

METHODS ANNEX

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OVERVIEW OF DATA COLLECTION AND RESEARCH METHODS

We extracted all available data on health-related disbursements and expenditures, and income from existing project databases, annual reports, and audited financial statements. The channels included in the study and the corresponding data sources are summarized in Table 1.1 We constructed two integrated databases from the data: one reflecting aggregate flows and a second project-level database for channels that provided project-level information, namely the bilateral agencies, EC, GFATM, GAVI, the World Bank, ADB, IDB, and BMGF.

We counted as development assistance all health-related disbursements from bilateral donor agencies, excluding funds that they transferred to any of the other channels tracked to avoid double-counting. We extracted this information from the OECD-DAC Creditor Reporting System (CRS) database. Most donor agencies did not report disbursement data to the CRS prior to 2002. Consequently, we developed a method for predicting disbursements from observed data (see Part 1).

For other grant- and loan-making institutions, we similarly included their annual disbursements on health grants and loans, excluding transfers to any other channels and ignoring any repayments on outstanding debts (see Part 2 for development banks, Part 3 for global health initiatives, and Part 5 for foundations). The annual disbursements for grant- and loan-making institutions only reflect the financial transfers made by these agencies. Therefore, we estimated separately in-kind transfers from these institutions in the form of staff-time for providing technical assistance and the costs of managing programs (see Part 7).

For the UN agencies, we included their annual expenditure on health both from their core budgets and

from voluntary contributions. For UNICEF, we also estimated the fraction of its total expenditure that was spent on health (see Part 4).

For NGOs, we used data from US government sources and a survey of health expenditure for a sample of NGOs to estimate development assistance for health from NGOs registered in the US. The amount for 2007, which has not been released yet, was estimated based on data from previous years (see Part 6). We were unable to include NGOs and foundations registered in other donor countries due to data limitations.

We used the project-level database to analyze the composition of health aid by recipient country. Next, we assessed development assistance for HIV/AIDS, tuberculosis, malaria, and health sector budget support using keyword searches within the descriptive fields (see Part 8). We chose to focus on these areas given their relevance to current policy debates about global health finances. We plan to analyze more diseases and interventions in the future. We extracted separately from the CRS data on GBS and debt relief and estimated total disbursements for both (see Part 1).

Lastly, we explored the relationship between health assistance and the burden of disease measured in DALYs,¹ as well as between per capita health assistance² and income measured by the gross domestic product of recipient countries.³⁻⁵

We present all results in real 2007 US dollars by first converting figures from local currencies into nominal US dollars using OECD's exchange rates and then adjusting these nominal dollar sequences into real 2007 US dollars.³

All analyses were conducted in Stata 10.0 and R 2.7.1.

TABLE 1.1
Summary of data sources

Bilateral agencies in OECD-DAC member countries	OECD-DAC Aggregates database & the Creditor Reporting System (CRS) ⁶
EC	OECD-DAC and CRS ⁶ databases and annual reports ⁷
UNAIDS	Financial reports and audited financial statements ⁸
UNICEF	Financial reports and audited financial statements ⁹
UNFPA	Financial reports and audited financial statements ¹⁰
WHO	Financial reports and audited financial statements ¹¹
World Bank	Online project database ¹²
ADB	Online project database ¹³
AfDB	Compendium of statistics and correspondence ¹⁴
IDB	Online project database ¹⁵
GAVI	GAVI annual reports, country fact sheets, and correspondences ¹⁶⁻¹⁸
GFATM	Online grant database ^{19,20}
NGOs registered in the US*	USAID Volunteer Agency reports, tax filings, annual reports, financial statements, and correspondences ^{21,22}
BMGF	Online grant database and IRS 990 tax forms ^{23,24}
Other private US foundations*	Foundation Center's grants database ²⁵

*Non-US private foundations and NGOs were not included because of data unavailability.

PART 1:

TRACKING DEVELOPMENT ASSISTANCE FOR HEALTH FROM BILATERAL AID AGENCIES AND THE EC USING DATA FROM THE OECD-DAC

OECD-DAC maintains two databases on aid flows: 1) the DAC annual aggregates database, which provides summaries of the total volume of flows from different donor countries and institutions and 2) the Creditor Reporting System (CRS), which contains project- or activity-level data.⁶

These two DAC databases track the following types of resource flows:²⁶

a. Official development assistance (ODA), defined as “flows of official financing administered with the promotion of the economic development and welfare of developing countries as the main objective”²⁷ from its 23 members (Belgium, Canada, Japan, the Netherlands, Portugal, France, the UK, Germany, the US, Italy, Australia, Luxembourg, Austria, New Zealand, Denmark, Norway, Finland, Spain, Greece, Sweden, Ireland, Switzerland, and the EC). ODA includes:

- Bilateral ODA, which is given directly by DAC members as aid to recipient governments, core contributions to NGOs and public-private partnerships, and earmarked funding to international organizations.
- Multilateral ODA, which includes core contributions to multilateral agencies like WHO, UNFPA, GFATM, GAVI, UNAIDS, UNICEF, the World Bank, and other regional development banks. Only regular budgetary contributions to these institutions can be reported to the OECD-DAC; hence, extra-budgetary funds, including earmarked contributions that donors can report as bilateral ODA, are not included as multilateral ODA. Only 70% of core contributions to WHO can be counted as multilateral ODA.

b. Official development finance (ODF), which includes grants and loans made by multilateral agencies. The DAC aggregate tables include all multilateral development banks, GFATM, operational activities of UN agencies and funds, and a few other multilateral agencies. The project-level data in the CRS cover a smaller subset of multilateral institutions including UNAIDS, UNFPA, GFATM, UNICEF, and

some development banks, but do not reflect the core-funded operational activities of WHO, disbursements by GAVI, or loans from the World Bank.

For the purposes of tracking bilateral development assistance for health (DAH), we relied principally on the CRS. This is both because the DAC aggregate tables report only commitments and not disbursements, and because they do not contain detailed project-level information about the recipient country and disease focus of the flows. We identified all health flows in the CRS using the OECD sector codes for general health (121), basic health (122), and population programs (130).

To avoid double-counting, we subtracted from bilateral official development assistance (ODA) all identifiable earmarked commitments and disbursements made by DAC members via GAVI, International Finance Facility for Immunisation (IFFIm), GFATM, WHO, UNICEF, UNAIDS, and UNFPA using the channel of delivery fields as well as keyword searches in the descriptive project fields (project title, short description, and long description). Research funds for HIV/AIDS channeled by the US government through the National Institutes for Health (NIH) were also removed from the total since they do not meet our definition of DAH as contributions from institutions whose primary purpose is development assistance. We did not count ODF from the CRS due to the fact that we collected data on multilateral institutions relevant to our study directly from their annual reports, audited financial statements, and project databases. We also disregarded multilateral ODA. To avoid double-counting, we only counted as health assistance flows *from* multilateral institutions to low- and middle-income countries and not transfers *to* multilateral institutions.

Both the DAC tables and the CRS rely on information reported by DAC members and other institutions to the OECD-DAC. Hence, the quality of the data varies considerably over time and across donors. There were two main challenges in using the data from the CRS for this research. The first had to do with the under-reporting of aid activity by DAC members to the CRS. Prior to 1996, the sum of the project-wise flows

reported to the CRS by donors was less than the total aggregate flows they reported to the DAC aggregate tables. OECD uses total CRS commitments as a fraction of DAC aggregate commitments to construct a coverage ratio for the CRS database.²⁸ Figure 1.1 displays total health commitments from the DAC and the CRS, disbursements from the CRS (the DAC does not report disbursements), and the aggregate coverage ratio of health commitments in the CRS to health commitments in the DAC from 1990 to 2007. The coverage in the CRS was well below 100% prior to 1996, but it has improved considerably since then. In some years, notably 2007, members appear to be reporting more commitments to the CRS than the DAC. The second problem relates to the under-reporting of disbursement data to the CRS. Several donor countries did not report their annual disbursements and only reported project-wise commitments to the CRS prior to 2002. The orange line for observed disbursements in Figure 1.1 shows that the variable is more complete in recent years, but it drops well below commitments in years prior to 2002.

