is grateful to the World Bank for publishing this report as an HNP discussion Paper.

I. BACKGROUND AND INTRODUCTION

Despite several decades of financial and technical assistance from developed countries to less developed ones, results have been disappointing: Economic growth rates have remained low and poverty levels high in many of the poorest countries, particularly in Sub-Saharan Africa. Further, the continuing high prevalence of preventable diseases has aggravated economic deprivation, and made economic advancement even more difficult. This has led to more focused and diverse bilateral and multilateral aid efforts to help the neediest countries achieve their Millennium Development Goals (MDGs) by the 2015 target.

The persistence of diseases such as malaria and tuberculosis, as well as HIV/AIDS has generated considerable resources from developed countries to support developing countries' health sectors: Multilateral and bilateral aid has increased, along with other major sources of aid, globally, to supplement the poorest countries' limited resources.

This multipronged response has also created fiscal challenges that need to be understood and managed. The short-term nature of some donor investments and lack of predictability for the medium-term raise sustainability challenges, especially where large recurrent cost allocations may be needed if and when the donors reduce or stop their assistance. Also, large amounts flow into the health sectors that are off-budget (largely unknown in purpose or magnitude to the ministries of finance or health¹). Such flows could distort government plans and priorities and make support to the health sector erratic.

Some questioning the effectiveness of project-based donor aid have concluded that recipient governments can easily circumvent donors' intentions (about the way funds are allocated) by altering their expenditure patterns in response to the targeted aid (either within a sector or across sectors)² or by reducing revenue-raising efforts.³ (Even advocates of targeted foreign aid concede that donor funds have been fungible. See the definition in paragraph below.

A key concern in the literature is how to estimate the degree to which this occurs within the targeted sector budget and in other sector budgets (with respect to the total revenue and spending), and the effect on domestic borrowing and countries' tax efforts. Various factors have been examined that alter fungibility — mainly the number of donors aiding a particular country (or sector in it) and the importance of foreign aid relative to national income.

1. Some "official" flows are technically "off-budget" (that is, spent independent of government channels) but are included in the definition of "official" DAH; for example, some donations by the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM). As will be discussed, part of all DAH is "unofficial" (though not necessarily "off-budget"), such as aid from NGOs and private philanthropic organizations that are not defined as ODA or "official" DAH.

2. If the recipient government had already committed budget to a sector or project, and a donor subsequently extended aid to that sector or project, it is conceivable that availability of the donor funds would enable the government to reduce its own prior budget commitment to the sector or project, and to reallocate funds to other sectors or priorities. Whether and to what degree this may occur (or may have occurred) is an empirical matter that is the subject of the research proposed here for Liberia over the past six years or so.

3. Or, following the scenario in the above footnote, the government could reduce revenue it would otherwise have raised (in the absence of the aid) by any amount up to the level of the aid provided by the donor — effectively replacing revenue it would otherwise have raised with some or all of the aid provided by the donor.

Broadly defined, fungibility is the degree (and nature) of the fiscal impact⁴ of external funds when added to domestic funds (tax and nontax revenues) that finance a government's budget. Almost always, donors intend their funds to add to those raised domestically to finance the budget, since the nature and amount of aid is typically designed to meet objectives that donors assume would not be achieved without it (even where countries match the funds to some extent).

The characteristic of “additionality” — whether a country's health spending after an inflow of external funds is as high as or higher than if no extra financing had been received — is closely related to fungibility.⁵

The concept of additionality⁶ implies governments will reconsider their priorities in the self-financed budgets (and/or in the revenue policies supporting their budgets) after they agree to receive the donor assistance. Such reconsideration has many possible results, from complete nonfungibility to complete fungibility. However, there is much evidence that indicates that partial fungibility is the most common response both to total foreign aid and sector-specific aid (whether for projects or programs).⁷

To describe the full range of potential actions, the degree of fungibility can only be measured by comparisons to a counterfactual state — that is, where there is no donor assistance, also known as the “baseline,” or “What the case would have been otherwise.” Moreover, the measurable effect(s) of fungibility involve a time lag between the government's knowledge of a donor's commitment (and actual expenditure) and its response to it. Both the counterfactual (baseline) element and the lagged element are critical components of the actual realization (and measure) of the fungibility effect (or fiscal impact).

It should be noted that a degree of uncertainty exists in the process of “What the case would have been otherwise” with “What actually happens as a result of a donor's assistance” due to the unpredictability of donor behavior (partly due to variations in donors' decision-making processes), which leads to volatility⁸ regarding the amounts governments and sectors receive from year to year. In turn, volatility strongly affects countries' planning decisions, which then affect the efficiency of health systems. For example, as Gottret and Schieber (2006) note, “fluctuation in aid levels prevents countries from using donor aid to invest in projects that may generate recurrent costs because aid that may be available at the initiation of a project is not guaranteed to still be available over the long term.”⁹ One implication is that the countries may prioritize investments that do not depend on long-term commitments,¹⁰ and may or may not benefit the countries' health systems. Also, the costs of making adjustments can be significant

4. “Fiscal impact” denotes the net budget impact of the assistance, on both spending and revenues.

5. Additionality can be seen as fungibility when the elasticity of changes in recipient funding (with respect to donor financing) is zero or positive; moreover, whether “diversion” of external funds is possible depends on how easily that may be monetized. As noted later, “diversion” to other government purposes may not necessarily be bad, nor would freeing up resources to be allocated to a government's spending priorities. But there is always the possibility of diversion into private hands.

6. Garg et al. 2012.

7. This issue is covered in the ODA definitions (see section 3.1), which note that aid includes all official loans that have at least a 25 percent grant element, which would exclude IBRD loans.

8. “Volatility” could probably be measured by itself, but it is likely that it would have some impact on fungibility; measuring such an impact would be problematic.

9. Gottret and Schieber 2006.

10. Such as expatriate technical assistance, training, pharmaceuticals.

when decisions over funding priorities are changed midcourse.¹¹

All these factors affect and reflect the speed with which governments can and do respond to donor commitments and spending, and what they may conceive of as the counterfactual at any given time — that is, the baseline for government planning, derived from its own tax effort, is somewhat affected by not knowing (or by guessing) whether a donor’s past behavior will predict its future giving — or whether donors’ behavior as a group can predict the amount of aid.

II. OBJECTIVES AND ORGANIZATION

This paper will assess the recent impacts of ODA (overseas development assistance) and DAH (development assistance for health) to Liberia on overall government spending as well as spending on health, and domestic revenue generation. It will examine recent ODA and DAH to the country to determine (if possible) the degree of fungibility in domestic budget expenditure and revenues, as well as in health spending and funding (from internal and external sources) due to those finances. The study distinguishes between targeted aid and general budget support, and commitments from disbursements (both for DAH and the government).¹²

It will describe the interactions between different types of funding and their impact on government health spending, as well as on domestic revenues allocated to health. While the literature reviewed is from cross-country data analyses and single-country case studies, the focus of the empirical work is only on Liberia. Although the sparseness of the data limits the degree to which the findings can be applied to other countries and over time, the results will still help decision making in the short run, especially since Liberia is extremely poor and faces unique challenges following its 14-year civil war, which ended in 2003.¹³

2.1 OBJECTIVES

This paper aims to increase client and donor awareness, and improve World Bank operations in Liberia’s health sector. It will do the following:

- a. Review the evidence and develop an analytical approach. After defining what is included in ODA and DAH, the study will also undertake the following:
 - Review the literature on predictability, volatility, fungibility, and additionality of ODA and DAH in low- and middle-income countries, focusing on health assistance and spending;
 - Assess ODA and DAH flows in Liberia by category and general budget support, along with other aspects (where reliable data are available).
- b. Perform quantitative (econometric and statistical) and qualitative analyses. To the extent the

11. Future recurrent cost implications of current capital spending are routinely ignored, both by governments and donors in their decision making. Liberia is a special case, since much of donor spending — that would otherwise be oriented toward capital investment — consists of a significant amount of recurrent cost spending (for example, salary top-ups), which creates dependency.

12. See definitions of ODA and DAH in sections 3.1 and 3.2.

13. Elections were first held in 2005, and the new government was installed in 2006.

data and methods permit, it will perform econometric and statistical analyses¹⁴ of financial and budgetary data to determine how the patterns of ODA and DAH may have affected overall government health spending and revenues (with respect to the health budget) in recent years. The quantitative analysis will be complemented by qualitative data from consultations with policy makers and country analysts. Some questions might include the following:

- What has the impact been of ODA on government spending and revenue mobilization? Or, to establish the counterfactual, What are the patterns of ODA and government spending and revenue (with no reference to “impact”)?
- What have the patterns and impact of DAH been with respect to government health spending?
- Is there evidence of fungibility/additionality in ODA and DAH? What is the magnitude?
- What is the evidence about the impact of budget versus off-budget and categorical versus general budget support? Is it possible to identify the most promising and effective channels of ODA and DAH?
- Is there evidence about the impact on health expenditures of (volatile) donor funding?
- Does the government recognize that health aid may be (or actually is) fungible? What happens when there is evidence that it occurs? Where are the funds used and which activities are prioritized?

c. Offer recommendations. The paper will describe the findings and conclusions regarding health policies, and recommend policies/activities for the government and donors. In particular, it will discuss how the World Bank and other donors should structure their ODA and DAH in Liberia.

2.2 ORGANIZATION

This report first defines various terms (section 3) as a prelude to a literature review (section 4). Section 5 presents all recent data on ODA and DAH received by Liberia’s health sector, while section 6 analyzes how these funds may have affected fiscal measures as well as the government of Liberia’s (GoL’s) own contributions to the health sector. It concludes by discussing the limitations of the data and the unique conditions the GoL and external donors face when trying to help the country recover from the devastating 14-year civil war. The data analysis in section 6 establishes a basis for the findings and recommendations in section 7. Annex A provides the theoretical basis for the fungibility analysis as well as the model and results.

14. Robust results from econometric analyses contingent on the necessary assumptions (for statistical validity). In this case, any econometric analysis would be exploratory — given the limited data (that is, at most, annual data for FY 2005/06 through FY 2011/12).

III. OFFICIAL DEVELOPMENT ASSISTANCE (ODA) AND DEVELOPMENT ASSISTANCE FOR HEALTH (DAH): DEFINITIONS AND DISTINCTIONS

3.1 ODA¹⁵

The Organization for Economic Co-operation and Development (OECD), Development Cooperation Directorate — Development Assistance Committee (DCD-DAC) — defines ODA as “financial flows to countries and territories on the DAC List of ODA Recipients and to multilateral institutions (Which then pass the funds to recipient governments) which are characterized by the following:

1. Provided by official agencies, including state and local governments, or by their executive agencies;
2. Each transaction must be (a) administered with the promotion of economic development and welfare of developing countries as its main objective; and (b) concessional in character and convey a grant element of at least 25 percent (calculated at a discount rate of 10 percent).”¹⁶

ODA is government-to-government assistance, including both direct and indirect transfers — the latter through an international aid agency or NGO. Also, it can include commodities as well as debt relief.

The OECD’s DAC has two major data collections on the volume, origin, and types of aid and resource flows to over 150 developing countries and territories, which include (a) complete annual aggregate aid disbursements (with no sectoral disaggregation¹⁷) in table 2a (from all DAC members¹⁸), as described in OECD (2000a), and (b) data in the Creditor Reporting System (CRS), described in OECD (2002) and OECD (2012), and disaggregated by channel and purpose of spending. Both data sets are drawn from DAC members’ official statistical reports to the OECD.¹⁹

It should be noted that, according to the OECD’s (DAC’s) definition, flows of some concessional funds from multilateral and international institutions are included, insofar as their funding originates from individual (participating member) governments. This means that any health aid

15. Statistics in the OECD website, and their definitions, are in annex A.

16. From OECD website “Official Development Assistance — definition and coverage” from <http://www.oecd.org/dac/stats/officialdevelopmentassistancedefinitionandcoverage.htm>).

17. Disaggregation between military and nonmilitary (economic) aid possibly for concessionary loans in table 2a (<http://stats.oecd.org/Index.aspx?DatasetCode=TABLE2A>), but not for sectoral grants.

18. There has been aid from non-DAC countries (included in OECD’s table 2a only for bilateral aid voluntarily reported by non-DAC donors). However, its relative amount, which declined from about 10 percent of total aid until the 1990s, now averages about 3 percent of total aid. About 85 percent of such non-DAC aid is donated bilaterally (Dreher et al. 2010). Non-DAC countries are a heterogeneous group, and their identities and assistance have changed over the past decades. Dreher et al. 2010, conclude that research findings including about non-DAC aid are questionable due to these data considerations. See details at detail at: <http://www.aidinfo.org/wp-content/uploads/2010/09/Using-OECD-DAC-aid-statistics.pdf>

19. The aggregate statistics include ODA as well as “other official flows” and private flows (foreign direct investment). The data are available by both donor and recipient country at <http://www.oecd.org/investment/aidstatistics/querywizardforinternationaldevelopmentstatisticsqwids.htm>. Accessed December 6, 2012.

that is concessional (that is, has more than 25 percent as a grant component) and given by multilateral and/or international agencies is included in the DAC numbers, and supplements the bilateral aid flows. The most up-to-date data on ODA are in “commitments” of aid, while available data on actual disbursements lag several years. However, the data on both commitments and disbursements are incomplete, since only part of each donor’s total flow to each recipient in any given year is reported.²⁰ Because a large portion of aid reported by donors does not go through the recipient’s public sector accounts (that is, it is “off-budget”), using such aid measures “...are inappropriate for analyzing fungibility.”²¹ Even if it were possible to obtain and use local aid data, it might not fully record “off-budget” amounts and thus result in inaccurate estimates. In fact, “the first problem (in estimating the effect of on-budget aid on government expenditures) is that we cannot estimate the degree of fungibility of off-budget aid and (thus) the estimated effect of on-budget aid is biased unless the marginal effect of off-budget aid on government spending is zero”.²²

3.2 DAH

In their statistical reporting of ODA, DAC members are requested to designate a sector for each aid activity, and within that sector, present a detailed purpose code, which identifies “the specific area of the recipient’s economic or social structure, which the transfer is intended to foster” (for multisectoral projects, one sector must be identified as the primary recipient of the aid).²³ Thus, total “official” DAH is the sum of external financing for health from many different “official” sources:

- a. Bilateral agencies reporting through the creditor reporting system (CRS) of the OECD;
- b. Multilateral agencies, including those of the United Nations system, which include the following:
 - o World Health Organization (WHO)
 - o United Nations Children’s Fund (UNICEF)
 - o United Nations Population Fund (UNFPA)
 - o Global and regional development banks (for example, International Development Association of the World Bank)
 - o European Union
 - o Global Alliance for Vaccines Initiative (GAVI)
 - o Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM)

20. While commitments have been available since 1973, disbursements have only been available from 1990 onwards.

21. McGillivray and Morrissey 2001, p. 422.

22. N. Van de Sijpe, “Is Foreign Aid Fungible? Evidence from the Education and Health Sectors,” *World Bank Economic Review*, World Bank Group, vol. 27(2), p. 321

23. DAC classifies “population policies/programs and reproductive health” as being part of the DAC statistical definition of “aid to health.” See annex A for the complete listing of DAC categories considered “aid to health,” from OECD 2002.