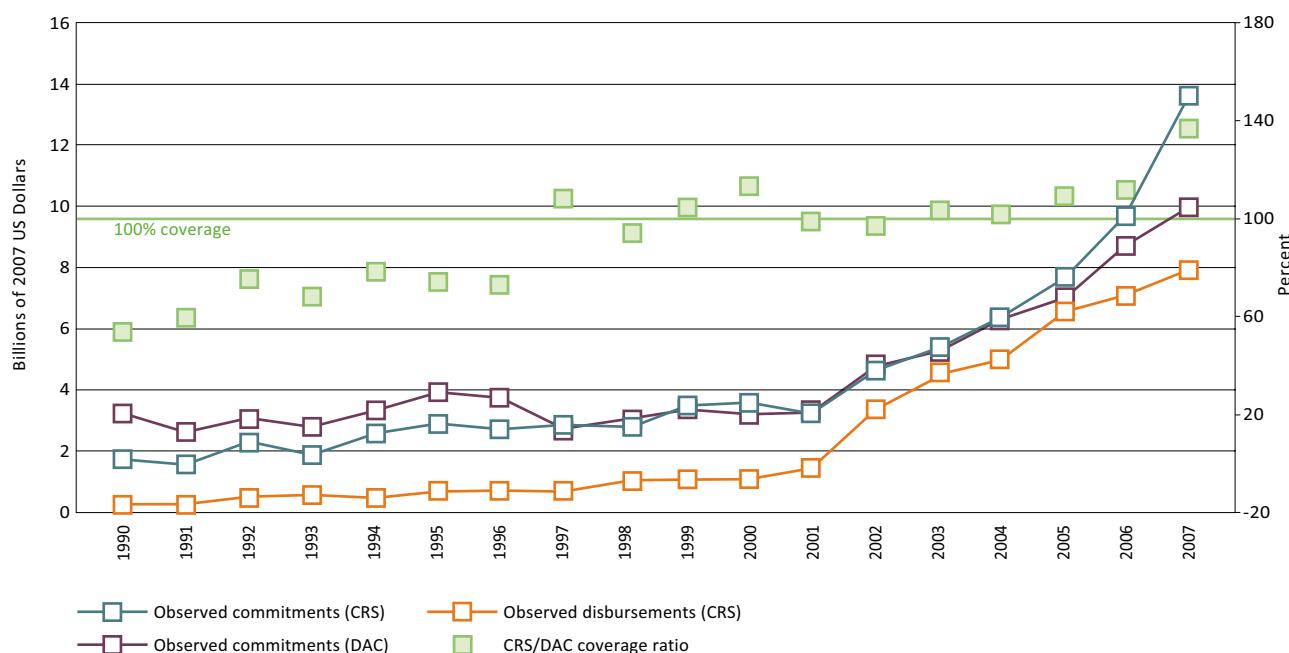
We developed methods for accounting for both these sources of discrepancy and arrived at consistent estimates of disbursements. Since the method followed for the EC differed from that followed for the 22 member countries of the DAC, they are described in different sections below. The final section describes how we estimated disbursements for GBS and debt relief. Refer to Part 7 for details on how we estimated the cost of providing technical assistance and program support for these institutions.

We converted all disbursement sequences into real 2007 US dollars by converting disbursements in other currencies into nominal US dollars in the year of disbursement using OECD's exchange rates, and then adjusted these nominal dollar sequences into real 2007 US dollars. We also explored converting disbursements from current to constant local currency units using local currency deflator sequences, and then to US dollars using exchange rates in a single year. The alternative methods led to significant differences in the case of some currencies. We picked the first method to make

FIGURE 1.1

Commitments and disbursements by bilateral agencies

The graph compares estimates from the CRS and DAC tables from 1990 to 2007. "Observed" refers to the fact that these quantities are taken as reported by donors to the OECD, without any corrections for missing data or discrepancies between the CRS and the DAC.



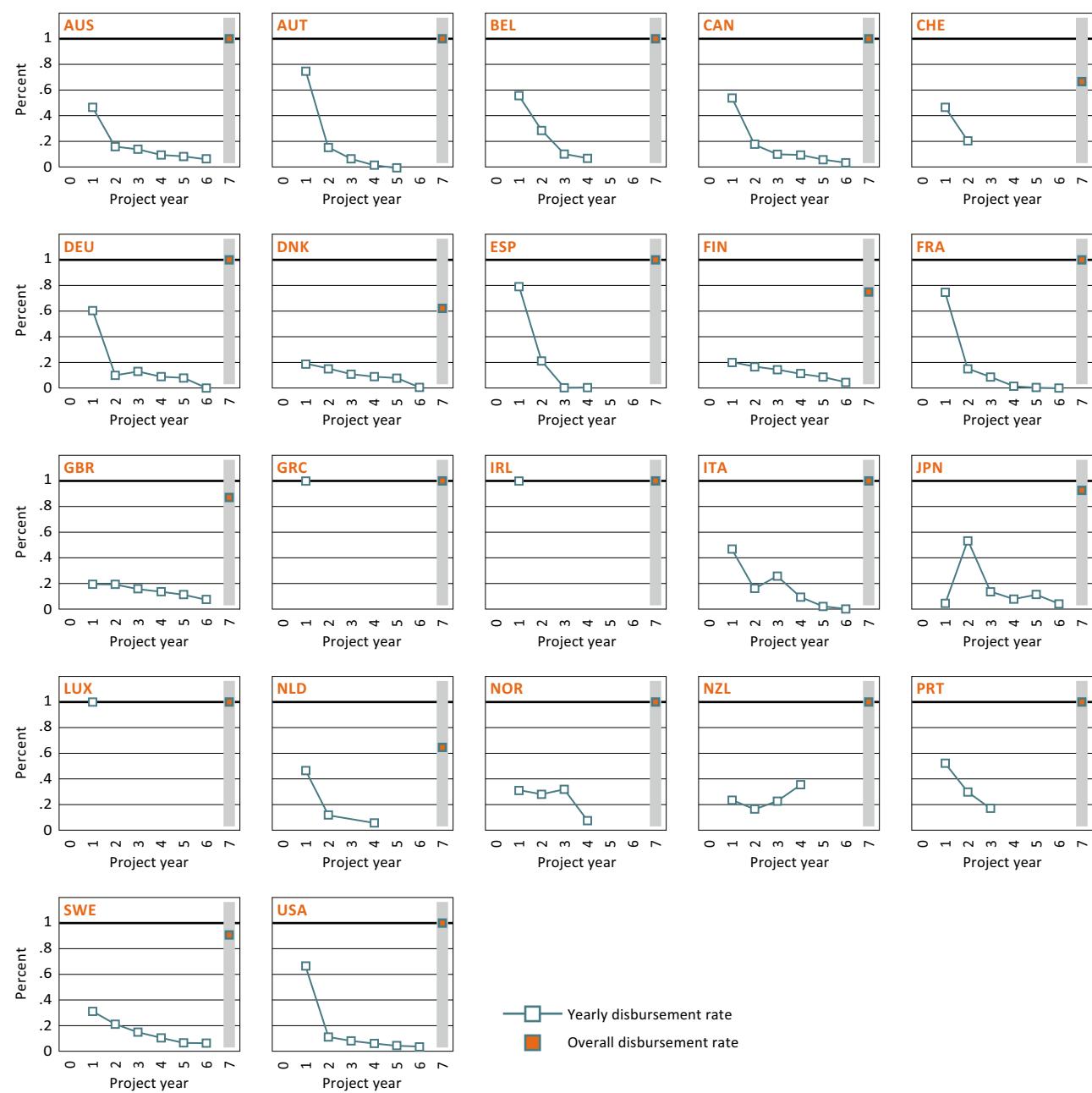
bilateral flows comparable with other flows in the study that are all denominated in dollars.

Estimating disbursements for 22 DAC member countries

Given the low coverage of commitments in the CRS between 1990 and 1996, we adjusted all CRS commitments for the health sector upwards using the coverage

ratios observed for each donor. To correct for missing disbursements, we pooled completed projects in the CRS for each donor and computed both yearly project disbursement rates (the fraction of total commitments disbursed for each observed project year) and overall project disbursement rates (the fraction of total commitments disbursed over the life of each project). We produced six-year disbursement schedules by

FIGURE 1.2
Disbursement schedules for the 22 DAC member countries



taking the median yearly disbursement rates for each donor and normalizing the yearly rates using the median overall disbursement rates. Figure 1.2 shows the disbursement schedules and overall disbursement rates for each of the 22 member countries. To estimate yearly disbursements, we applied the disbursement schedule to each donor's observed commitments net of grants through IHME's channels of assistance. While incomplete reporting of disbursements is primarily of concern prior to 2002, disbursement information for some donors, notably Japan, Denmark, Italy, and New Zealand, are missing in 2007, the most recent year for which data are available. Therefore, we used disbursement estimates for the entire time period.

Figure 1.3 shows the results. The blue "corrected commitments" line corresponds to aggregate commitments both net of transfers to other institutions tracked by this project and corrected for coverage deficits prior to 1996. The orange "adjusted disbursements" line shows disbursements from the CRS after adjusting for funds transferred to other global health channels of assistance. The green "corrected disbursement"

line corresponds to our estimate of annual disbursements modeled from the corrected commitments. Prior to 2002, the corrected disbursements are well above adjusted disbursements, reflecting the under-reporting of disbursements in the CRS; after 2002, adjusted disbursements and corrected disbursements track each other closely.