3.3 GHE²⁴ AND DAH, NOT RECORDED IN ODA

Private and philanthropic organizations also provide DAH, particularly, for example, the Bill and Melinda Gates Foundation and the Clinton Access Initiative. These two are among the largest of the NGOs playing an increasingly important role in DAH, particularly in countries like Liberia that are emerging from internal conflicts. However, “because no central repository of data on all the sources of DAH currently available and comprehensive information is not published on any regular basis, painstaking and time-consuming efforts are required to assemble accurate, comparable data about all these sources.”²⁵

The Institute for Health Metrics and Evaluation (IHME) has made annual assessments of DAH, according to definitions broader than those used by ODA, since 1990.²⁶ The IHME has also measured government health expenditures (GHE) since then, and its fourth annual report on both was recently published.²⁷ While these reports do not list DAH or GHE by specific countries, they do list them by regions. For example, of the global total of US\$28.2 billion of DAH disbursed for health in 2010, 28.1 percent (US\$8.1 billion) was for Sub-Saharan Africa — which received the largest share of DAH in 2010.²⁸

Globally, the share of DAH to governments (DAH-G) as a part of their total spending on health has typically been about 10 percent. But, in certain countries in Asia and Western and Southern Africa, DAH-G accounted for more than half.²⁹ As will be noted later in this paper, roughly 50 percent of DAH/ODA goes through on-budget mechanisms in Liberia, but the share of all institutional health expenditures (including GHE-non government sector, government transfers to non-government entities) financed through DAH has been above 75 percent since 2008.

IV. REVIEW OF THE LITERATURE ON ODA AND DAH FUNGIBILITY³⁰

4.1 DEFINING FUNGIBILITY, ADDITIONALITY, AND VOLATILITY

Broadly, fungibility is the measure and nature of the fiscal impact³¹ of nondomestic funds when added to domestic funds (from tax and nontax revenues) that finance a country’s budget. External donors always intend their financial assistance to be “additional” to any funds raised domestically by the government to finance its budget, since the assistance is designed to meet objectives the donor assumes would not be achieved without it (even if there are matching funds from the recipient).

Thus, fungibility occurs when external assistance changes the allocation of government resources

24. GHE is defined as the government health expenditure, which includes DAH channeled through governments (DAH-G), and through nongovernmental channels (DAH-NG). IHME also distinguishes, in its measurements, government health expenditure as the agent (GHE-A) and government expenditure as the source (GHE-S). GHE data is produced by the World Health Organization (WHO) for 1995–2010 only.

25. Hecht and Shah 2006.

26. Annual reports on DAH have been published by the IHME since 2009. The latest (for 2012) is discussed later in the literature review.

27. IMHE 2012.

28. *Ibid.*, p. 7.

29. *Ibid.*

30. And, implicitly, on predictability, volatility, and additionality.

31. “Fiscal impact” denotes the net budget impact of the assistance on both spending and revenues.

and/or its efforts to raise its own revenue. ODA in the aggregate would apply to the issue of whether its total amount or portions that are targeted across sectors would affect resources typically allocated or raised by the government. DAH, though it may be targeted to the one (health) sector and would likely include a broader range of assistance than that defined as “official” aid, might have similar effects — possibly substituting for domestic public spending in health, thus subsidizing it in particular health subsectors³² and/or possibly reducing the government’s revenue-raising efforts.³³

As mentioned above, a related concept to fungibility is additionality, defined as whether the country’s health spending, after an inflow of external funds, is as high or higher than it would have been if no added external assistance had been received. In other words, do countries that receive such assistance for health use the funds to increase health spending or divert them to other uses?³⁴

It is reasonable to expect that governments receiving such assistance (additionality³⁵) will reconsider their priorities in their self-financed budgets (and/or in their revenue policies supporting those budgets) after they agree to receive the donor funds. It is the result of such reconsideration that determines fungibility across the spectrum of possible fiscal impacts (as described in the next paragraphs), which is illustrated in annex B.

In some cases, donor assistance is completely nonfungible.³⁶ The government budget increases by the amount of the assistance, and tax effort remains unchanged. Or, donor assistance is partly fungible.³⁷ The government budget is adjusted by diverting some funds that would have been spent on priorities — which are now to be funded by the donor — toward one of the following:

- a. Spending more on some other priority within the same sector;
- b. Spending more in some other sector that would not have been funded;
- c. Using some of the funds it would have spent on the donor’s priorities by reducing the tax effort, with the total budget (whatever the sectoral redistribution) reduced by the amount by which the tax effort is reduced.

Finally, donor assistance can be completely fungible.³⁸ The government reduces its total budget by the amount of aid (regardless of how reductions are made across sectors) and reduces the tax effort financing the budget by an equal amount — thus replacing domestic revenue-raising with donor funds.

In practice, most fungibility involves an indirect transfer of funds: the government renders earmarked funds fungible by reducing its own resources in the sector that receives the aid,

32. Or, allowing for higher allocations than would otherwise have occurred to other sectors.

33. Although measurements of some changes in revenue-raising efforts could be attributed to nonhealth donor funding.

34. Additionality could be seen as the case of fungibility in which the elasticity of changes in recipient funding (with respect to donor funding) is zero or positive; moreover, whether “diversion” of external funds is possible would depend on how easily it may be monetized. As noted later, “diversion” to other government purposes may not necessarily be bad, nor would freeing-up resources to be allocated to other government priorities. But there is always the possibility of diversion into private hands.

35. Garg et al. 2012.

36. Equivalent to “total additionality.”

37. Equal to “partial additionality.”

38. Equal to “no additionality.”

transferring them to other sectors. This can only occur when aid is targeted to sectors previously marked for government spending. Thus, it could be expected that a lag would occur between a donation and its measurable fungibility effect.

The relation between ODA, DAH, and domestic health expenditures also involves volatility,³⁹ especially of external assistance for health. Volatility can seriously affect countries' planning and the efficiency of their health systems. Further, volatility affects the pace and timing of government responses and makes it difficult to model the effects of changes in lag times when studying the issue.

4.2 REVIEW OF THE LITERATURE

There is extensive literature on the fungibility of donor assistance to developing countries — including concerns about whether recipients of project aid use all of it for the purposes intended by donors along with those about whether foreign aid is generally effective (given high fungibility) in meeting its goal of improving economic growth (and/or reducing poverty). As this paper is mainly concerned with fungibility in the health sector (specifically in Liberia), it will only refer to the literature to determine how aid influences government policy (particularly fiscal policy) in the health sector.⁴⁰

4.2.1 Historical Perspective on Fungibility

Earlier research on fungibility modeled public sector fiscal responses to foreign aid inflows in the aggregate (Heller 1975; Mosley et al. 1987; Gang and Khan 1993). In this research, foreign aid was considered an exogenous source of revenue⁴¹ (while being a component of the government's budget constraint), with the country maximizing utility by meeting revenue and expenditure targets (determined independently of the amount of foreign aid).⁴² The debate on the appropriate way to model public sector actions with respect to aid inflows led to a revised view of foreign aid as an endogenous variable⁴³ — treating it as a choice variable for the recipient — and postulated a revised loss function (Franco-Rodriguez et al. 1998; McGillivray and Ahmed 1999).⁴⁴ These models found that governments with control over the amounts they spend can specify the amount of aid that will be included in those disbursed amounts.

Although the models focused on how donors could ensure that more of their aid is allocated to areas they want to support, the World Bank 1998 review⁴⁵ focused mainly on fungibility as it might benefit the aid-financed sector-specific projects, or on “What would have happened in the

39. Volatility could probably be measured alone, but it is likely that it would have some impact on fungibility; measuring such impact would be problematic.

40. Aid inflows to low-income countries in the mid- to late-1990s, were roughly equal to taxes, and were half of all public expenditures in such countries by McGillivray and Morrissey 2001.

41. Meaning that the level of foreign aid is assumed to be determined independently of the recipient government's choices regarding its budgets and revenues.

42. The utility function represented as a quadratic loss function.

43. Meaning that the level of foreign aid is assumed to be at least partly dependent on the recipient government's choices regarding budgets and revenues (that foreign aid level can — at least partly — be determined by government's choices).

44. See McGillivrey and Morrissey 2001, *ibid.*, p. 23; in maximizing utility with aid being endogenous, recipient governments would be treating aid — like taxes and borrowing — as another form of revenue that they consider a matter of policy choice.

45. World Bank, 1998.

absence of donor financing?”⁴⁶

At that point, the Bank assessment found a dichotomy in the literature examining the effects of donor aid on fiscal policy (on both revenues and expenditures). First, most fungibility studies tried to identify if donor aid intended for a particular sector, was, in fact allocated (and spent) there. They were usually time-series analyses of panel data across specific countries and times. Also, some case studies reviewed certain countries’ experiences that typically generated results that could not be generalized to others.

Second, the literature on fiscal responses to aid explicitly used models to show that the impact was mediated by public sector actions and thus the broader perspective considered not only sector allocations (fungibility) but also the effect of aid on revenue efforts and borrowing.⁴⁷

It should be noted that the different research results could be due not only to the types of inquiry, but also to substantial variations regarding the data used, methodologies applied, and assumptions in the behavioral models adopted. With respect to the data, researchers faced various problems when choosing which data to use for empirical estimates, as discussed in section 3.1. The most significant issue may be both the extent to which off-budget aid was a relatively large amount, and the extent to which it may be excluded from the data used (even if government data were gathered to modify or adjust the OECD data).

4.2.2 Data Sources

Since it appears that “off-budget” and “unofficial” aid is substantial in some countries (Liberia is unusually dependent on such aid⁴⁸), the effect of its inappropriate treatment on empirical results could be important. The difference between OECD DAC (donor-reported) aid data and the external financing recorded by governments (for aggregate aid) is apparently quite large in Africa. Fagernas and Roberts (2004a) found that OECD DAC data for Uganda exceeds external financing reported by the government by (in some years) more than 10 percent of GDP, while the authors (2004b) found the gap was 20 to 40 percent of GDP in some years for Zambia. Quattara (2006) found that for Senegal, OECD DAC aid reported during the 1990s was twice as high on average as aid reported by the Senegalese Ministry of Finance (12 percent versus 6 percent of GDP). About 40 percent of aid to Malawi (Fagernas and Schurich 2004) is off-budget, while in Liberia; it is estimated to be more than 70 percent of all aid.⁴⁹⁵⁰

While most data in fungibility studies are from OECD, supplemented by other sources, data from

46. Ibid., p. 60, where it is admitted that, while “success can be measured at two levels — at the micro level, which typically shows high rates of success or at the macro level of economy-wide growth and poverty reduction, where ... there is less visible success.”

47. This categorization was adopted by McGillivray and Morrissey 2001, p. 1. Both types of literature include research on fungibility at the aggregate level (endogenous levels of aid having effects on revenues, budgets, borrowing (with sectoral effects realized as second-order effects), and on fungibility at sectoral levels only, where models and approaches are eclectic and ad hoc.

48. The degree of dependence is discussed in the next section.

49. According to estimates of Total Institutional Health Accounts for FY 2009/10, almost US\$ 86 million of the US\$ 109 million in external aid was provided off-budget in that fiscal year (see World Bank, 2013, Table 3-2, p. 18). Another estimate (by the OFM/MoHSW) had off-budget aid totaling US\$72 with total external aid at US\$ 102 million in that same year.

50. According to Van de Sijpe (2013), p. 329. “Public health and health data are staff estimates from the IMF’s Fiscal Affairs Department [FAD], and, although they have been used in various publications, they are not publicly available.” Also, detailed explanations of data sources used in this study are in annex A, also not for publication.

DAC's ODA⁵¹ by year and sector from all OECD countries to every recipient country are mostly used in the research. The categorical fungibility studies are concerned with whether spending in the areas where the aid was directed, did, in fact, increase by the amount of the aid provided (as indicated in the sectoral totals of the ODA data). Conversely, the fiscal response studies focus less on whether donor aid was spent as intended, but rather on how aid flows affect aggregate fiscal behavior — including tax effort, public investment (capital expenditures), domestic borrowing, resource allocation, and distribution of disbursements among sectors — with fungibility being determined by the impact of government financing on both revenues and expenditures.

This paper first reviews the categorical fungibility studies because they are the only types referred to in discussions about the fiscal aspects of aid in the World Bank (1998) and because general fungibility could be quite important in terms of aid effectiveness: for example, if aid intended for investment is diverted into government consumption spending, it would reduce the aid's potential growth impact. Moreover, categorical fungibility studies could be considered as included in the fiscal response models, to be discussed after a review of the former.⁵²

4.2.3 Categorical Fungibility Studies

Much of the literature has focused on the extent to which aid is used in a fungible manner. It includes (a) panel studies using time-series, cross-country data, and (b) case studies of individual countries. The categorical fungibility and fiscal response studies (using cross-country data) can be divided in two groups according to the models used.⁵³ The first involves a utility maximizing problem, and estimates a simultaneous linear expenditure system, (for example, Feyzioglu et al. 1998; Swaroop et al. 2000; Khilji and Zampelli 1991, 1994). The second group adopts a more ad hoc approach, “in that it is not based on an explicit theoretical framework, but still estimates a set of simultaneous equations;”⁵⁴ for example, Pack and Pack (1990, 1993), Cashell-Cordo and Craig (1990), and Gupta (1993).

The paper will first describe the results of the panel studies (both with the utility maximizing framework, and the more ad hoc framework) and then the findings from the studies, particularly about the ODA and DAH effects on health budgets and spending. After this, it describes the individual country case study results and the limitations of data and approaches to modeling and estimates

4.2.3.1 Cross-Country Studies Using Time-Series, Panel Data: Specific Utility Function

Two studies obtained results by solving simultaneous equations after postulating that

51. As noted above, ODA does not include some important categories of financial transfers that could affect fungibility, and that are not included in the data used to measure such impacts. These are: “other official aid” (OOF), and “private transfers” — both of which are available from OECD data. However, there are (for some DAC countries) transfers of “unofficial” aid also referred to as off-budget. It is generally conceded such unofficial aid is not fungible because the amounts transferred, and its uses, are unknown to the government.

52. Fergernas and Roberts (2004c) note that McGillivray and Morrissey (2001) criticize categorical fungibility studies on the grounds that they allow only a limited analysis of the broader dynamic fiscal impacts of aid. In contrast, fiscal response models focus on the effects of aid on revenue-raising efforts, total spending, and domestic borrowing over time.

53. Categorization suggested by McGillivray and Morrissey 2001, p. 4.

54. Ibid.

governments seek to maximize a specific utility function.⁵⁵ One analyzed 14 developing countries⁵⁶ (Feyzioglu et al. 1998), which found that aid is not fungible at the aggregate level, and there is no associated tax relief.⁵⁷ Using similar techniques, Swaroop et al. (2000) found that aid had no impact on revenue or expenditure categories except on nondevelopment expenditures (that is, defense, interest on debt, and general administrative services).

More recently, cross-country studies at the IMF focused on the relationship between aid and domestic tax revenues. Benedek et al. (2012) used comprehensive data from 1980–2009 for 118 countries and found support for earlier findings by Gupta et al. (2004) of a negative association between net ODA and domestic tax revenue. But this relationship “appeared to have weakened in reflection of greater efforts at mobilizing domestic revenues in many countries.” Moreover, the composition of net ODA appears to matter: ODA grants were associated with lower revenues, while ODA loans were not. Further, the paper found that net ODA and grants were negatively associated with VAT, excise, and income tax revenues, but had a positive relationship with trade taxes.⁵⁸

4.2.3.2 Cross-Country Studies Using Time-Series, Panel Data: Unspecified Utility Function

Other time-series, panel data studies involve simultaneous equations but make no consistent assumptions about governments’ utility maximizing functions.⁵⁹ A panel data time-series study by Devarajan, Rajkumar, and Swaroop (1999) using annual data from 1971–95 from 18 Sub-Saharan African countries adopted a model based on the differences between donor and recipient spending preferences. On the macro level, they⁶⁰ found that an additional dollar in ODA increased government spending by US\$0.89 (the remaining \$0.11 went either to extra-budgetary aid or for tax relief). In the education sector, there was nearly total nonfungibility; in energy/transportation/communications, there was partial fungibility; and in agriculture, industry, and health, there was nearly total fungibility (that is, there was no evidence that the aid increased government spending in these sectors at all).

In an earlier study, Devarajan and Swaroop (1998) concluded that “the effect of aid on the composition of (total) public spending between current and capital expenditures is broadly consistent with international evidence: Aid in Africa leads to an increase in current and capital spending in equal amounts. The result that appears as striking is that an almost equal amount of aid — equal to the amount going for recurrent and capital spending — goes toward repaying the

55. In this, to maximize a quadratic loss function subject to a government’s targets for revenue and expenditures. “A quadratic loss utility function implies that any departure, where positive or negative, in revenue and expenditure outturns from what was originally desired or targeted gives rise to a welfare loss. The rationale is purely macroeconomic. Quadratic loss utility function maximization offers no explanation of public expenditure allocation in terms of the social benefits to which expenditure should give rise.” (From Fagernas and Roberts (2004c), p. 9)

56. A heterogeneous group of countries, only five of which were truly low income; sample selection may bias the results as, when the number of countries is increased, aid appear to be fungible, according to McGillivray and Morrissey 2001.

57. Estimates were made using 36 simultaneous equations for aid over 1971–1980; 26 were estimated individually using ordinary least squares (OLS) and 10 jointly, using the generalized method of moments (GMM) technique. However, the authors found that increasing the number of countries made aid fungible (the base sample indicating aid is fungible is three out of the five sectors examined).

58. Benedek et al. 2012, p. 1. It is noted that “aid has a particularly strong negative effect on domestic tax revenues in low-income countries and in countries with weak institutions.”

59. Even when using the same behavior model (maximizing the utility function as specified), there is no accepted theory employed to estimate recipient governments’ decisions on targets for spending and expenditures.

60. Results as cited in Marc 2012, p. 5.

principal on past loans.”⁶¹

Pivovarsky et al. (2003) found (in 107 countries from 1970–2000) that concessional loans increased domestic revenue, while grants were fungible. Chatterjee et al. (2007) found for 67 countries in 1972–2000 that 70 percent of aid was fungible at the aggregate level.⁶² Several similar studies were cited in a more recent and richer panel dataset of 91 developing countries for 1980–2009 (Marc 2012); these examined fungibility at the aggregate level, considering endogeneity of aid and autocorrelation of residuals. Results indicated that aid was strongly fungible (in general), almost 80 percent substituting for, rather than increasing, government spending. This study disaggregated aid into bilateral and multilateral components, and found that despite substantial differences between them, there are few indications that multilateral aid is less fungible than bilateral aid. The study also attempted, as did Van de Sijpe (2013) to distinguish between on- and off-budget aid⁶³ — using the value of technical cooperation as a proxy for off-budget aid. As expected, on-budget aid was strongly fungible while off-budget aid (whose amounts the governments did not know⁶⁴) was nonfungible. These findings are relevant to Liberia, for which unofficial⁶⁵ aid accounted for a large majority of the aid flowing to the health sector in recent years.

One time-series, panel data study by Cashell-Cordo and Craig (1990) found large aid-induced increases in domestic revenue, and among African countries a large incremental increase in total government expenditure (including aid). In contrast, Gupta (1993) and Swaroop et al. (2000) found that aid has no effect on revenue or expenditure except for nondevelopment expenditure (as listed above).

4.2.3.3 Cross-Country Studies Using Time-Series, Panel Data: Effects on Health Budgets

Recent studies have tried to estimate the degree of ODA fungibility in the health sector. The analyses often empirically estimate the level of decreased resources in government health spending that is associated with a US\$1 increase in donor funding. Recent estimates were from US\$0.27 (Farak et al. 2009)⁶⁶ to US\$1.65 (Gottret and Schieber 2006).⁶⁷ Farak et al. disaggregate the impact of ODA for health according to a country’s income level to show it depends on the baseline levels of donor funding and government expenditures. The elasticity of government spending with respect to ODA for health (the percent by which government spending is reduced associated with a 1 percent increase in donor funding) was higher in low-income countries (-0.14) relative to middle-income countries (-0.04). This is a reason for concern given that baseline government spending in low-income countries is already only a fraction of

61 Devarajan and Swaroop 1998, p. 9.

62. MacVillivray and Morrissey, p. 6.

63. Most relevant for studying fungibility in Liberia (with very substantial “off-budget, unofficial” external aid inflows) is Van de Sijpe’s (2013) study of panel data on aid given for education and health. He distinguishes between the aid flows to each of these sectors and illustrates how “a failure to differentiate between on- and off-budget aid produced biased estimates of fungibility.”

64. Full additionality is achieved by successful (full) conditionality; that is, since governments cannot observe the off-budget amounts of aid, there would be no known reason for changing on-budget totals. Of course, if off-budget aid was noticeably supplementing the on-budget amounts, and happened in several consecutive years, it might result in a measurable lagged effect on on-budget amounts.

65. As noted, the distinction between on- and off-budget aid is not congruent with that between official and unofficial.

66. Farak et al. 2009.

67. Gottret and Schieber 2006.

the figure in middle-income ones. Farag et al. also note the importance of considering the effect of donor funding volatility, arguing that as often “as donor funding for a donor’s priority activity is reduced or stopped, it is difficult for the government to shift resources back to this activity after committing the funds for other purposes.”

Lu et al. (2010) estimate the fungibility effect to be a US\$0.43 to US\$1.14 decrease in government spending for each US\$1.00 of increased ODA for health.⁶⁸ The authors also note the importance of the type of budget support and financing channels used to deliver aid. The results suggest that, while ODA for health allocated through the government reduced its health spending, funds allocated to the nongovernmental sector had a positive effect on government health spending. This relates to an existing debate on the merits of budget support versus off-budget funding. As noted by Farag et al. (2009), there is no consensus on this issue. Moreover, Sridhar and Woods (2010) indicate several caveats that must be considered to avoid a simplistic view on how to channel health funding, including (a) concerns about data limitations, (b) limited evidence of the effectiveness of NGOs to deliver vertical funds, and (c) the need to have a broader discussion on the government budget priority-setting process in health to ensure that donor priorities are linked to national plans, and to examine how expenditure patterns are aligned with agreed-upon priorities.

A key challenge in assessing fungibility in ODA for health is the lack of data that can identify specific effects and changes in domestic health expenditure. Measurement and interpretation problems have plagued such studies, which are often inconclusive.⁶⁹ Also, there may be an alternative perspective about fungibility causality: for example, Roodman (2010)⁷⁰ suggests that reverse causality might be operating. Rather than concluding that ODA reduces government health spending (the usual fungibility), it may be that governments with lower health budgets attract more aid. Moreover, Garg et al. (2012)⁷¹ argue that, rather than developing more sophisticated methods to track additionality and conduct studies, it would be better to use available domestic and external funds to improve public health by focusing on outcomes, equity, and value for money.

4.2.3.4 Case Studies: Country-Specific, Time-Series Data (All Sectors)

As already noted, many fungibility studies avoid making assumptions about the underlying structural model and how the governments’ estimated target variables are calculated. Case studies, in particular, estimate the structure and magnitude of the fiscal impact of aid using vector autoregression (VAR) analysis that is appropriate for time series of interrelated endogenous variables with lagged effects.⁷² Virtually all case studies demonstrate that the prime effect of external financing/aid has been to increase the size of development budgets, but findings have differed about how that increase was funded and distributed across sectors (to decrease revenue efforts and/or increase domestic borrowing).

For example, Khilji and Zampelli (1991) found that aid for Pakistan is highly fungible and has led to lower revenue — findings similar to a later study (Franco-Rodriguez et al. 1998), that “only half of aid has gone to government consumption, (and) that has had a slightly positive

68. Lu et al. 2010.

69. And are likely to be important factors in measuring fungibility in health aid in Liberia.

70. Roodman 2010.

71. Garg et al. 2012. (This has come to be known as the “flypaper effect.”)

72. Fagernas and Roberts 2004c, p. vi.

impact on public investment.”⁷³ But Pack and Pack (1993), in evaluating overall aid to the Dominican Republic found results that suggested major shifts from development expenditures to deficit reduction, debt service, and own-source government revenue reduction. The authors also point to their 1990 study of Indonesia that found no evidence of fungibility (aid was used entirely for the donors’ purposes). They attributed the different outcome to the relative size of foreign aid in each country: “The more important foreign aid is as a source of public revenues, the greater the ability of donors to monitor changes in expenditures and, therefore, the more likely are the recipient’s expenditures to reflect donor intentions.”⁷⁴ At the time of the study, foreign aid as a percent of Indonesia’s GDP accounted for four times the amount in the Dominican Republic, which partly explained why there was less evidence of fungibility in the former. In the case of ODA for HIV/AIDS programs, authors have suggested that countries with high prevalence have less ability to reallocate earmarked ODA resources from their intended use, while those with low prevalence would have greater scope to apply resources elsewhere.

Numerous other case studies reporting country-specific findings differ and do not lead to general conclusions; for example, a study of Nepal (Tiwari 2007) found that “aid intended for a particular sector has, by and large, been spent within that sector and, in fact, induced the government to augment its spending on that particular sector for most categories studied...broadly corroborating the ‘flypaper’ effect of aid”⁷⁵ not just at the aggregate level but also at the sectoral level.”⁷⁶

Similar case studies of three Sub-Saharan African countries (1970–2000) by Fagernas and Roberts (2004c) estimated the structure and magnitude of the fiscal impact of aid using vector autoregression (VAR) analysis, “which avoids prior assumptions about the underlying structural model and the use of estimated target variables.”⁷⁷ They found that caution was needed when interpreting the results, which were reported, as in table 4-1 below, according to the general strength and direction of the coefficients. “They depict average responses over the periods of time covered by the regressions from which they are derived. These periods were characterized — in Uganda and Zambia at least — by serious and prolonged episodes of political and economic turbulence when predatory, distorting, and dysfunctional policies reigned, which were then followed by periods when these economies were liberalized and in varying degrees stabilized....Data limitations have prevented the fuller exploration of fiscal responses to aid on either side of historical points of inflection in economic policy and management.”⁷⁸

Table 4-1: Summary of Econometric Results for Three Sub-Saharan African Countries (Malawi, Uganda, and Zambia), 1970–2000)

		Impact of aid inflows on:			
		Development budget	Recurrent budget	Domestic revenue	Domestic borrowing
	Grants	++	--	+	--
Malawi	Loans	+	?	+	--
	ODA	++	--	+	--

73. Franco-Rodriguez et al. 1998.

74. Pack and Pack 1993, p. 264.

75. The “flypaper effect” of foreign aid is shorthand for minimal fungibility of aid in a particular sector. It means that, even with some fungibility, the aid largely “stuck” to that sector. For further discussion, see Van de Walle and Mu 2007.

76. Tiwari 2007, p. 1.

77. Fagernas and Roberts 2004c, p. vi.

78. Ibid., p. 32.

	Grants	++	+	+	
Uganda	Loans	++	++	+	
	ODA	++		+	
	Grants	++	+	--	+
Zambia	Loans	+	+	--	
	ODA	++	+	--	+

Source: Fagernas and Roberts 2004c, p. 33.

Note: ++ = Strongly positive; -- = Strongly negative; + = Moderately positive; - = Moderately negative; ? = Ambiguous; = Negligible.