Estimating disbursements for the EC

Europe Aid annual reports released by the EC are available online from 2001 onwards.⁷ Starting in 2003, the reports included data on annual disbursements. Figure 1.4 shows commitment time series from different sources. Flows shown in the EC report include regular and extra-budgetary contributions to multilateral agencies resulting in numbers that are larger than those in the CRS for the same years. We applied a hybrid approach to generate a time series of disbursements for the EC, combining data from both sources.

Specifically, from 1990 to 2003, we started with the sequence of commitments from the CRS, net of any transfers to other channels of assistance in our study. This is shown in Figure 1.5 in blue. We estimated

FIGURE 1.3

Commitments and estimated disbursements by bilateral agencies

Total commitments net of transfers to other channels, after correcting for low coverage in the CRS, are shown in blue; total disbursements reported in the CRS net of transfers to other channels, are in orange; and the corrected disbursement series based on the corrected commitment sequence and the estimation model are shown in green.

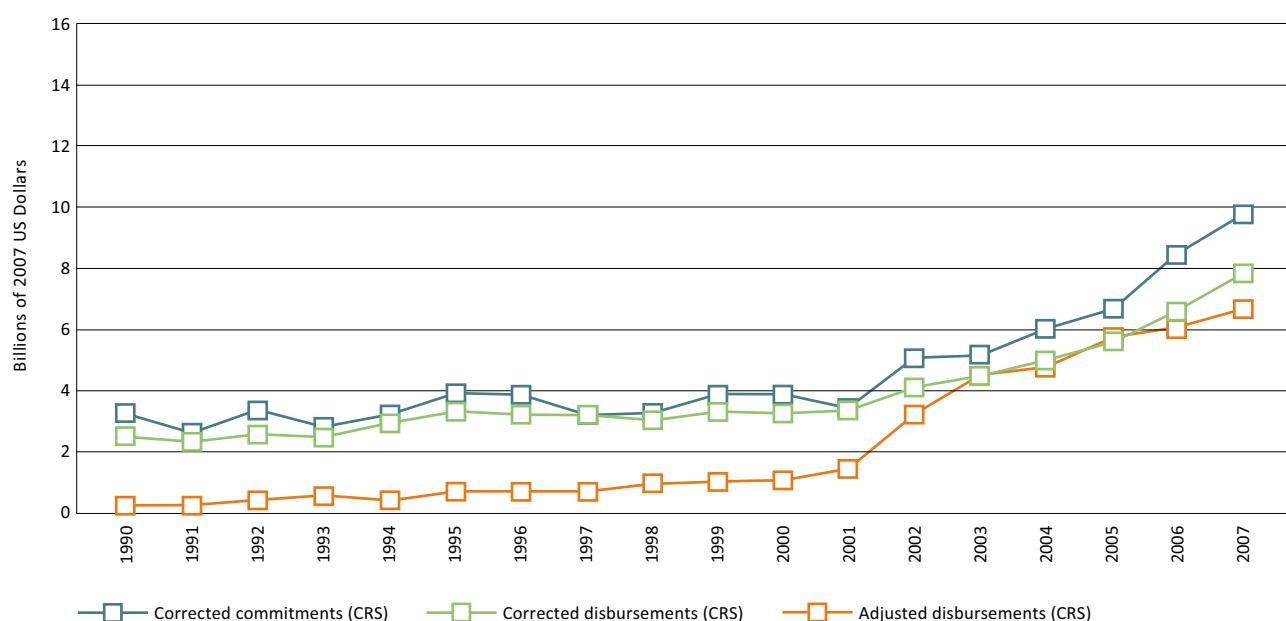
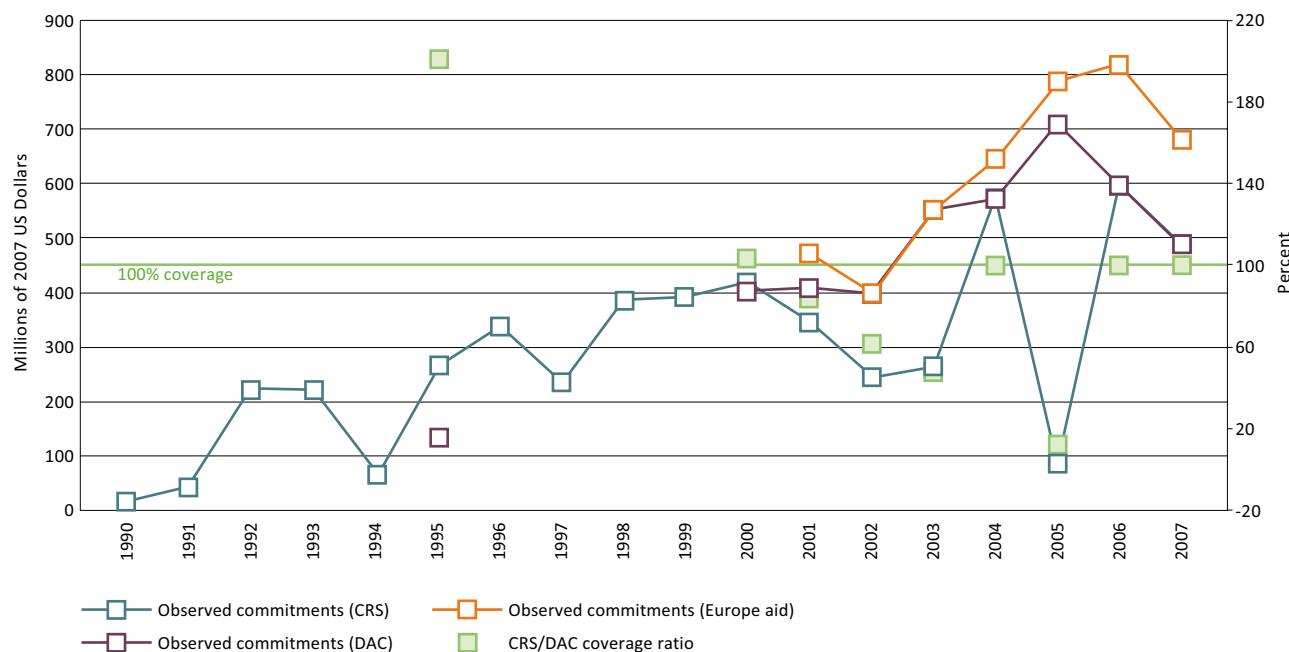
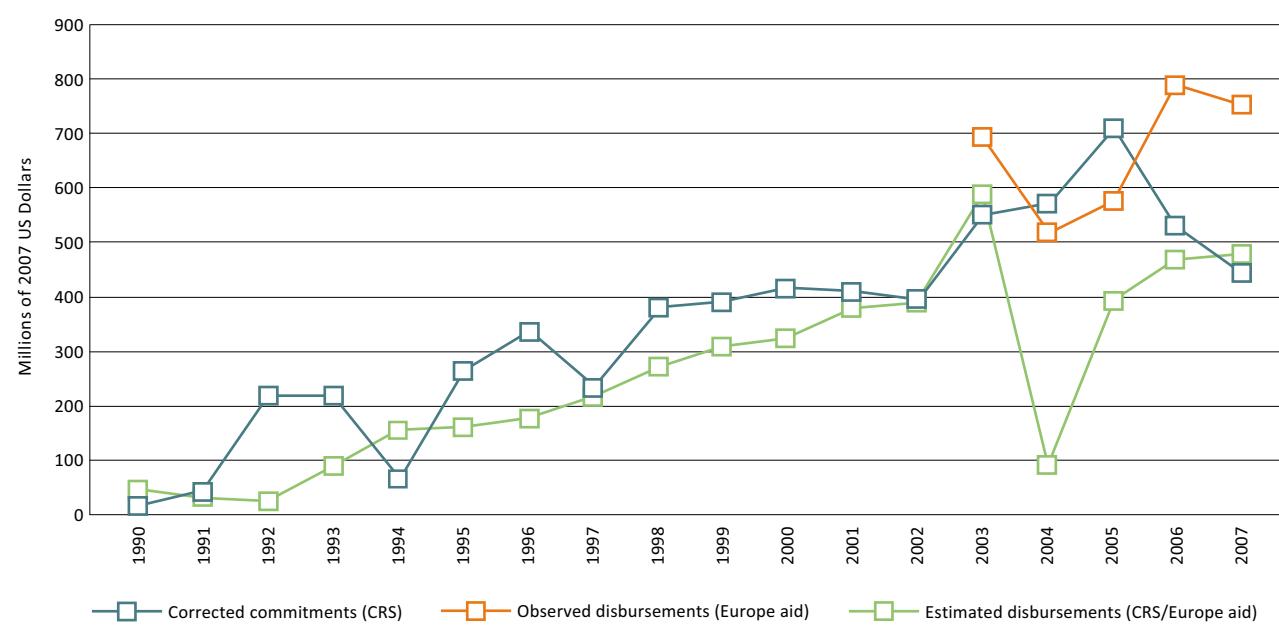


FIGURE 1.4**EC's commitments**

Commitments as reported by the EC to the CRS, the DAC tables, and in its annual reports are shown in blue, purple, and orange, respectively. The discrepancy between the CRS and the DAC tables is shown by the coverage ratio shown in green.