Using an alternative choice-theoretical framework for fiscal impact studies (maximizing the quadratic loss function), empirical estimates have been made of the impact of aid on government consumption and investment, and domestic revenues. These structural models postulate that budget choices are well ordered, consistent, and unconstrained by inherited commitments, and that national welfare (utility) is maximized when there is no difference, ex post, between actual and desired levels of tax expenditures, borrowing, and aid magnitudes. Where these models were estimated, there was great variation in empirical results, which made it difficult to generalize about the aid effect on fiscal policy and that results are country-specific (see table 4-2 below).

Table 4-2: Summary of Fiscal Impact Studies in Five Countries

Country	Effects of fiscal impact study results ratios		
	Govt revenue	Govt investment	Govt consumption
India	0.00	0.00	0.00
Pakistan	-3.60	0.10	-2.50
Philippines	-0.10	0.02	0.02
Costa Rica	0.05	-0.02	0.07
Cote d'Ivoire	-0.92	-0.11	

Sources: India (Gang and Khan 1993; Pakistan (Franco-Rodrigues et al. 1998); Philippines (McGillivray and Ahmed 1999); Costa Rica (Franco-Rodriguez 2000; and Cote d'Ivoire, (McGillivray and Quattara 2005, as cited in Fagernas and Roberts 2004c, p. 9.

4.2.4 Fungibility and Fiscal Response Studies: Results And Policy Implications

By highlighting the complex links and variations of important fiscal variables across countries, country-specific fiscal response studies can improve the understanding of the ways in which foreign aid influences various governments' fiscal policies, not just their decisions on sectoral expenditures.⁷⁹ The fungibility and fiscal response studies showed great variations in the empirical results. McGillivray and Morrissey (2001) argue that generalizations cannot be made about the effect of aid on fiscal policy and that results are highly country-specific. In their own research (shown in table 4-1 (above)), Fagernas and Roberts (2004c) argue some broad generalizations are possible.⁸⁰

- **Aggregate expenditures:** More often than not, aid shocks have been associated with increased total spending.
- **Recurrent and development expenditures:** The literature does not generalize about the effects of aid on recurrent and development expenditures. According to fungibility studies,

79. Of course, governments' fiscal policies indirectly affect sector allocation decisions in budgets.

80. Fagernas and Roberts 2004c, p. 9–10.

aid is clearly fungible, but the extent varies. The studies show that donors should not expect to target aid accurately to particular sectors, and they cannot conclude that aid increases consumption more than investment.

- **Revenue mobilization:** The literature shows that aid may discourage revenue-raising efforts, but not in all cases.
- Domestic borrowing: The effect of aid on domestic borrowing is ambiguous, in terms of both size and magnitude; again, the literature is inconclusive and results country-specific.

Aid may increase investment (relative to the counterfactual), especially if donors can stop recipients from reallocating aid to unintended purposes. McGillivray and Morrissey (2001) noted the advantages of comprehensive fiscal response studies that tried to measure diverse and complex effects of aid through fungibility. At that time, few were completed and had used different approaches and models, as well as different panel data. All studies try to measure the incremental (direct and/or indirect) effects of aid on (a) government consumption, (b) capital expenditures or public sector investments, (c) revenue from domestic taxes, and (d) other recurrent revenue and borrowing. Earlier studies⁸¹ that assumed exogenous aid suffered from the methodological problems mentioned above.⁸²

Later fiscal response studies⁸³ assumed endogenous aid in their models. Some direct and total effects of aid (the incremental impact of aid on the four variables mentioned above) were for Pakistan (Franco-Rodriguez et al. 1998) and Costa Rica (Franco-Rodriguez 2000). McGillivray and Ahmed (1999) reported on the same variables for the Philippines. Later, Mavrotas (2002) tested whether disaggregating aid flows into three main components in India and Kenya (including program aid, project aid, and technical assistance) showed different impacts on the four variables mentioned above. Feeny (2007) incorporated asymmetric policy preferences in his model of the fiscal response to foreign aid.

McGillivray and Morrissey (2001) noted earlier that it was difficult to generalize from the disparate studies, but some observations could be made, emphasizing that the studies focus on the incremental impact of aid over time on the major fiscal components.

A central policy conclusion — despite the variability in some specific findings — is that donors should take note “not only of the potential fiscal effects of aid, but also of the fiscal implications of policy reforms associated with aid.”⁸⁴ In fact, it seems the final outcome regarding total spending and the allocation of resources is quite different when the total system of fiscal interactions is observed, instead of the partial, contemporaneous relationships between categorical aid and government efforts by sector.

Further, since aid may affect both taxes and borrowing, it is the interaction of these two impacts (which varies from country to country) that will determine the ultimate effect upon total spending (and the relative amounts of consumption and investment spending). McGillivray and

81. Cited in McGillivray and Morrissey 2001, p. 17. (Heller [1975] studied a cross-section, time-series sample of African countries; Gang and Khan [1991] studied a time-series sample for aggregated data points for India; and Khan and Hoshino [1992] studied a cross-section, time-series sample of Asian countries.)

82. See footnote 47.

83. Cited in McGillivray and Morrissey 2001, op. cit.,

84. Ibid., p.21.

McGillvrey and Morrissey (2001) conclude the following:⁸⁵

- Aid intended for investment ultimately increases spending in target areas
- Aid receipts do not encourage reduced tax efforts (although they may distort the tax system)
- Aid does not encourage the diversion of tax revenues to a government's consumption spending (although pro-poor consumption spending may be a policy objective)
- Aid receipts do not encourage increased borrowing to finance consumption

It should be noted that the studies cited have limitations. Also, there are potential normative aspects of fungibility. It is possible, that is, that the fungibility of foreign aid may have positive impacts, for example, when (and if) domestic resources are freed up for recipient government priorities. These issues are discussed in annex C.

V. FUNGIBILITY OF ODA AND DAH

5.1 BACKGROUND

After the civil war ended with the 2003 Comprehensive Peace Agreement (CPA), Liberia was basically a failed state. With as many as 200,000 dead, and another roughly one million displaced internally,⁸⁶ the country's physical and economic infrastructure had collapsed. Liberia was faced with building the peace (although some minor conflicts continued) and the state. Conventional state functions, such as the rule of law and a judicial system, governance, and delivery of basic social services (mainly health and education), had to be reestablished from the ruins.

The first democratic elections were held in late 2005, and President Ellen Sirleaf-Johnson was inaugurated in early 2006. The Liberian Reconstruction and Development Committee (LRDC) was formed, chaired by the president, to coordinate government and development partners' efforts to engage in policy dialogue and develop methods to gauge aid effectiveness. Various reconstruction plans were developed quickly to meet the country's immediate needs, including the "150-Day Deliverables," followed by the Interim Poverty Reduction Strategy (I-PRS), which was the basis for the final PRS, launched in June 2008, providing a national strategic planning framework based on four concepts:

- Expanding peace and security
- Revitalizing the economy
- Strengthening governance and the rule of law
- Rehabilitating infrastructure and delivering basic services

While finalizing the PRS, the LRDC was also involved with other planning efforts with its international development partners (DPs); and, the latter's plans needed to be consistent with the objectives of the PRS, which, early on, were only partly achieved.

One example involved the United Nations, whose 16 specialized agencies and initiatives are coordinated within the UN's National Development Assistance Framework, which also

85. Ibid.

86. The population was estimated at 3.5 million in the 2008 census, and 3.0 million in 2000.

coordinates the peacekeeping work of United Nations Mission in Liberia (UNMIL). An important ingredient in the government of Liberia (GoL) transition planning was reaching consensus (among the state agencies and the international groups) on objectives and approaches to project design, monitoring, and evaluation. However, in the postconflict environment, Liberian stakeholders did not always agree on a shared vision or approach to implementation. Further, since Liberia lacked sufficient capacity and leadership in most sectors, many DPs provided substantial aid outside official channels — especially for immediate humanitarian assistance. But, as the government developed its capacity and plans, it was important for DPs to work within official channels — if only so the Ministry of Finance (MoF) and sector ministries could know what efforts were being undertaken, with what resources, and where.

Prompt action at the Ministry of Health and Social Welfare (MoHSW) sought to benefit from the large DP interest in that sector; and, key child health and general service indicators improved rapidly. Subsequently, the goal was to develop a decentralized national health system, devised by the MoHSW in January 2007, through a Five-Year Plan called the National Health Policy and Plan (NHPP), 2007–11.⁸⁷ Its goal, as an integral part of the PRS was to assign progressively more responsibilities to the county health and social welfare teams (CHSWTs) as their capacities increased.

As a follow-up to the NHPP, 2007–11, a Ten-Year Plan — the National Health and Social Welfare Policy and Plan, 2011–21 (NHSWPP) — was launched in mid-2011. This defined a ten-year process during which the MoHSW’s responsibilities at the operational level would gradually be transferred through “deconcentration” of operational authority to the CHSWTs in each of the 15 counties.

5.2 THE MACROECONOMIC PICTURE: RECENT YEARS

Liberia’s macroeconomic statistics from 2000–06 were virtually unchanged,⁸⁸ as neither the political nor economic situation had stabilized enough to alter conditions. After 2007, the numbers improved steadily, despite the negative impact on exports (rubber, lumber) of the global economic crisis of 2008. Government revenues, budgets, and expenditures still showed remarkable growth from 2007–11. Its financial position was greatly improved by debt forgiveness under the heavily indebted poor country (HIPC) relief program (by 2010) and by the government adopting a cash-based budget in 2008 (see figure 5-1). ODA was substantial throughout this period (see tables 1.A4 and 2.A4 in annex D for the data in figure 5-1).

5.3 RECENT LEVELS AND SHARES OF ODA TO LIBERIA AND THEIR RELATIONSHIP TO GDP AND GOVERNMENT FISCAL DATA

5.3.1 Composition of ODA, 2007–11

Total ODA to Liberia increased five-fold, from US\$55 million in 2002 to US\$261 million in 2006. After that, ODA almost tripled in just one year. The following section shows the various components of ODA from 2006–11, as well as relative shares of particular kinds of ODA.

Figure 5-1 shows the relative amounts of ODA from 2007–11 (as well as the trends over that

87. Liberia, Ministry of Health Social Welfare 2007.

88. The civil conflict had dropped per capita income by up to 90 percent during the war, and the IMF only began to collect (and publish) macroeconomic data again in 2000.

time), and their size relative to key macroeconomic indicators.⁸⁹

The levels and patterns of ODA reflected the political and economic changes that began toward the end of the war, and were fostered by the first democratic elections in 2005, and the inauguration of the new government in 2006. In 2007, the focus was on the Poverty Reduction Strategy; after this, two consecutive national plans were designed, and the critical HIPC debt forgiveness began. The first tranche of US\$738 million was in 2008, the second of US\$117 million was in 2009, and the third, US\$931 million, was in 2010.

On an annual basis, ODA increased immediately once the new government took office in 2006 — increasing almost three-fold in one year, from US\$261 million in 2006 to US\$701 million in 2007. The annual amount increased only modestly to US\$766 by 2011. But in the years between, Liberia benefited from substantial debt forgiveness as it successfully completed the HIPC⁹⁰ requirements — with “action related to the debt” amounting to assistance totaling about US\$1.8 billion from 2008 to 2010.⁹¹ Besides ODA, there has been a substantial amount of external assistance that is not “official” and is not reported to the OECD. Because the amounts and recipients are not known (though sometimes estimated), they should be considered totally nonfungible. As for “official” development assistance, the tables show problems when estimating its effects over the brief period in question. Both of these issues will be discussed in later sections.⁹²

5.3.2 Importance of ODA Relative to Government Fiscal Measures

The magnitude of ODA, relative to the GoL revenues and expenditures, has been extremely large, even as early as 2003, when the GoL’s fiscal efforts were relatively small compared to what they became in 2007 and afterwards. However, starting in 2007, ODA was 1.5 times the GDP and at least 4 times total revenues and expenditures. These proportions declined over the next five years, so that each measure was less than 2 times the denominator (GDP, revenue, and/or expenditure, as seen in figure 5-1.⁹³) The decline did not occur steadily because of the substantial impact of debt forgiveness in 2008 and 2010 — when the ODA was the highest it had ever been relative to GDP (over 2.5 times) and relative to government revenues (6 times higher in 2008 and 4 times in 2010).

89. Tables 1-A4 and 2-A4 (in annex D) provide the data for figure 5-1, as well as other pertinent data.

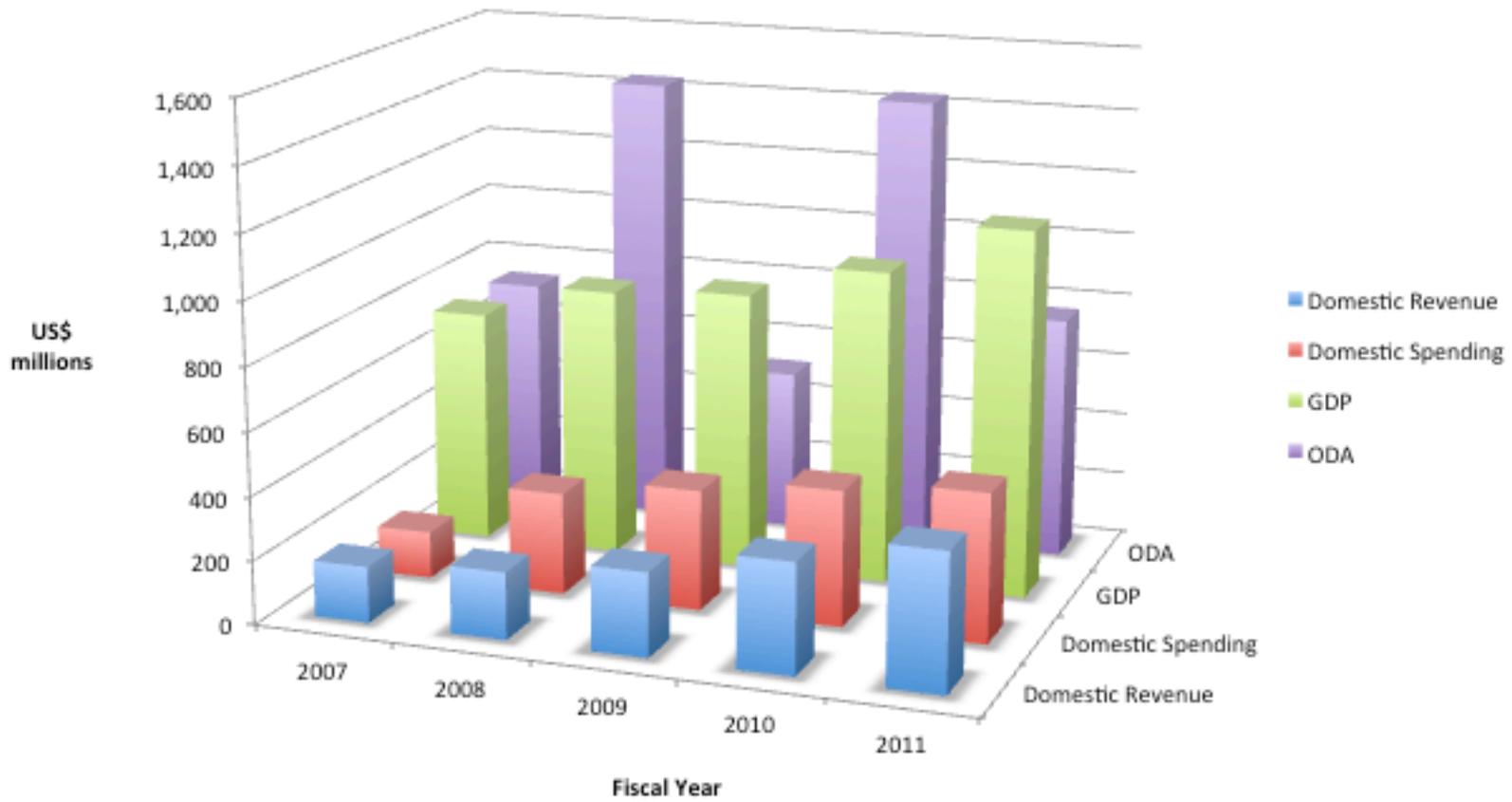
90. The second program for Heavily Indebted Poor Countries provided debt forgiveness if certain conditions (including the creation and successful initiation of a Poverty Reduction Strategy) were met. Liberia had serious arrears in debt service payments during the war, and economic recovery would have been impossible without debt relief.