**FIGURE 1.5****Estimated disbursements by the EC**

The green line shows the complete time series included in estimates of development assistance for health.



disbursements using a three-year moving average of past commitments, shown in this figure in green from 1990 to 2003. From 2003 onwards, we used disbursements reported by the EC in its annual reports (shown in orange) and subtracted from it any transfers to other channels of assistance, as reported by the channels. The green line from 2003 to 2007 shows the result of this calculation. The dip in 2004 is the result of EC's grant of \$264.4 million to GFATM as well as \$184 million in extra-budgetary contributions to WHO and UNFPA in that year.

Estimating disbursements for GBS and debt relief

To estimate aggregate disbursements on general budget support (GBS) commitments, disbursement schedules were estimated for each donor as described above. The disbursement schedules were applied to

observed commitments to predict disbursements prior to 2002 when reported disbursements were highly incomplete. The CRS database tracks seven types of debt relief operations: debt forgiveness, rescheduling and refinancing, relief of multilateral debt, debt for development swap, other debt swap, debt buy-back, and other action related to debt. All debt relief commitments, except for other action related to debt, were pooled. As debt relief commitments are reported in a lump sum amount that is equivalent to the forgiven principal and interest due in the future, we estimated the stream of yearly principal and interest payments due each year in the future by assuming an average duration of forgiven loans at 10 years. We uniformly allocated debt relief commitments evenly over this duration to obtain estimates of yearly disbursements.

PART 2:

TRACKING DEVELOPMENT ASSISTANCE FOR HEALTH FROM THE DEVELOPMENT BANKS

The World Bank

We considered five different sources of information for tracking DAH from the two arms of the World Bank, IDA and IBRD. The CRS reports commitments for IDA loans and annual disbursements for a fraction of those loans. The World Bank's project database contains data on commitments and cumulative disbursements for each loan but does not provide information on annual disbursements.¹² Both the World Bank's annual reports and the Health, Nutrition, and Population (HNP) Thematic and Sector Commitment reports provide information on commitments but do not report disbursements.²⁹ Upon request, the World Bank sent us project-level data on all its health, nutrition, and population loans, which included information on annual disbursements. These different sources are summarized in Table 2.1.

In the interest of making our estimates replicable by others, we relied on the online loans database, even though it did not contain annual disbursement data, which was included in the data sent to us by the World Bank. Up to five sector codes and five theme codes can be assigned to each project in the online database. Sectors codes represent economic, political, or

sociological subdivisions, while theme codes represent the goals or objectives of World Bank activities. These codes are summarized in Table 2.2. We used the sector codes in the database to calculate what fraction of the loan was for the health sector. We divided the cumulative disbursement for the loan by the observed duration of the loan to estimate annual disbursements on a calendar year basis.

Figure 2.1 shows annual commitment totals from the different sources. The discrepancy between them is a cause for concern and is an example of the data quality challenges that plague this work. Differences in commitments are likely a result of either or both of the following: 1) whether sector codes or theme codes (or a combination) are used to identify health projects and 2) for projects spanning multiple sectors or themes, whether the loan dollars for a project are fully assigned to each sector or theme, or whether the dollars are distributed according to the relative share of the project that was for each sector or theme. We used the sector codes in the online projects database to identify health loans and assigned dollars based on World Bank estimates of the share of the loan going to the health sector. In contrast, HNP Thematic Commitment Reports

use theme codes, while the annual reports have shifted between using sector and theme codes. Neither of the sources clearly state how dollars on projects spanning multiple sectors and/or themes are assigned.

Figure 2.2 shows our estimated annual disbursement series in green. Our estimates are considerably smoother than annual disbursements from the HNP projects database due to the fact that we assumed a uniform disbursement schedule in our estimation method. In the future, we would prefer to use annual disbursement data that are in the public domain, if they are made available by the World Bank. The database distinguishes between loans from IDA and IBRD. Figures 2.3 and 2.4 show estimated disbursements for each. The CRS contains some information on IDA disbursements, which is shown in Figure 2.3. The CRS data appear to be a severe undercount of IDA disbursement.

In order to disaggregate IDA flows by source, we obtained data on yearly government contributions from the DAC statistics.⁶ We also collected information on debt repayments and IBRD transfers to IDA

from the audited financial statements.³⁰ Refer to part 7 for details on how we estimated the cost of providing technical assistance and program support for these institutions.

Regional Development Banks

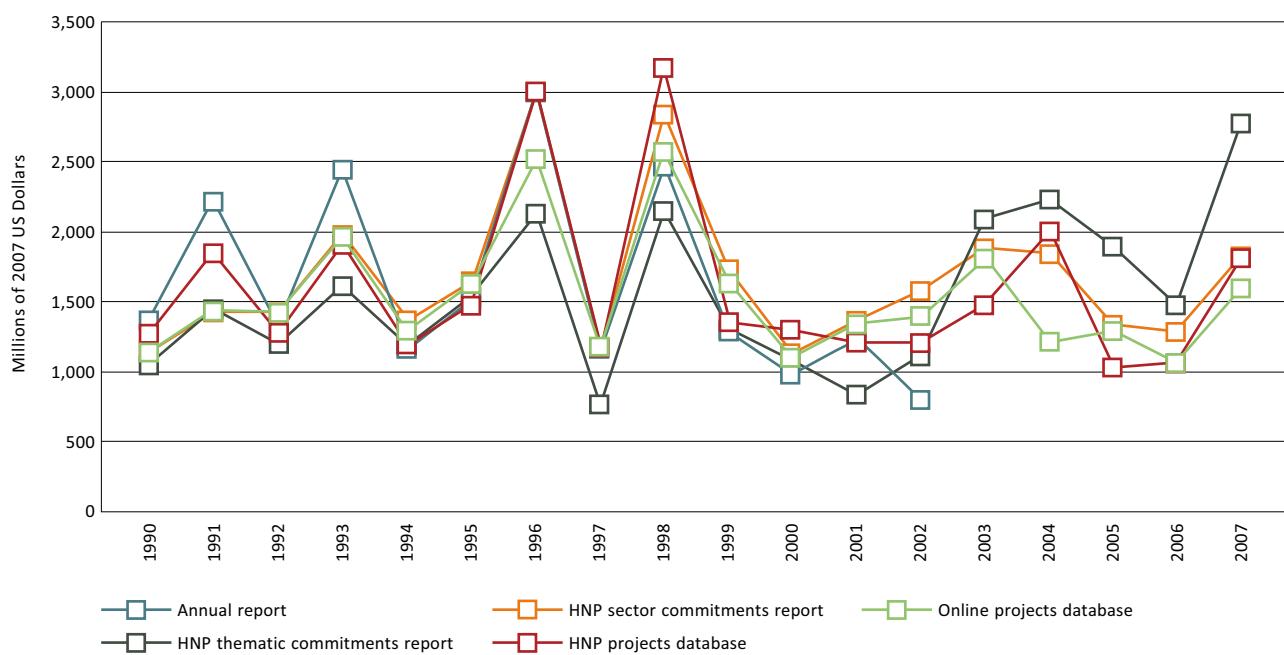
For the ADB, AfDB, and IDB, the CRS contains project-level commitments but does not provide annual disbursement data. ADB and IDB also maintain their own loan databases. The ADB only reports commitments. Hence, we estimated its annual disbursements by dividing each commitment reported in its loan database¹³ by the duration of the project, and then summing the amounts in each year. The IDB's project database¹⁵ provides cumulative disbursements. We divided those by the duration of the project to obtain annual disbursements. We could not find a project database for AfDB. Therefore, we used disbursement data from its compendium of statistics.¹⁴ Table 2.3 summarizes the data sources. Figures 2.5, 2.6, and 2.7 summarize commitment and disbursement time series for each of the three banks. Refer to Part 7 for details on how we estimated the cost of providing technical assistance and program support for these institutions.

TABLE 2.1
Summary of data sources for the World Bank

Source document/database	Commitments	Cumulative disbursement	Yearly disbursement	Notes
Annual Report	X	–	–	Health sector rolled in with other sectors from 2003 to 2007.
Health Nutrition & Population – Thematic Commitments Report	X	–	–	Commitments assigned thematically (for credits and loans spanning both health & non-health themes, unclear if dollars are distributed according to their share for health).
Health Nutrition & Population – Sector Commitments Report	X	–	–	Commitments assigned sectorally (for multisectoral credits and loans, unclear if dollars are distributed according to their share for health).
Health Nutrition & Population – Projects Database	X	X	X	Obtained through correspondence with World Bank staff
World Bank Online Projects Database	X	X	–	We used the sector coding system used by the World Bank to compute the share of total dollars for each project allocated to Health. As yearly disbursement amounts are not provided in the online database, we estimated yearly disbursements by uniformly allocating cumulative disbursements over each year of the project.
OECD Creditor Reporting System (CRS)	X	–	–	Commitments are reported only for IDA and disbursements are only partially available for Population Health Programs.

FIGURE 2.1**World Bank's annual commitments**

The graphs show commitments for health sector loans according to different sources of data on a fiscal year basis.

**FIGURE 2.2****World Bank's estimated disbursements**

Annual disbursements from the data sent to us upon request are in purple, while those estimated from the online database are shown in green.

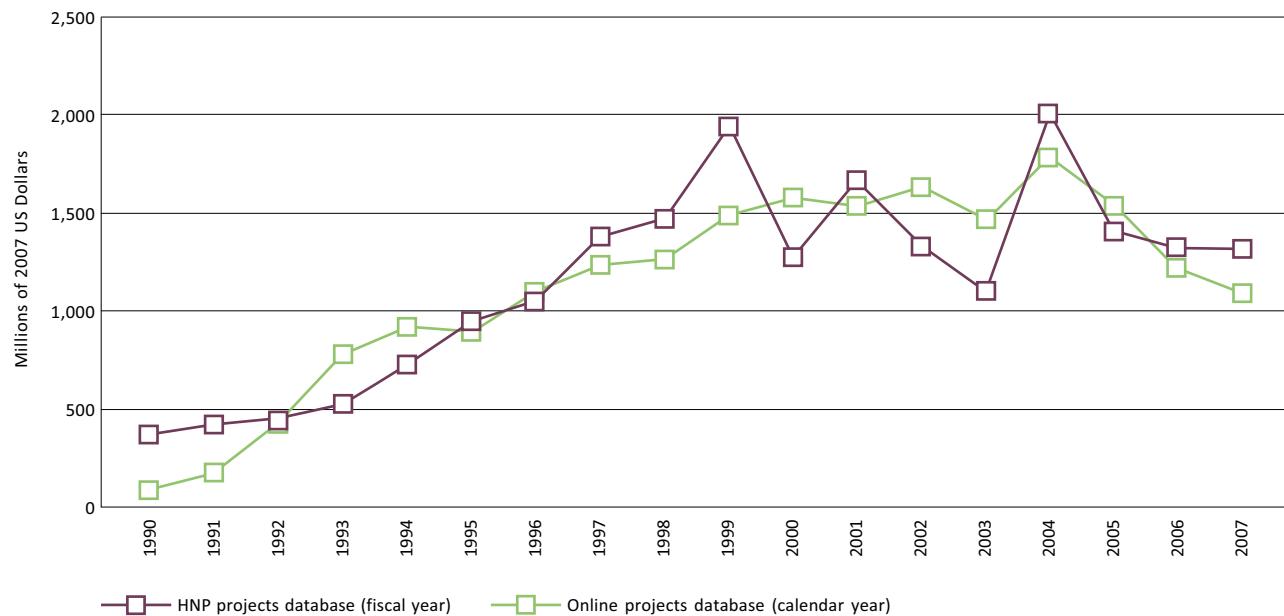


TABLE 2.2
World Bank's health sector and theme codes

Health sector codes	Health theme codes
<p>Sector codes represent economic, political or sociological subdivisions within society. World Bank projects are classified by up to five sectors.</p> <p>Historic (prior to 2001):</p> <ol style="list-style-type: none"> 1. Basic Health 2. Other population health and nutrition 3. Targeted Health 4. Primary health, including reproductive health, child health & health promotion <p>Current (as of 2001):</p> <ol style="list-style-type: none"> 1. Health 	<p>Theme codes represent the goals or objectives of World Bank activities. World Bank projects are classified by up to five themes.</p> <p>Current:</p> <ol style="list-style-type: none"> 1. Child Health 2. HIV/AIDS 3. Health system performance 4. Nutrition and food security 5. Population & reproductive health 6. Other communicable diseases 7. Injuries & non-communicable diseases

TABLE 2.3
Summary of data sources for the regional development banks

Institution	Data source	Commitments	Cumulative disbursements	Yearly disbursements	Notes
African Development Bank	Compendium of Statistics	X	–	X (Aggregate - not at the project level)	The compendium of statistics was not available for 1990-1993, 1995 and 1998-1999; we estimated yearly disbursements using the average of neighboring disbursements.
	OECD - Creditor Reporting System	X	–	–	
Asian Development Bank	Online Projects Database	X	–	–	As yearly disbursement amounts are not provided in the online database, we estimated yearly disbursements by uniformly allocating commitments over each year of the project.
	OECD - Creditor Reporting System	X	–	–	
Inter-American Development Bank	Online Projects Database	X	X	–	As yearly disbursement amounts are not provided in the online database, we estimated yearly disbursements by uniformly allocating cumulative disbursements over each year of the project.

FIGURE 2.3**IDA's estimated disbursements**

The green line shows our estimate based on data from World Bank's online project database. The orange line reports disbursements from the CRS.

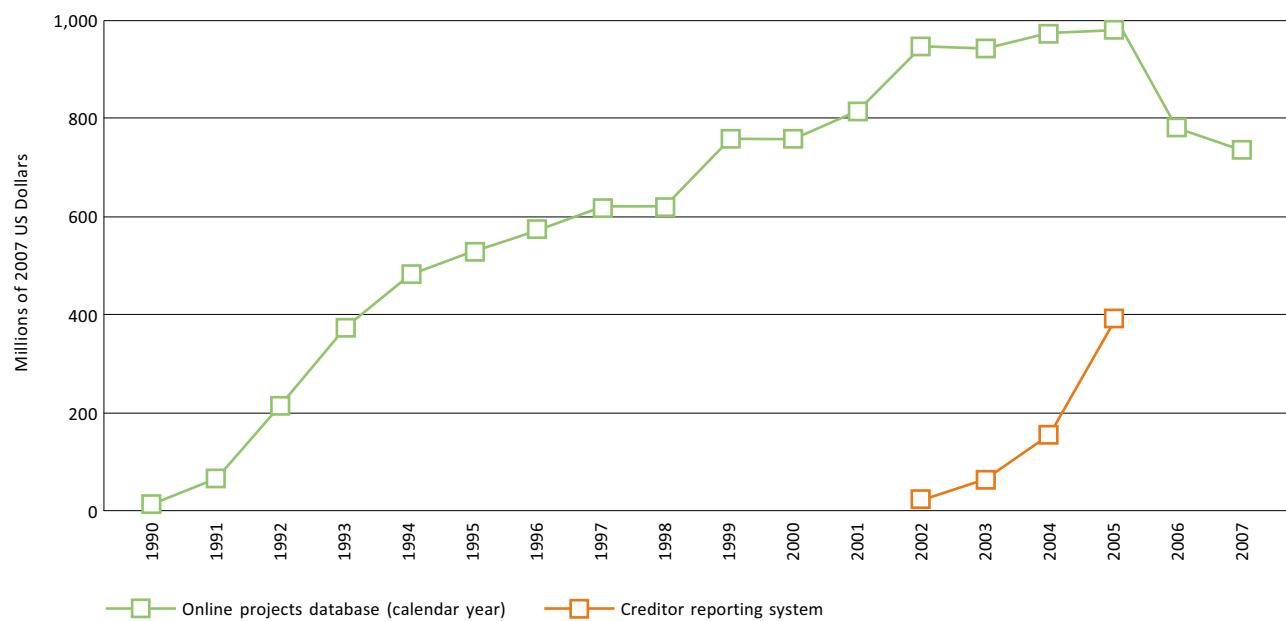
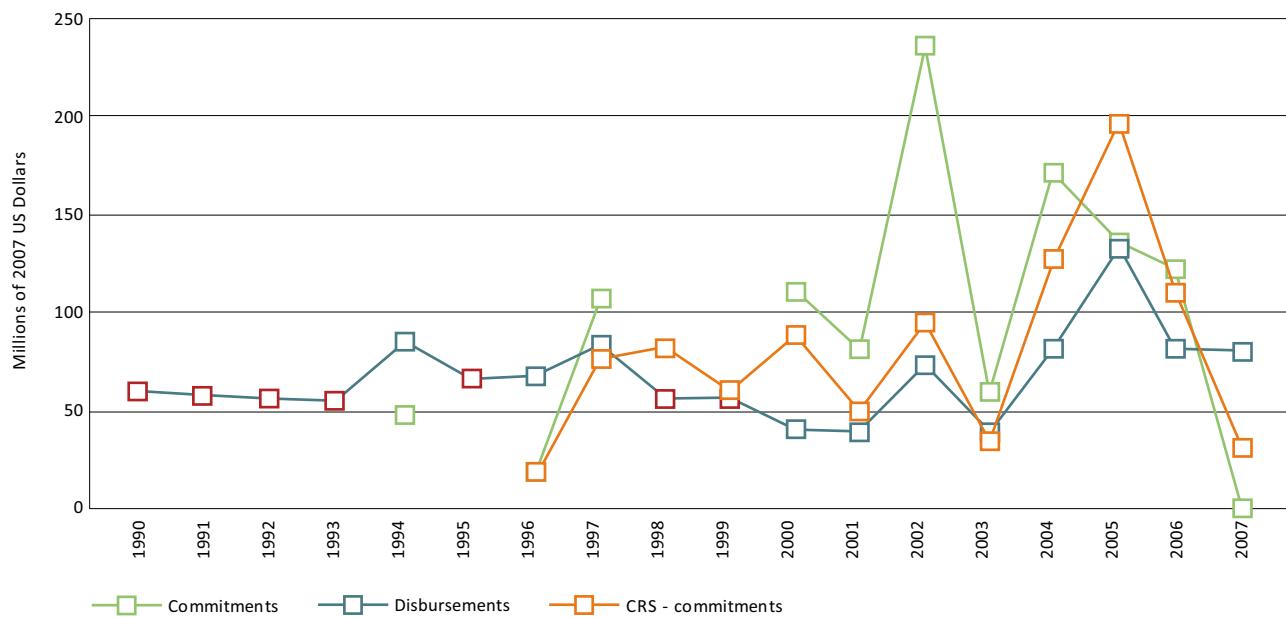
**FIGURE 2.4****IBRD's estimated disbursements**