91. These payments eliminated outstanding debt to multilateral, bilateral, and private agencies — and amounted to over 35 percent of total ODA from 2006–11 (US\$1.8 billion of US\$4.9 billion).

92. Table 2-A4. (in annex D) shows the ODA reported to the OECD, both by the sources and categories.

93. Data shown in table 3-A4 (annex D).

**Figure 1:
ODA Compared to Macroeconomic Indicators
Liberia, 2007-2011**



Source: Office of Financial Management (OFM), MoHSW, Liberia (this should be Figure 5-1)

5.3.3 Importance of ODA Relative to the Sector and/or Total, 2006-2011

Table 1-A4 (annex D) shows ODA from 2006 to 2011, relative to various macroeconomic indicators (figure 5-1). The same table shows the relative shares of ODA according to the category of aid.

For example, while humanitarian aid was half of ODA in 2007, it dropped below 10 percent in 2008 to 2010. Over the five years, HIPC debt relief was 35 percent of total ODA, but was highest in 2008 (59 percent) and in 2010 (66 percent). The part of ODA for the health sector averaged about 15 percent of total ODA for the five years — except in 2007, when it dropped to 2 percent in four categories, which resulted from aggregating certain line items. Table 4-A4 (in annex D),⁹⁴ however, shows the share of sectoral ODA and total ODA. Table 4-A4 shows the relevant values of ODA received in the top rows, to give perspective on the components named in bottom rows.

5.4 UNOFFICIAL AND OFF-BUDGET AID

It should be noted that ODA and on-budget assistance are not congruent categories: In fact, large amounts of ODA are not transmitted through on-budget mechanisms. One example is the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM), which has a substantial parallel, “off-budget” system for administering assistance — which is not considered a part of the MoHSW “on-budget,” although the MoF and MoHSW are aware and approve of these funds.

Thus, it is possible that “official” assistance funds being spent “off-budget” are, to some degree, fungible. However, there are also “off-budget” funds that are “unofficial,” whose sources and amounts are unknown to the MoF and MoHSW, and which are spent in counties and by facilities. These unofficial and off-budget funds are, by definition, totally nonfungible, simply because the MoF and the MoHSW are unaware of their amount, and neither ministry can change allocations to the health sector because of them.

There are also differences between approved budgets, receipts of obligations to budget entities,⁹⁵ and actual expenditures of the amounts received. These amounts are progressively smaller, given the lags between approvals, receipts, and actual spending; such lags reflect the practical difficulties in implementing budgeted activities as approved and intended. Some of the differences reflected in sectoral spending are shown in table 5-1. Note that official but off-budget funds are computed from the data shown, while the unofficial and off-budget sums can only be determined by assuming that the MoF Aid Management Unit (AMU) fully reports the funds from unofficial donors. Surveys conducted to calculate these amounts for national health accounts may still present different amounts.

94. It should be noted that the percentages in 2006 are indicative of the shares experienced in the previous four years. Starting in 2007, however, it is clear that (a) social infrastructure services declined at first, then stabilized; while (b) sectoral aid fluctuated and humanitarian aid declined as a share of total ODA.

95. “Entities” being distinct recipients of their own parliamentary budget appropriation.

Table 5-1: Health Sector Budgets, Receipts, and Disbursements: GoL, “On-Budget” and “Off-Budget” ODA, and Unofficial “Off-Budget” Contributions, 2008–12, and Total Institutional Health Spending, 2008–12

Legend	Monetary items (US\$ millions)	2008	2009	2010	2011	2012
A	MoHSW budget	14.1	16.6	20.2	31.2	39.6
B	MoHSW receipts	12.2	12.4	13.3	24.2	34.0
C	ODA receipts to MoHSW*	11.5	19.2	28.4	28.5	31.6
D=B+C	TOTAL MoHSW receipts*	23.7	31.6	41.7	52.7	65.6
E	ODA disbursements**	40.2	56.2	53.9	55.2	n.a.
F=E-C	ODA disbursements outside MoHSW***	28.7	37.0	25.5	26.7	n.a.
G	Donor disbursements outside MoHSW****	n.a.	71.5	43.9	85.4	n.a.
H=G-F	Estimated unofficial, off-budget disbursements*****	n.a.	34.5	18.4	58.7	n.a.
I=C+F	Total ODA inside+outside MoHSW	68.9				
J=G+D	TOTAL institutional health spending	n.a.	103.1	85.6	138.1	n.a.

Source: Office of Financial Management (OFM), MoHSW, Liberia.

Note: n.a. = Not available.

*Amounts released for disbursement in the years, either from MoF to MoHSW or ODA to MoHSW.

**Total disbursements received by GoL for health from ODA, both “on-budget” and “off-budget.”

***Total disbursements received by GoL for health from ODA, “off-budget” only.

****Total disbursements received by GoL for health, from all donors, “off-budget” only.

*****Total unofficial disbursements received by GoL for health from non-ODA donors, “off-budget” only.

Table 5-1 figures help us understand the difficulties of tracing the flows of funds to and within the health sector, and trying to isolate both (or either) the original sources of funding and/or the mechanism(s) by which the sources were used to transfer money values into services.

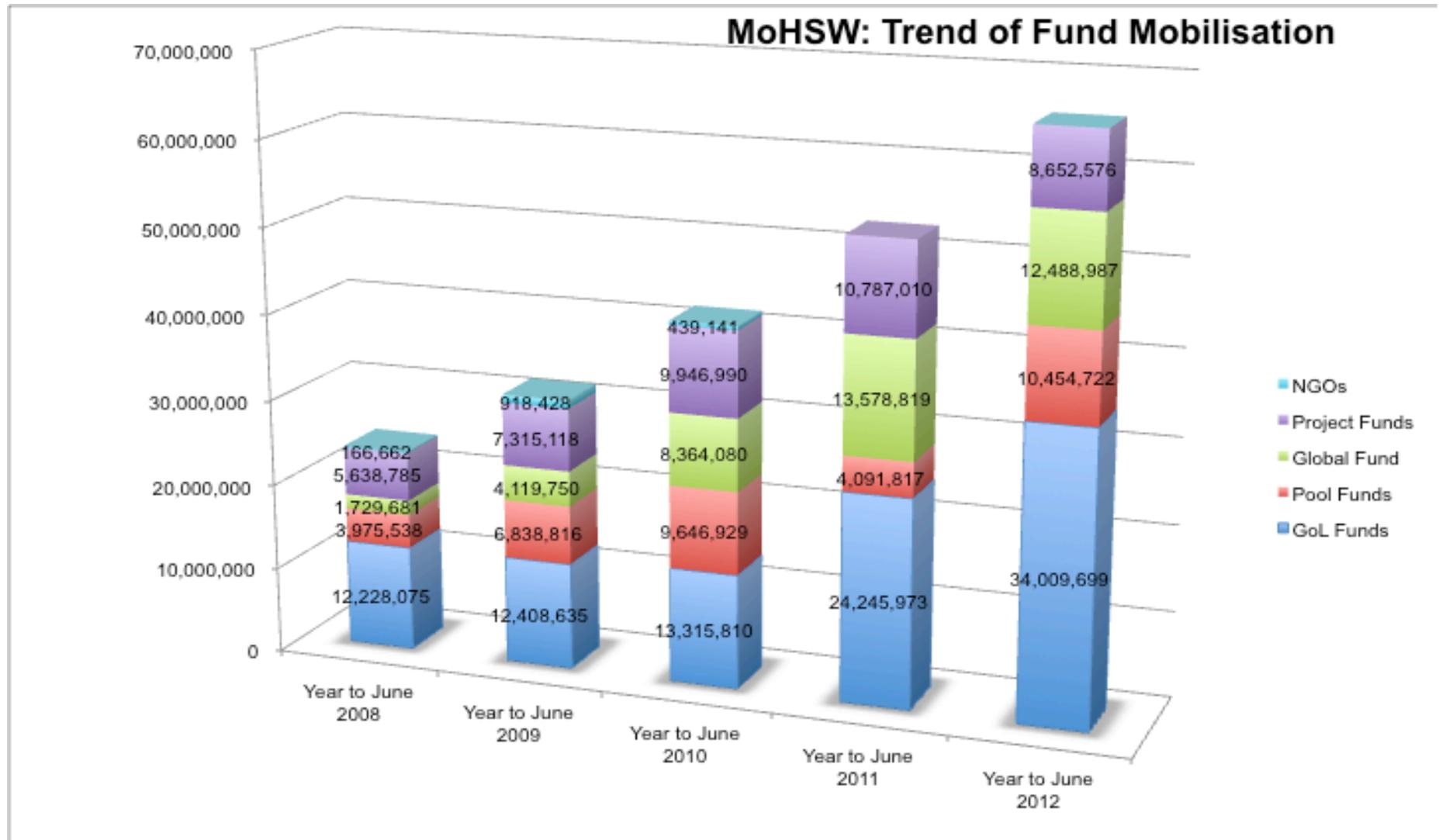
One way to simplify the issue is to focus first on ODA disbursements (shaded row E), which are the reported official assistance funds received from abroad. These funds are channeled in two ways: either (a) on-budget through the MoHSW, or (b) off-budget through the donors’ own parallel administrative systems.⁹⁶ Since all funds are reported to the MoF’s Aid Management Unit (AMU), they could be fungible to some extent. However, it is evident (shaded row G) that a substantial amount reflects disbursements outside MoHSW channels, only some of which is ODA. This total was US\$85.4 million in 2011. However, only US\$26.7 million (row F) of those funds are ODA, and the remaining US\$58.7 million (row H) are unofficial funds from unknown donors, given directly to counties and/or facilities without informing or coordinating with the MoF or MoHSW.

96. Hughes and Glassman (2012), p. 24, cite that, in 2011, \$35 million was donated by the GFATM, but MoHSW (Office of Financial Management) data show that only US\$13.6 million of that amount was channeled as part of ODA’s total health aid of US\$28.5 through the ministry’s budget.

5.5 ODA FOR HEALTH COMPARED TO GOVERNMENT HEALTH FUNDING

Only some of the ODA for health, in shaded row E of table 5-1, is channeled through the MoHSW (row C). When combined with GoL funding for health (row B), the total budget for the MoHSW to disburse is a relatively smaller sum (row D) than the total ODA made available (shaded row E). Those who contribute ODA through the MoHSW budget used various funding methods: (a) through the Health Sector Pool Fund (HSPF), (b) through their own donor systems to implement projects supporting the MoHSW budget (most of these funds are called “tied” aid, as a large part is spent in the donor’s country, not in Liberia), or (c) through parallel administrative systems (as the GFATM uses), which disburse the funds almost entirely in Liberia, but outside the MoHSW budget. The actual and relative amounts of funds provided through these various sources and/or channels for 2008–12 are provided in tables in annex D (and illustrated in figures 1-2 and 1-3). Table 5-A4 shows the monetary amounts and table 6-A4 shows the percentage distribution of the sources of MoHSW “on-budget” funds. The relative shares attributed to various sources for the same years are in figure 5-2 (relative amounts in a bar chart) and figure 5-3 (relative percentages in a line chart).