FIGURE 2.5**Commitments and disbursements by AfDB**

The green lines show data from AfDB's compendium of statistics, while commitment data from the CRS are shown in orange. The red squares correspond to years in which disbursement data were missing, and were estimated from neighboring values. A combination of the blue and red squares was used in the DAH estimates.

**FIGURE 2.6****Commitments and disbursements by ADB**

Disbursement data from ADB's project database, shown here in blue, were the basis for our DAH estimate.

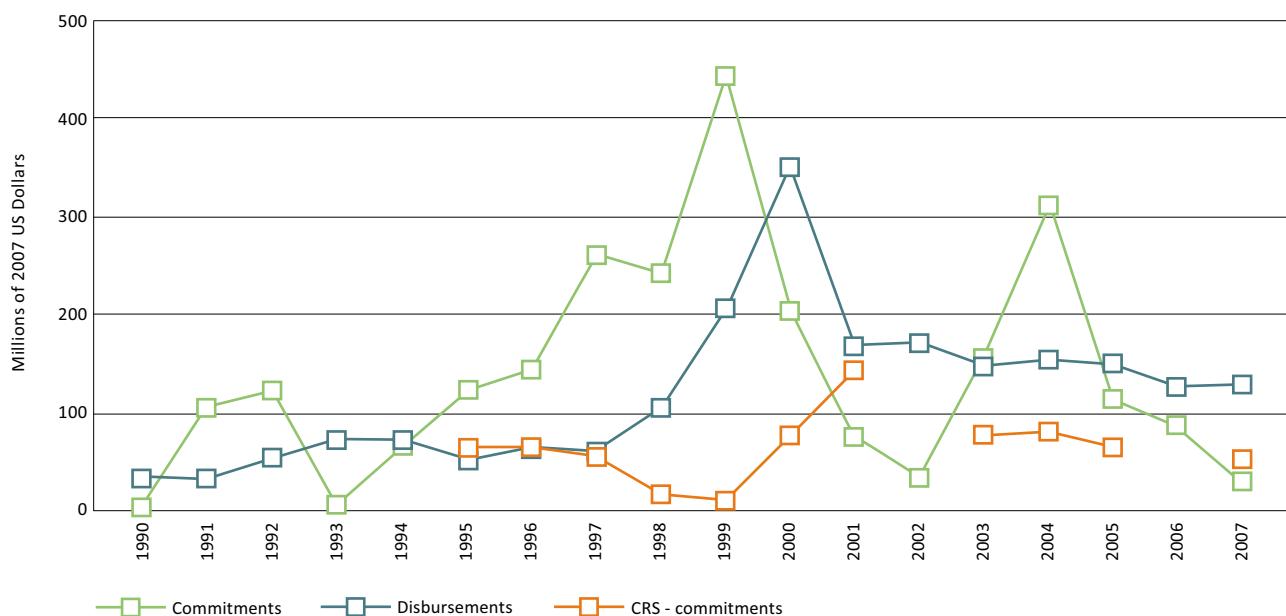
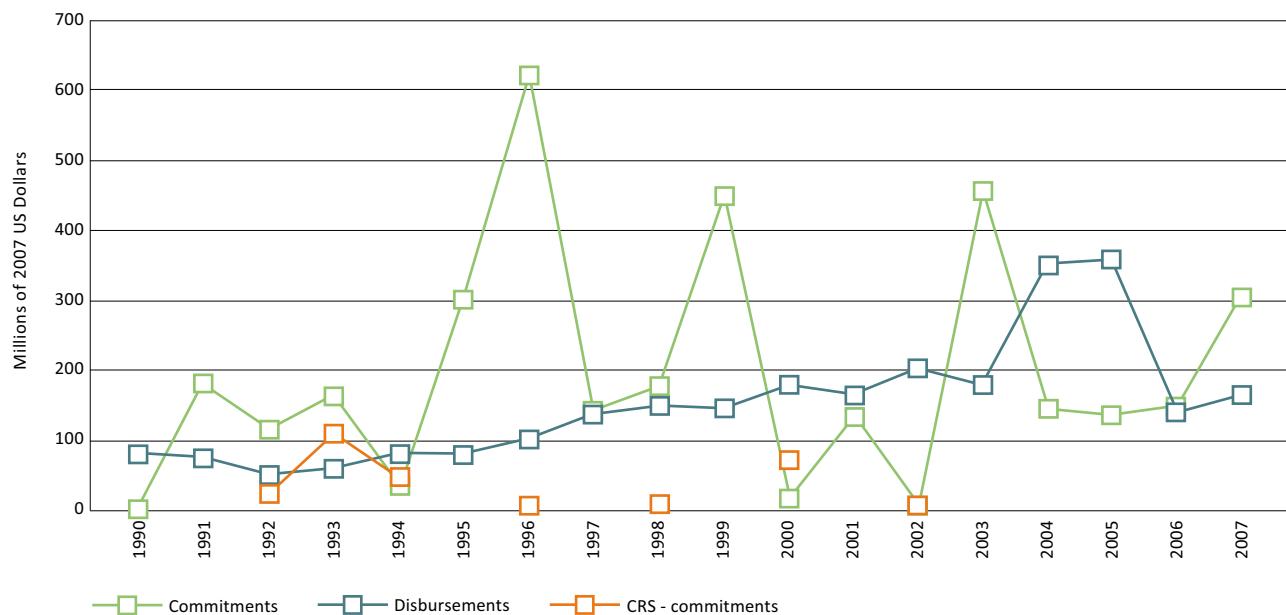


FIGURE 2.7

Commitments and disbursements by IDB

Disbursement data from IDB's project database, shown here in blue, were the basis for our DAH estimate.



PART 3:

TRACKING CONTRIBUTIONS FROM GFATM AND GAVI

GFATM

The grants database made available online by GFATM provides grant-wise commitments and annual disbursements.¹⁹ In addition, we used the contributions dataset which can also be found on the Web site, to compile data on the source of funding for GFATM.²⁰ Finally, we extracted information on annual income and expenditure from the GFATM's audited financial statements.

Figure 3.1 shows GFATM's annual contributions received from public and private sources. Figure 3.2 shows GFATM's annual commitments and disbursements from its project database, and total grant expenses reported by GFATM in its financial statements. Grant expenses, shown in the graph in green, include both grants disbursed in that year as well as

movements in undisbursed grants (which represent the portion of approved grants that had not been disbursed as of the date of the financial statement). Due to the accrual basis of accounting, grant expenses are consistently higher than actual grants disbursed during the year, shown in orange in the graph, which is the quantity we counted towards development assistance for health. Refer to Part 7 for details on how we estimated the cost of providing technical assistance and program support for GFATM.

GAVI

From GAVI's annual report in 2007, we drew its program disbursements for every year since 2000.¹⁶ GAVI provides data on contributions received from different sources on its Web site.¹⁸ The Country Fact Sheets¹⁷ provided on the Web site also report GAVI's

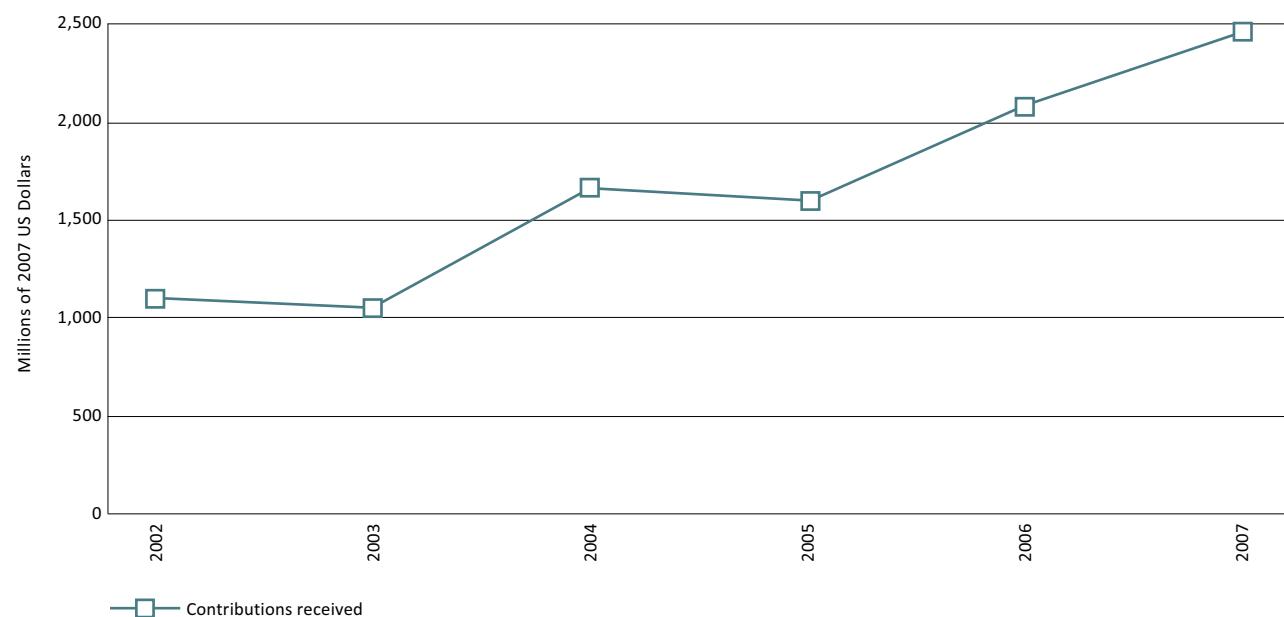
FIGURE 3.1**Contributions received by GFATM**

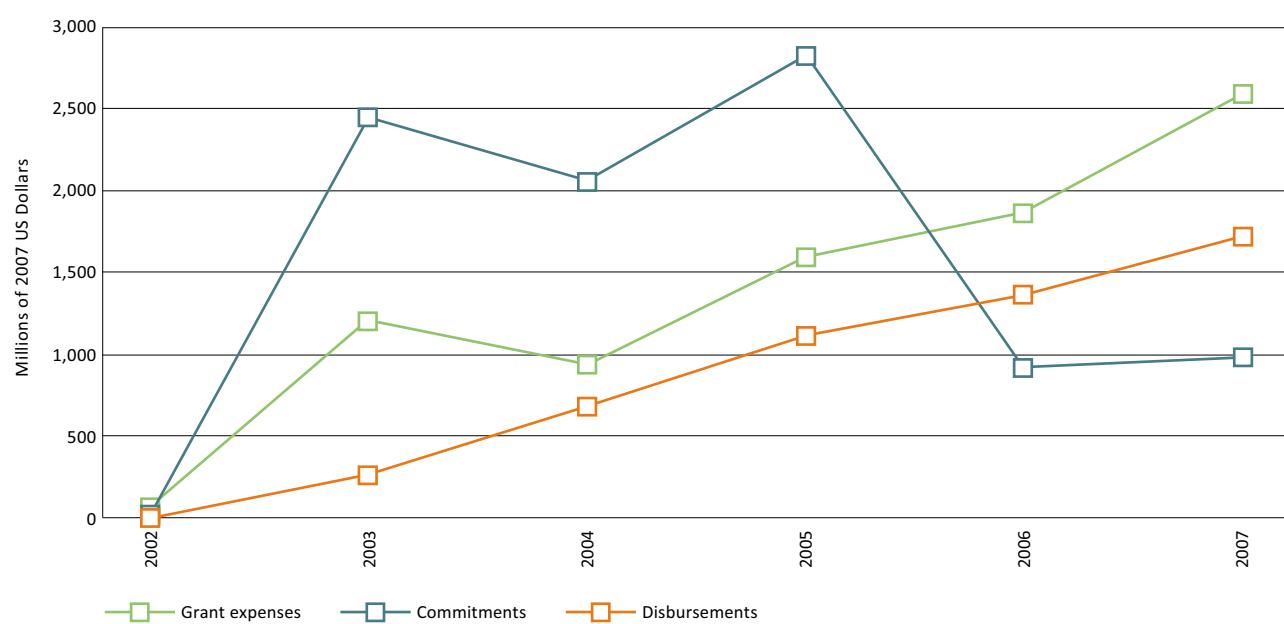
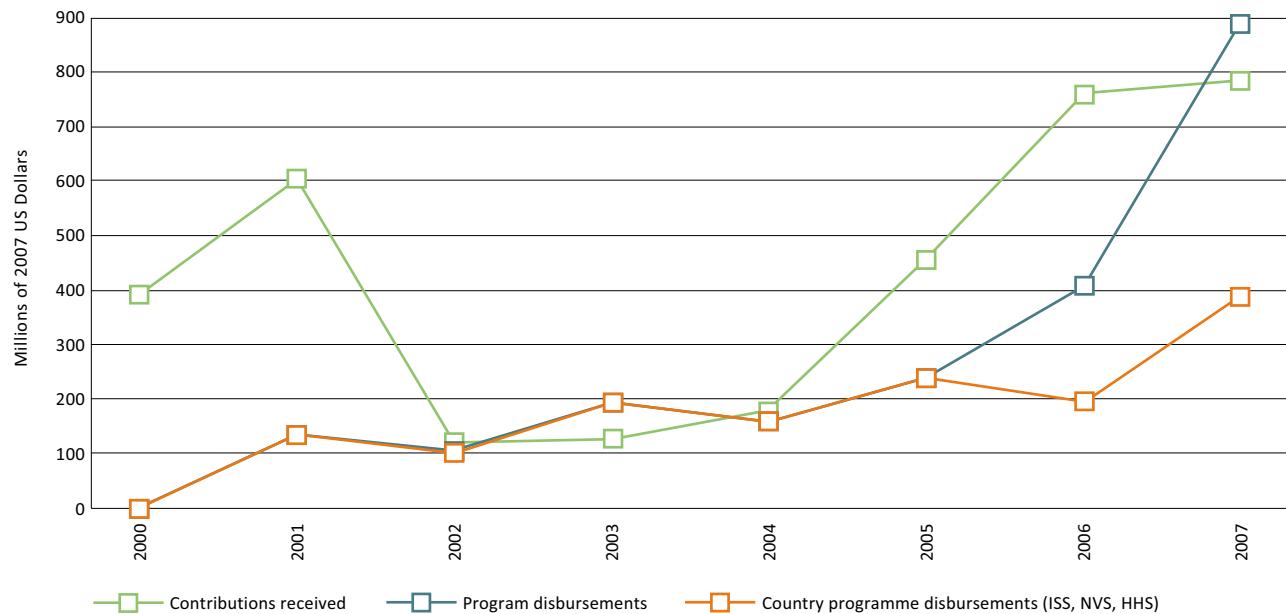
FIGURE 3.2**GFATM's commitments, disbursements, and grant expenses**

FIGURE 3.3**GAVI's income and disbursements**

Contributions received by GAVI, its country disbursements, and its total program disbursements are shown.

**TABLE 3.1****Summary of data sources for GAVI**

Source document/database	Contributions by donor	Expenditure	Disbursements	Notes/Modification to data
Annual Progress Reports	—	X	X	
Contributions data available on GAVI Web site	X	—	—	
Country fact sheets on GAVI Web site	—	—	X	Disbursements are only shown graphically. Our annual estimates are based on the underlying data provided upon request.
Country Reports on GAVI Web site	—	—	X	Disbursements reported in dollars for Immunization Support Services. For new and under-used vaccine support, the number of vaccine doses delivered is reported.
Financial Statements	—	X	—	—

disbursements for each recipient country; however, the transfers are shown graphically and the underlying data were not provided. From 2000 to 2005, we were able to obtain the underlying data from GAVI upon request. For 2006 and 2007, we constructed estimates of country-wise GAVI disbursements from the graphs contained in the country fact sheets. There are differences in the accounting method (cash versus accrual) between these various sources, which complicate the assessment. The different data sources for GAVI are summarized in Table 3.1.

GAVI's income from contributions and disbursements is shown in Figure 3.3. Total program disbursements,

shown in blue, were the same as country program disbursements until 2005. Since then, using funds made available through IFFIm, GAVI has scaled up support to GAVI partners (for new initiatives such as Global Polio Eradication and Measles) and funds for pentavalent vaccine procurement. We believe that this explains the gap between total program expenditure and country-based expenditure in 2006 and 2007.

Refer to Part 7 for details on how we estimated the cost of providing technical assistance and program support for GAVI.