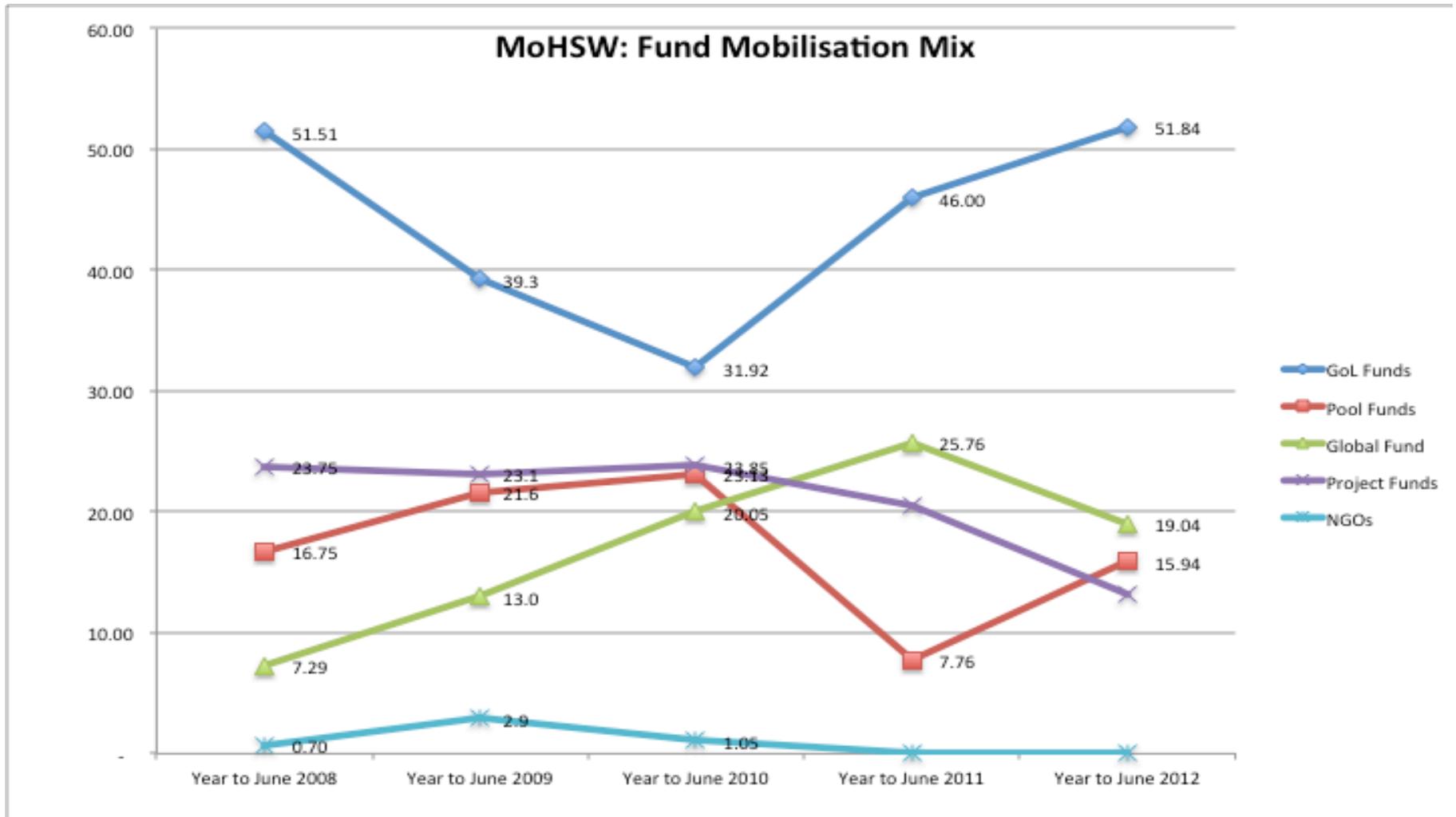
Figure 2: Bar Chart Illustrating MoHSW On-budget Health Spending Data [from Table D-5 (Annex D)]



Source: Office of Financial Management (OFM), MoHSW, Liberia (this should be Figure 5-2)

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Figure 3: Line Chart Showing Percentage Distribution of Data in Figure 2 [shown in Table D-6 (Annex D)]



Source: Office of Financial Management (OFM), MoHSW, Liberia (this should be Figure 5-3, based on percentage distribution of data in Figure 5-2)

Finally, it is useful to determine the absolute and relative amounts spent in the health sector by source. These data are shown in table F (from the various tables above) to summarize the order of magnitudes involved.

Figure 5-2 shows that the total MoHSW budget rose steadily from 2008 to 2012, although the shares changed somewhat (figure 5-3): for example, as shown in figures 5-2 and 5-3, the GoL began funding the MoHSW budget in 2008 at a relatively high share (about 50 percent) before dropping to 30 percent in 2010. This relative decline was likely caused by the drop in government revenues due to reduced exports after the global economic crisis began in 2008. However, in the last few years, its share has returned to the 2008 level (over 50 percent).

Without considering other factors that may have been involved, this provides some evidence that, whatever funds the donors were contributing, the GoL has more than matched them in recent years. This may indicate a low level of fungibility, especially given that the MoHSW budgets have increased steadily through the five-year-period.

Table 5-2 (rows A, B, D, and E are illustrated in figure 5-4) summarizes the major funding sources of the health sector, whether they were on- or off-budget, and whether they came from official sources (ODA) or unofficial ones (unknown, except in the aggregate).

Table 5-2: On-Budget and Off-Budget Funding of the Health Sector, by ODA and Unofficial Sources**

Legend	Spending (US\$ millions)	2008	2009	2010	2011	2012
A	MoHSW receipts	12.2	12.4	13.3	24.2	34.0
B	ODA on-budget	11.5	19.2	28.4	28.5	31.6
C=A+B	TOTAL on-budget	23.7	31.6	41.7	52.7	65.6
D	ODA off budget	28.7	37.0	25.5	26.7	n.a.
E	Non-ODA off-budget	n.a.	34.5	18.4	58.7	n.a.
F=D+E	TOTAL off-budget	28.7*	71.5	43.9	85.4	n.a.
G=C+F	TOTAL on + off	52.4*	103.1	85.6	138.1	n.a.

Source: See table 5-1 (.Office of Financial Management (OFM), MoHSW, Liberia)

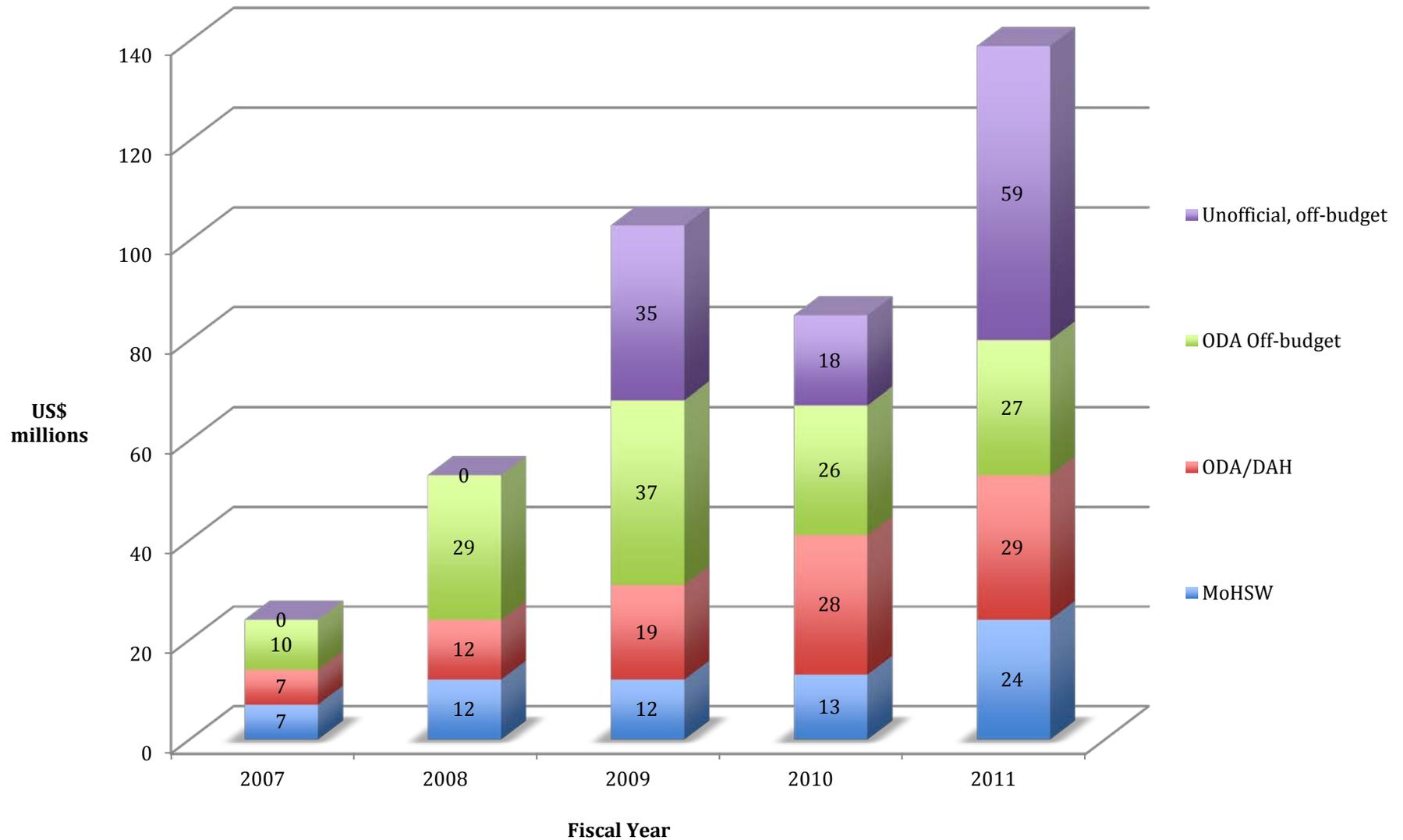
Note: n.a. = Not available.

*Incomplete data; missing value for non-ODA off-budget; **Total institutional health spending only.

The next section explains the analyses that were performed and the results, as well as the limitations of the data — which may raise questions about the reliability of using this data to draw conclusions about fungibility.

Annex B briefly explains the economic theory that illustrates how results can vary between complete fungibility and complete nonfungibility of donor aid to a developing country.

**Figure 4:
Composition of All Institutional Health Spending
by Source, Liberia, 2007 to 2011**



Source: A. Fairbank, "Fungibility of ODA/Health Aid: A Case Study of Liberia, PowerPoint Presentation to World Bank/HDN, 5 Feb 2013, based on OFM/MoHSW data.

VI. ANALYSES OF THE DATA FOR FUNGIBILITY

6.1 RATIONALE FOR AN ANALYTICAL APPROACH

As seen above in table F (data illustrated in figure 4), the fiscal issues surrounding attempts to recover from the civil war underwent rapid change, as they were complicated by the need for debt relief and for immediate, large-scale humanitarian and health systems aid. Steps taken to bring order to civil administration were initially chaotic but, with significant external assistance, substantial progress was made. Both the large (variable and unpredictable amounts) of external aid, and the dominance of debt relief in that aid, occurred over only a six-year period. Both the nature and the magnitude of external aid hinder the analysis of any fungibility that may have occurred. Some of the issues that discourage the use of conventional quantitative analysis, in general — and econometric analysis, in particular — are as follows:

- Although GoL raised revenues since the end of the civil war, and increased them each year, donor funding for all purposes greatly exceeded the amounts raised by GoL (and the magnitude of those amounts, much of it unofficial, is uncertain);
- Humanitarian aid was extremely significant when the recovery began, which was followed by substantial and much higher ODA for HIPC debt relief — reducing debt service charges that were affecting budget expenditures;
- While the MoHSW has been a leader (among the ministries) in improving financial management capacity (helped by global fund grants to strengthen the health system and the Health Sector Pool Fund), and while the health sector budget has grown steadily, off-budget and unofficial donor aid have continued to be a key source of funds to counties and facilities for operations and investment;
- Thus, a dominant part of donor funding (difficult — if not impossible to estimate) has come from unofficial external sources for activities that are entirely off-budget and totally nonfungible;
- A substantial part of ODA also finances off-budget activities — although the MoF and MoHSW may be aware of these amounts (thus they could be partly fungible).

In view of the above observations, the fungibility analysis will consist of limited quantitative analysis, focusing on per capita values of pertinent revenue and spending data, followed by a qualitative assessment, based on the author's interviews with Liberian officials during a two-week visit in April 2012.

6.2 QUANTITATIVE ANALYSIS

Unique conditions⁹⁷ make quantitative analysis (econometric analysis, in particular⁹⁸) difficult to perform. This analysis will review the data from two quantitative perspectives: a general overview of GoL's fiscal measures, and a focused review of health revenues and spending. It will examine the magnitude of ODA, DAH, and Liberia's fiscal and budget measures (on a per capita basis) to determine the relative importance of ODA and DAH, first, for GoL in general, and, second, for the health sector in particular. It will be seen that, even while Liberia has received extraordinary amounts of ODA and DAH in the last five to six years (much of it not reported or recorded), GoL has made great strides (from the 2006 starting point) in rehabilitating its capacities to raise revenues and manage appropriate development and operational spending. The results of these efforts can be seen in the next two tables, tables 5-3 and 5-4.

Table 5-3 presents three data panels for 2006–11, in which *per capita* ODA is compared to *per capita* figures for GDP, for government budgets, for government revenues, and for government expenditures. Table 5-4 presents three data panels for 2006–11, in which per capita DAH is compared to *per capita* levels of MoHSW funds from GoL (on-budget) and to those of off-budget and unofficial aid funds (also shown on a per capita basis). (Health spending comprises total institutional health expenditures [TIHE] only, as household OOP payments and private employer payments are not included.)

The results imply the following:

- While levels and trends in per capita ODA do not track closely year-to-year those for per capita GDP, the order of magnitude averaged over the six years is not starkly dissimilar (the six-year total of ODA per capita being 98 percent of the six-year total of GDP per capita).
- Government budgets, revenues, and expenditures per capita, though starting from low levels in 2006, rose three to four times their 2006 levels by 2011; most notably, GoL revenue per capita rose from 14 percent of GDP per capita in 2006 to 37 percent in 2011.

These results suggest GoL has made remarkable strides in raising funds internally for development at the same time it has received substantial assistance through official channels. As noted earlier, ODA is only one part of all the aid provided, especially in the health sector (see table 5-4).

97. Large amounts of missing data and the uneven and uncertain quality of existing data (generating measurement error) make it impossible for the analyst to use the data in ways that could generate definitive quantitative findings.

98. Econometric estimation of regressions of any model (that one could postulate to explain fungibility) need to satisfy some conditions relating to the error terms of equations to be estimated (an error term being that part of the dependent variable not explained by the postulated independent variables). Over all the estimated equations (one for each observation), these error terms must have a constant variance with a mean of zero and be normally distributed. To be sure to satisfy these conditions, one needs a minimum of 25 observations for each regression. (For Liberia, we only have six years of data.) Moreover, the error terms must not be correlated with one another nor with any of the independent variables. When using time series data (as we would in Liberia), it would be particularly difficult to avoid serial correlation and multicollinearity of the error terms and of the independent variables.

Table 5-3: ODA Magnitudes and Fiscal Measures Per Capita, 2006–11

Fiscal measures (per capita US\$*)	2006	2007	2008	2009	2010	2011
ODA	84	225	425	157	394	213
GDP	262	224	245	243	262	298
Ratio of ODA/GDP**	0.32	1.00	1.73	0.65	1.50	0.71
Govt budget	41	63	86	96	98	133
Govt revenue	36	53	61	73	92	111
Govt spending	25	45	93	104	113	120
Year-over-Year Growth (%)						
ODA		167	89	- 63	151	- 46
GDP		- 15	9	- 1	8	13
Govt budget		54	36	11	2	36
Govt revenue		46	14	20	26	21
Govt spending		79	106	13	8	7
Fiscal measures per capita (% of GDP/cap)						
ODA	32	100	173	65	150	71
Govt budget	16	28	35	40	37	45
Govt revenue	14	24	25	30	35	37
Govt spending	10	20	38	43	43	40

* Sources for GDP and fiscal measures: IMF, *Econ Stats, 1970-2011*, World Economic Outlook. Source for debt service charges: IMF, *Periodic Reviews*, chapter IV, 2009–11, Liberia. (See Annex D.)

** Source for ODA: OFM/MoHSW and Aid Management Unit/Ministry of Planning.

Table 5-4: DAH Magnitudes Relative to Sources and Components of Health Spending, 2008–11

DAH & budget measures*	2008	2009	2010	2011
<i>(per capita, US\$)</i>				
DAH from ODA	12	16	14	14
MoHSW funds from GoL	4	3	4	6
Unofficial, off-budget payments		10	5	15
TIHE		28	23	36
Yearly growth rates (%)				
DAH per capita		34	-8	0
MoHSW funds from GoL		-3	3	77
Unofficial, off-budget payments			49	211
TIHE			-20	57
Percentages				
DAH as % of MoHSW funds from GoL		453	405	228
Unofficial, off-budget payments as % of MoHSW funds		278	138	243
MoHSW funds as % of TIHE		12	16	18
Unofficial, off-budget as % of TIHE		33	22	43
DAH as % of TIHE		55	63	40

Source: Table 5-1. and MoHSW, "Total Institutional Health Spending, 2008-2011."

*From the population and budget/DAH data in table 5-1. (Currency quoted at nominal prices.)

Table H shows that total institutional health expenditures (TIHE) per capita rose from US\$28 in 2009 to US\$36 in 2011. However, data in table H also show how much Liberia depends on both official and unofficial assistance: MoHSW receipts from GoL were just 12 percent of TIHE in 2009, and rose only to 18 percent of TIHE in 2011.

The most interesting results in table H are the following:

- DAH from ODA has been 3 to 5 times as high per capita as MoHSW receipts (from the GoL/MoF budget), although in 2011 it was only 2.5 times;
- Growth in contributions (on a per capita basis) from DAH, MoHSW, and unofficial off-budget sources, has varied greatly from 2008–11, with TIHE growing 57 percent in 2011 over 2010, after declining 20 percent in 2010 over 2009;
- The part of TIHE (per capita) accounted for by DAH (excluding unofficial, off-budget payments) averaged almost 60 percent from 2009–11, while the part from those unofficial, off-budget sources averaged about one-third;
- MoHSW receipts (per capita) from the GoL during the same period were one-eighth to one-sixth of the TIHE per capita;
- While the MoHSW contribution to TIHE grew during this period, foreign aid was substantial, although the amounts were inconsistent and unpredictable.

6.3 QUALITATIVE ANALYSIS

Data gathered from interviews with various official and professional sources in Liberia indicated that the impact of external aid differed in two periods over the six years since elections were held and a new “peace and unity” government was installed. The first distinct period was a two-to-three-year period ending in 2009, and the second was after that time to the present. In the early years, so much external aid from so many diverse sources was devoted to restoring the availability of services that there was (in the absence of donor coordination in the immediate postconflict era) duplication of services in some areas and scant services in others. Availability of, and access to, basic health care was thus uneven across the 15 counties. During this period the MoHSW was also just beginning to organize a staff and to plan for (financing and managing) the restoration of health services both at the central level and at the county level under planned-for decentralization.

After the initial period of largely humanitarian aid, GoL began to channel some external aid to finance and organize the plans and programs sorely needed to coordinate the plentiful donor support. After the Health Sector Coordinating Committee (HSCC) was formed in 2008, and the Health Sector Pool Fund was created in 2009, foreign assistance seemed to generate the “flypaper effect”⁹⁹ during the period after 2009 — and domestic Liberian resources began to increase as a source of financing for the sector (both in absolute terms and as a percentage of MoHSW on-budget spending).

These trends were illustrated in figures 2 and 3, which showed that the GoL portion of on-budget health funding, while starting at over 50 percent of the total in 2008, dropped to just over 30 percent in 2010, but rose again to over 50 percent in 2012 (figure 3). Further, GoL allocations to health doubled from US\$12.2 million a year in 2008 to over US\$24 million in 2011, and rose

99. This is the term adopted to describe the evidence that donor assistance seemed to be associated with an increase in GoL budget allocations to health — an effect not consistent with the presence of fungibility.

even more to an estimated US\$34 in 2012 (figure 2). Also, contributions from project funds, NGOs, and the HSPF averaged from 10 percent to 25 percent each, as proportions of total MoHSW on-budget funding.

Further qualitative analysis is complicated by data issues. The Aid Management Unit (AMU) in the Ministry of Finance is responsible for compiling the data for all financial flows entering the country by sector, whether official or unofficial aid, and whether on- or off-budget. However, the reporting is said to be incomplete, and the definitions of categories to which the funds should be earmarked are not always easily applied to all the funds reported. For example, that portion of multisectoral aid that benefits the health sector may not be allocated to an appropriate extent.

Also, an External Aid Coordination Unit (EACU) in the MoHSW, while responsible for all external aid flowing to and within the health sector, only focuses on on-budget funds; such funds are more easily identified, recorded, and tracked than off-budget and/or unofficial donor funds. (The on-budget numbers are the source for the data in figures 2 and 3). The difference between the known and unknown DAH can be easily seen in figure 4 (for 2009 through 2011), which shows estimates of off-budget, unofficial aid varying from US\$35 million (2009) to US\$18 million (2010) to US\$59 million (2011).¹⁰⁰ It is notable, furthermore, that official — though off-budget — ODA/DAH also varies substantially throughout the five years of data in figure 4.

Regardless of the amount of external aid that is off-budget and unofficial, these funds are, by definition, totally nonfungible, as GoL and MoHSW do not know their total amount nor how they are used. With respect to on-budget funds, while figures 2 and 3 show convincing evidence of the “flypaper effect,” there could be some level of fungibility, perhaps through an effect on revenue-raising efforts (that is, reducing them). While this effect is by no means evident, it was reported that Parliament was considering a reduction in income tax rates, but it appears no decision has yet been taken.

VII. FINDINGS AND RECOMMENDATIONS

7.1 FINDINGS

Although Liberia depends heavily on foreign aid to keep its health system operating, and to improve its efficiency, equity, and quality; data show that MoHSW has substantially increased its contributions in recent years, reaching 50 percent of total on-budget health expenditures in 2012.

ODA for health (ODH), while only a small part of total ODA, as well as of total development assistance for health (DAH) has been significant enough that creation of the Office of Financial Management (OFM) [with assistance from the Health Sector Pool Fund] has significantly helped MoHSW improve its performance, although its contribution was still less than one-fifth of the TIHE.

Unofficial, off-budget assistance for health has been almost as significant as ODH, although in 2011, it surpassed DAH as a percent of the TIHE (accounting for 43 percent compared to 40 percent for DAH, as shown in table 5-4).

100. These numbers are based on surveys for estimates of National Health Accounts (NHAs) by the MoHSW’s NHA Team, and/or by AMU reports. Neither the sources nor information about the way the funds were used, while known for 2011, were available for publication.

7.2 RECOMMENDATIONS

Donors should make stronger efforts to coordinate their financial assistance to the health sector, both with the MoHSW and with each other. Such coordination has already established more than adequate credibility under the leadership of the HSCC and the HSPF. The HSPF in particular has succeeded, to a large degree, in becoming a forum for all donors to discuss aid coordination issues and a channel by which unmet needs of the ten-year plan can be filled. If more donors, specifically those acting unofficially in the counties, would channel their funds through the HSPF, the MoHSW would be better able to decentralize more rapidly, as it would have the funds to support its capacity-building in the Health Management Information System (HMIS) and health financial management at the local (county) level.¹⁰¹

The GoL (both MoF and MoHSW) should intensify their efforts to insist on greater compliance by donors in reporting and coordinating external funding of the health sector. Since the institutions have built credible capacity to lead and manage such a compliance and coordination process, external donors should be required to participate at the official level, as a condition of operating in the country.

The data on ODA sectoral or activity targets were taken from the OECD — DAC data (2012), but this was not confirmed with GoL records on how the aid was spent.¹⁰² Thus, it is essential for this kind of analysis that GoL confirm all ODH (whether on- or off-budget) as having been received and spent as intended, according to the OECD — DAC data (2012). To date, GoL has not made available any data related to the fungibility issue (other than on-budget information from the Office of Financial Management (OFM)/MoHSW. Attempts should be made by MoHSW (perhaps using the staff and assets of OFM as well as of the External Aid Coordination Unit) to gather such data so future research on fungibility can be done with more complete information.

Since substantial off-budget aid is being provided to support MoHSW's efforts to address single diseases (for example, the GFATM and other global funds), this means that these funds are not part of the MoHSW annual budget. These funds are administered independently of the MoHSW directly in the counties using the donors' own administrative staff and procedures. Because GoL is aware of these amounts, the funds are potentially fungible. To complete a more detailed study of their fungibility, however, it is important to have more details about how much is spent for which specific purposes and where, and what the GoL budget contributions are, for the same purposes.

Because more reliable findings on the fungibility issue depend on a longer time series of ODA and DAH (disaggregated appropriately among ODH and unofficial health aid¹⁰³), using consistent definitions, the Aid Management Unit of the MoF must develop such a database, requiring all donors (especially unofficial ones) to report their funding for health activities (and, ideally, on all sectoral assistance to the country).

101. Transparency in decision making by the Health Sector Pool Fund is facilitated by the HSPF's encouragement of all stakeholders (donors and all parts of the health sector) to attend any or all of their meetings.

102. Only the data on the amounts and breakdowns of the on-budget operations of the MoHSW are from the Office of Financial Management of the MoHSW.

103. Some aid is provided in the form of technical cooperation, (that is, technical assistance from expatriate experts), most of which is not spent in the country. While some data is available on this from the OECD, it was not separately considered in this report.

ANNEX A: OECD DAC AID STATISTICS

Website: <http://stats.oecd.org/qwids/>.

The dimensions of the database include the following:

- Recipient countries: grouped by region, income group, multilateral organization, and more; NB: Africa regional, for example, does not mean the sum of all countries in that region; it means aid that is allocated to the region as a whole — for example, support to a regional body.
- Donors: grouped as bilateral, DAC countries, non-DAC countries, and private donors, and multilateral donors)
- Sectors and subsectors
- Annual commitments or disbursements
- Flows: grants, loans, ODA, other official flows (OOF), private foreign direct investment (FDI)
- Channels of delivery: public sector, NGO, PPP, multilateral organization
- Type of aid: budget support, project-type intervention, technical assistance, debt relief, scholarships

All amounts can be obtained either in **constant or current prices**. Data date back to 1960 (in some cases).

They are in standard criteria (codes for sectors, types of aid, terms and conditions) and, therefore, comparable between donors and over time.

Exportable in excel or CSV files.

ANNEX B: THE ECONOMICS OF THE FUNGIBILITY OF AID: THEORY AND MODEL¹⁰⁴

As discussed in the lengthy literature review, the empirical support for the perception of fungibility is generally mixed, whether it has been pursued in cross-country panel data, or in multiple-year observations of the relevant variables in country case studies.

For this case study of Liberia, for the short postconflict period of 2006 through 2011, this annex will describe briefly the theoretical foundation of the possibilities for fungibility, and then will use Pack and Pack's model for empirical estimation of any fungibility that might be found in their use of 17 years of data from the Dominican Republic (1968 through 1986).

B.1 ECONOMIC THEORY AND FUNGIBILITY

It can be shown that there is at least a theoretical possibility that foreign assistance provided to developing countries for specific categories of expenditure could result in the recipient country shifting its own resource allocations regardless of the intentions of the donors. If the aid serves to replace project or program spending that would otherwise have been in the recipient country's budget, the replaced funds could be used in several different ways. At the micro level, project funds could be reallocated to other projects within the same sector. At the macro level, when the aid does not transfer into an overall increase in government spending, the funds could be used to substitute for tax revenue, hence leading to tax relief (in lieu of running a budget surplus). Between these two extremes, freed-up resources could be used for general budget support, to one degree or another, whether development-related or not.

To define these alternative modes of fungibility, a graphical analysis would help, and is shown in figure 1-A2.¹⁰⁵ First, governments are assumed to have indifference curves, expressing their preferences for particular combinations of public goods (in this two-goods case, defense and health). Second, they face budget lines composed of their own revenues plus foreign aid, which constrain the combinations of the two goods they can afford. For the budget line B'B defining the public spending choices that can be financed by domestic resources, and given the preferences between defense and health expressed in U^1 , point A represents the optimal mix of the two goods in the absence of foreign aid. Once a foreign donor provides aid to health in the amount of G, the budget line shifts out to B'C'C. If there is no fungibility (that is, the aid is all earmarked), the recipient country consumes the combination of defense and health at point D — with all the aid boosting spending in health (with no increase in defense spending). Point D represents the combination of defense and health on the recipient country's indifference curve, U^2 . But, if the earmarked aid were considered a pure revenue supplement (that is, there were no earmarks or conditions attached to the aid), the recipient country could alter the combination of goods consumed, between defense and health, possibly moving up along the budget constraint to point E, on a higher indifference curve, U^3 , which could be achieved by the recipient government trading off some of the donor health aid for higher spending on defense, with full fungibility postulated as occurring at that point E.

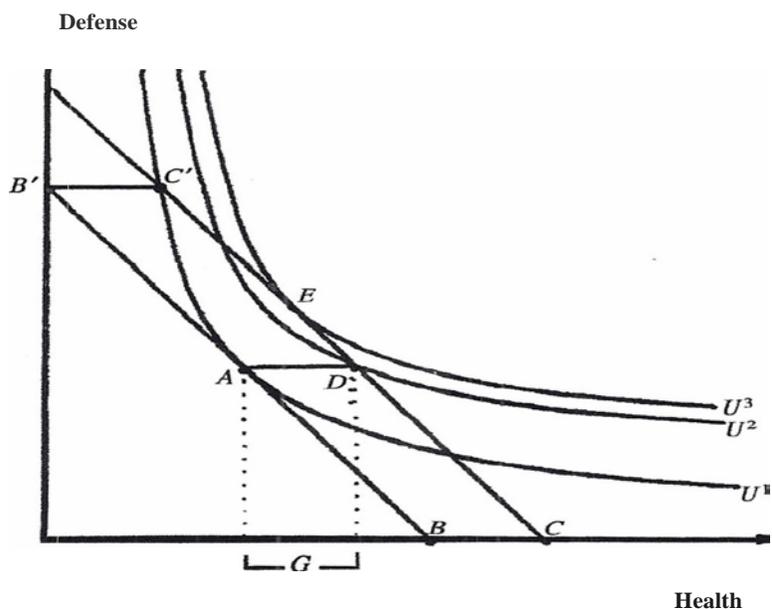
Thus, the recipient country's response to receiving aid depends on the degree to which it considers (or experiences) the aid as totally, partially, or not at all earmarked. If the recipient country considers the aid to be not at all earmarked (totally fungible), it would treat the aid as a

104. Based on Pack and Pack 1993, 258–65.

105. Based on the graphical presentation in Feyzioglu et al. 1998, p. 31, figure 1; a similar, though more complex graphical representation, including the effects of rising GDP, is shown in Pack and Pack 1993, p. 260.

revenue supplement, and the optimal consumption would be to move the budget constraint outward to $B'C'C$, with consumption of defense and health occurring at point E (on indifference curve U^3). If the recipient country considers the aid to be entirely earmarked (totally nonfungible), it would be forced to move to consumption at a suboptimal indifference curve, U^2 , at point D, accept the health aid, consuming at point D with the amount of health aid represented by G. If the recipient country views health aid G as being only partially earmarked, thus partially fungible, it would add the nonfungible part of health aid G to health consumption, and use the fungible part to finance additional defense. In this case, consumption would lie somewhere between point D and point E, on an indifference curve more desirable than U^1 , but less desirable than U^3 .

Figure 1-A2: Economic Theory Postulating the Impact of Aid on a Country's Budget Allocation: The Two-Goods Case of Defense Versus Health



Sources: Based on Pack and Pack (1993) and Feyzioglu et al. (1998).

In practice, however, the behaviors of both donors and recipients would depend on both knowing what the pre-aid pattern of consumption was (for example, Is last year's own-source-financed budget a good indication?), and on their ability to control and/or monitor the degree to which aid funds were spent as intended. However, knowing the true benchmark (baseline or counterfactual) against which to control and/or monitor the disposition of added foreign aid is nearly impossible, because the recipient government's own-source-financed budgets may be changing (perhaps more than aid is changing) and because there are usually many sources of aid in a country, and donor coordination is typically not very effective.¹⁰⁶ Moreover, some foreign aid (as in Liberia) bypasses the government budget (that is, all of it is non-ODH and off-budget), rendering it completely nonfungible in itself, and complicating how to measure fungibility of aid that goes through the government budget. In summary, monitoring foreign aid is extremely difficult in practice, and thus makes aid fungibility essentially a complicated and fraught empirical issue.

106. The MoHSW's Health Sector Coordinating Committee and its Health Sector Pool Fund are essential steps toward institutionalizing better aid coordination.

ANNEX C: RESEARCH NOTE: LIMITATIONS OF FUNGIBILITY STUDIES AND THE POTENTIAL NORMATIVE ASPECTS OF FUNGIBILITY

C.1 LIMITATIONS OF THESE STUDIES

C.1.1 Categorical Fungibility Studies

McGillivray and Morrissey (2001) point to several important limitations in the modeling of categorical fungibility studies.¹⁰⁷ Among them, important problems stem from the assumptions required in the choice of the Stone-Geary utility function and the heavy reliance on the ordinary least squares (OLS) method of estimation. Moreover, there are inconsistencies in dealing with the different uses of aid (some of which include expenditures allocated entirely within donor economies and some that do not). Finally, the models' use of contemporaneous measures of aid suggests measurement error deriving from nonrecognition of a lag effect in the fungibility response. In conclusion, McGillivray and Morrissey (2001) find that the fundamental deficiency of the categorical fungibility approach is that it pays insufficient attention to the broader fiscal impact of aid over time, especially on tax effort and borrowing.¹⁰⁸ Thus, the concern with fungibility may be misleading if the relevant issue is not fungibility per se but how aid affects fiscal behavior generally and how spending plans are implemented.

C.1.2 Fiscal Response Studies

These types of studies are very difficult to estimate and are sensitive to (and demanding of) the quality of the data. Since no theoretical models are used to determine targets of revenue and expenditure targets, it is necessary to estimate what these in fact were. Stated targets are not a good substitute for a model for predicting how recipient governments actually arrive at them, regardless of the goals or procedures they say were followed.

The final two problems are significant. First, the studies assume that the behavioral relationship being studied (how aid affects recipient governments' fiscal behavior) is fixed over time. This cannot be a reasonable assumption over a very long period of time. Second, the fiscal response models do not relate aid and fiscal behavior to any economic growth model. Despite these shortcomings, it is important to continue to refine the empirical estimation models to understand more fully the relationship between aid and the fiscal policy advocates — even if the aid-growth link is unclear because of variable impact on investment.

C.2 THE POTENTIAL NORMATIVE ASPECTS OF FUNGIBILITY

A final question asked by researchers has been: “Is fungibility necessarily bad, especially if aid frees up resources for the recipient governments' priorities [and if application of those resources] are even somewhat successful in advancing those priorities?” Several authors discuss the important normative aspects of fungibility. Devarajan and Swaroop (1998)¹⁰⁹ argue that it is often the case that the reallocation of resources can increase welfare from the government point of view, so the question is: When should this be allowed to take place? The authors argue that the aid instruments used to deliver funds need to take this into account, and discuss two cases: “If

107. McGillivray and Morrissey 2001, 9-10.

108. *Ibid.*, p. 11.

109. Devarajan and Swaroop 1998.

funds are fungible and the recipient's public expenditure is not satisfactory, then the project lending may not be a cost-effective instrument. If the country's public expenditure is satisfactory, the donor may as well finance a portion of this program, rather than concentrate on individual projects."¹¹⁰

According to Paternostro et al. (2007),¹¹¹ public spending affects growth, and the composition of public expenditure has become the key instrument that development agencies use to promote economic development, that is, by proposing ODA be made conditional on increased expenditure on categories that are thought to be pro-poor.

Work from the IMF, among others, has pointed out the importance of distinguishing between effects on expenditure (much of the evidence quoted above) and effects on government domestic revenue-raising efforts. Evidence provided by Gupta et al. (2004) suggests that, "for each additional dollar of aid in the form of grants, 28 percent of it is offset by reduced domestic revenue effort."¹¹² This increase in grants also leads to higher aid dependence, as the ratio of grants to domestic revenues roughly doubles. The results also indicate that recipients view grants and loans differently, as the latter tend not to have a sizable impact of domestic revenue-mobilization efforts. In the case of Liberia it will be useful to consider the impact of the composition of donor financing flows, whether in the form of loans, concessional loans, or grants. The low level of income per capita and extremely fragile fiscal situation make it difficult for the country to have market rate loans. Therefore, it is important to understand whether the reliance on grants and soft loans has affected the government domestic revenue-raising efforts.

110. Ibid., p. 11.

111. Paternostro, et al. 2007.

112. S. Gupta et al. 2004.

ANNEX D: TABLES GIVING STATISTICS SHOWN IN FIGURES IN THE TEXT

Table 1-A4: Demographic and Macroeconomic Statistics, Liberia, 2006–11

Statistic	2006	2007	2008	2009	2010	2011
Population (<i>millions</i>)	3.16	3.81	3.48	3.62	3.78	3.88
GDP (nominal, <i>US\$, millions</i>)	604	741	852	880	989	1,154
GDP per cap (<i>US\$, millions</i>)	192	224	245	243	262	298
As a % of GDP (nominal)						
Govt revenue	19	24	25	30	35	37
Govt spending	13	20	38	43	43	41
Govt gross debt	791	600	380	194	15	12
Govt net lending	6	4	-13	-13	- 8	- 3
Debt service charges paid	0.0	0.4	1.6	0.0	0.2	0.5
ODA received	41	99	169	58	145	67
ODA received less debt relief	41	97	82	45	51	53

Sources: IMF, *Econ Stats, 1970-2011*, World Economic Outlook. Source for debt service charges: IMF, *Periodic Reviews*, chapter IV, 2009–11, Liberia.

Note: Data on population and GDP per capita are IMF forecasts for 2010 and 2011.

Table 2-A4: ODA Given to Liberia by Source, and Received by Recipient Organizations, Liberia, 2006–11

Items (<i>US\$, millions</i>)	2006	2007	2008	2009	2010	2011
Total ODA to Liberia						
From DAC countries	187	229	819	341	703	523
From Non-DAC countries	1	1	27	1	2	0
From multilateral organizations	73	471	405	171	715	243
Total ODA given*	261	701	1,251	513	1,419	766
ODA received, Liberia						
By sectoral ministries	109	560	213	279	403	396
(of which) MoHSW	16	10	40	56	54	55
Commodity aid, etc.*	10	45	397	75	64	120
Action related to debt	0	15	737	117	931	156
Humanitarian aid, etc.	131	115	91	43	36	97
Total ODA received**	250	735	1,438	513	1,435	769
Total ODA less debt relief	250	720	701	396	504	513

Source: OECD data of ODA accessed at <http://stats.oecd.org/qwids/>.

*Includes program aid and multisectoral assistance.

**Differences between total ODA given and total ODA received are variable according to the differences between obligations and receipts (or reporting errors). (Totals include health aid received by all sectors.)

Table 3-A4: ODA Received by Liberia Relative to Liberian Fiscal Measures, 2006–11

Statistical measure	2006	2007	2008	2009	2010	2011
Monetary values (US\$, millions)						
ODA (nominal)*	250	735	1,438	513	1,435	769
GDP (nominal)**	604	741	852	880	989	1,154
Govt spending**	79	148	321	378	426	467
Govt revenue**	115	176	211	263	346	430
ODA received (%)						
As % of Liberia GDP	41	99	169	58	145	67
As % of govt spending	316	497	448	136	337	165
As % of govt revenue	217	418	682	195	415	179

Sources: OECD and IMF as specified in tables 1-A\$ and 2-A\$ above.

*From table 2-A4 above; ** From table 1-A4 above.

Table 4-A4: Purposes for Which ODA Was Spent, Relative to the Amounts of ODA Received, Liberia, 2006–11

Statistical measure	2006	2007	2008	2009	2010	2011
Monetary values (US\$ millions)						
Social infrastructure aid	107	478	167	206	295	267
(of which, health aid)	16	10	40	56	54	55
Total sectoral aid	117	583	230	306	419	420
Humanitarian aid	131	115	90	42	36	96
Debt forgiveness	0	15	738	117	931	156
Aid received (%)						
Soc. infr. as % of sector aid	95	82	73	67	70	63
Health as % of sector aid	14	2	17	18	13	13
Sector aid as % of total ODA	43	83	18	60	30	55
Humanitarian as % total ODA	50	16	7	8	3	13
Debt forgiveness as a % of total ODA	0	2	59	23	66	20

Source: OECD data of ODA accessed at <http://stats.oecd.org/qwids/>.

Table 5-A4: “On-Budget” Portions of MoHSW Budget according to Source of ODA

Sources of MoHSW budget (US\$, millions)	2008	2009	2010	2011	2012*
GoL funds**	12.2	12.4	13.3	24.2	34.0
Health sector pool funds	3.9	6.8	9.6	4.1	10.5
Global funds	1.7	4.1	8.3	13.6	12.5
Project funds	5.6	7.3	9.9	10.8	8.7
NGOs	0.2	0.9	0.4	na	na
Total receipts	23.7	31.6	41.7	52.7	65.6
Total non-GoL (ODA) ”on-budget”	11.5	19.2	28.4	28.5	31.6

Sources: Office of Financial Management (OFM), MoHSW 2012.

* Projected estimates from OFM/MoHSW.

** Actual expenditures estimated by OFM/MoHSW.

**Table 6-A4: “On-Budget” Shares of Portions of MoHSW Budget according to Sources:
Government of Liberia and Types of ODA
(percent)**

Sources of MoHSW budget (US\$, million)	2008	2009	2010	2011	2012*
GoL funds**	51.51	39.27	31.92	46.00	51.76
Health sector pool funds	16.75	21.64	23.13	7.76	15.91
Global funds	7.28	13.04	20.05	25.76	19.01
Project funds	23.76	23.15	23.85	20.47	13.17
NGOs	0.70	2.90	1.05	0.00	0.15
Total receipts	100.00	100.00	100.00	100.00	100.00
Total non-GoL (ODA) ”on-budget”	48.45	60.76	68.08	54.08	48.09s

Sources: Office of Financial Management (OFM), MoHSW 2012 (percentages based on data in table 5-A4).

* Projected estimates from OFM/MoHSW.

** Actual expenditures estimated by OFM/MoHSW.

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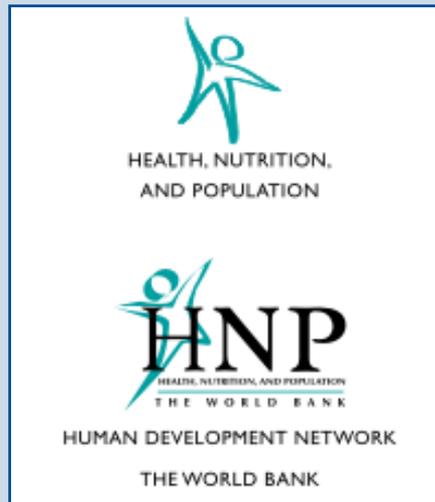
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