PART 4:

TRACKING EXPENDITURE BY UN AGENCIES ACTIVE IN THE HEALTH DOMAIN

For the purposes of this research, we collected data on income and expenditure for four UN agencies: WHO, UNICEF, UNFPA, and UNAIDS. The data sources and calculations for each are described in detail below.

WHO

We used annual reports and audited financial statements released by WHO for compiling data on its budgetary and extra-budgetary income and expenditure.¹¹ Specifically, we extracted data on its assessed and voluntary contributions on the income side, and both budgetary and extra-budgetary spending on the expenditure side from these documents. As the financial statements represent activities over a two-year period, both income and expenditure data were divided by two to approximate yearly amounts. Dollars were deflated using the US GDP deflator specific to the reporting year. We excluded expenditures from trust funds and associated entities not part of WHO's program of activities, such as UNAIDS and GFATM trust funds. We also excluded expenditure from supply services funds as these expenditures pertain to services provided by WHO but paid for by recipient countries.

UNFPA

We extracted data on income and expenditure for UNFPA from its audited financial statements.¹⁰ As these statements represent activities over a two-year period, income and expenditure data were divided by two to approximate yearly amounts. Dollars were deflated using the US GDP deflator specific to the reporting year. The only exceptions to this rule were 2006 and 2007, for which annual data were available. We excluded income and expenditures associated with procurement and cost sharing activities from our estimates of health assistance. UNFPA uses cost-sharing accounts when a donor contributes to UNFPA for a project to be conducted in the donor's own country. Since this money can be considered domestic spending that goes through UNFPA before being returned to the country in the form of a UNFPA program, we do not include it in our totals. UNFPA's additional expenditures for these projects come from trust funds or regular resources and are therefore captured in our estimates. By excluding cost-sharing expenditures, we exclude only the amount spent on UNFPA projects that originally came from the recipient country. Income and expenditure for procurement services relate to

services provided by UNFPA and WHO but paid for by recipient countries, and hence are excluded from our totals.

UNICEF

We extracted data on income and expenditure for UNICEF from its audited financial statements.⁹ As these statements represent activities over a two-year period, income and expenditure data were divided by two to approximate yearly amounts. Dollars were deflated using the US GDP deflator specific to the reporting year.

Since UNICEF's activities are not limited to the health sector alone, we attempted to estimate the fraction of UNICEF's expenditure that was for health. UNICEF's annual reports in the early 1990s reported this number, but reporting categories changed over time making it difficult to arrive at consistent estimates of health expenditure. One of the authors of this report (CMM) received information on UNICEF's health program costs

and total program costs for the years 2001 to 2004 from officials at UNICEF; it is reported in Table 4.1. We calculated the fraction of expenditure for health for regular and supplementary funds from these data and applied them to the expenditure reported in the financial reports for those years. In remaining years, we assumed that, on average, 30% of regular funds and 44% of extra-budgetary funds were utilized for health. In the future, we would like to use annual data on health expenditure if they are made available by UNICEF.

UNAIDS

UNAIDS income and expenditure data for both its core and non-core budgets were extracted from its audited financial statements.⁸ As financial data are provided on a biennium basis, we divided the quantities by two to obtain yearly amounts. Dollars were deflated using the US GDP deflator specific to the reporting year.

TABLE 4.1

Health expenditure by UNICEF

Year	Regular resources expenditures (in thousands of US dollars)			Extra-budgetary expenditure (in thousands of US dollars)		
	Health	Total	Health fraction	Health	Total	Health fraction
2001	114,362	379,575	0.30	285,540	632,654	0.45
2002	102,511	347,593	0.30	310,340	695,188	0.45
2003	113,779	392,354	0.29	368,629	834,852	0.44
2004	118,885	399,256	0.30	408,236	944,486	0.43
Average health fraction applied to other years			0.30			0.44

PART 5:

TRACKING DEVELOPMENT ASSISTANCE FOR HEALTH FROM PRIVATE FOUNDATIONS

Previous studies on foundations outside the US have documented the severe paucity of reliable time-series data and lack of comparability across countries.³¹ Hence, we focused our research efforts on tracking US foundations. The Wellcome Trust, a foundation based in the UK, is reputed to be the single largest non-US foundation active in the area of health. However, since the Wellcome Trust is principally a source of funding for technology including drugs and vaccines research and development, it does not meet our definition of a channel of development assistance. Other studies have estimated that the amount of resources contributed by non-US foundations for global health is small in comparison to resources from US-based foundations.³² Therefore, we do not think excluding them significantly impacts the overall estimate of health aid. In future years, we hope to find better sources of data for tracking the contributions of non-US foundations.

The Foundation Center maintains a database of all grants of US\$ 10,000 or more awarded by over 1,000 US foundations.²⁵ The Center codes each grant by sector and international focus and, therefore, is able to identify global health grants, regardless of whether the principal recipient was located in the US or in developing countries. We received a customized data feed from the Foundation Center with estimates of total global health grant-making for each year from 1990 to 2006, as well as the global health grant totals for the top 50 US foundations. BMGF has been the

single most important and influential grant-making institution in the health domain since 2000; hence we undertook additional research to accurately capture its annual disbursements, which we describe below. We used the estimate provided by the Foundation Center for all remaining US foundations. One limitation of using the Foundation Center's database is that it does not distinguish between commitments and disbursements. Thus, the total grant-making figure for US foundations, except BMGF, derived from these data is not a precise estimate of total disbursements by these foundations. However, since the Foundation Center draws most of its data from the tax filings with the US Internal Revenue Service (IRS), it is likely to capture disbursement figures for most foundations. Disbursement for 2007 is projected based on growth rates observed in previous years.

We collected BMGF's IRS 990PF filings wherein it reports all global health grants disbursed.²³ We also collected information on annual commitments from BMGF's online grants database.²⁴ We then manually coded all BMGF grants disbursed by recipient type, distinguishing between awards to other foundations, NGOs, universities and research institutions, UN agencies, public-private partnerships, and governments.

Refer to Part 7 for details on how we estimated the cost of providing technical assistance and program support for US foundations.

PART 6:

TRACKING NON-GOVERNMENTAL ORGANIZATIONS

Currently, there is no centralized and easily accessible database for tracking the program expenses of the thousands of NGOs based in high-income countries that are active in providing development assistance and humanitarian relief worldwide. For this study, we relied on the only data source we could identify for a large subset of these NGOs, namely the report²² issued by USAID for NGOs incorporated in the US that received funding from the US government. The report

provides data on domestic and overseas expenditure for these NGOs, as well as their revenue from US and other public sources, from private contributions, and from in-kind donations.

We encountered three challenges in using these data. First, with the exception of BMGF, we were unable to track the amount of funding from US foundations routed through US NGOs, which may have led

to double-counting in our estimates of total health aid. The second relates to the incompleteness of the universe of NGOs captured through the USAID report. The report provides data on NGOs registered in the US that received funding from the US government. While this covers many of the largest US-based NGOs, it is not a comprehensive list. A related problem is that the report only includes NGOs that received funds in a given year. While many of the largest NGOs are consistently funded by the US government and are therefore in the report every year, not all NGOs have data every year. Finally, its coverage of NGOs registered in other donor countries only began in 1998. We attempted to compile data on the health expenditures of the top 10 non-US NGOs in terms of overseas expenditure by searching their Web sites for financial documents and contacting them directly. Getting reliable time-series data before 2000 proved to be extremely difficult for even this small sample of non-US NGOs. Consequently, only NGOs registered in the US for which data were available in the USAID reports from 1990 to 2006 are included in this study. Since USAID has not yet released data for 2007, we used the annual

growth rate from 2001 to 2006 to estimate the volume of overseas health expenditure in 2007.

While we hope to find data on non-US NGOs in future years, we do not think their exclusion from this study is a source of bias for the following reasons. First, many of the top non-US NGOs have US-based chapters that are registered in the US and with USAID, and are therefore covered by the Volunteer Agency data (for example, Save the Children and International Planned Parenthood Federation both have arms registered in the US and receive funds from the US government). Second, the health expenditure numbers that we were able to collect for the top non-US NGOs from 2000 onwards suggest that they still account for a relatively small amount of development assistance in comparison to US-based NGOs; the top eight non-US NGOs (Oxfam, Save the Children, International Planned Parenthood Federation, Christian Aid, German Agro Action, ActionAid, International Union Against Tuberculosis and Lung Disease, and Marie Stopes International) accounted for \$230 million in overseas health expenditure in 2006, while the top eight US-based NGOs accounted for \$1.9 billion in the same year.

TABLE 6.1
Summary of US NGOs in the study

Year	Number of US NGOs in VolAg report	Number of US NGOs in IHME sample	Number of US NGOs from sample for which we found data on health expenditures
1990	267	15	11
1991	334	18	14
1992	385	17	14
1993	411	16	12
1994	424	16	10
1995	416	16	11
1996	423	20	13
1997	425	22	17
1998	435	23	21
1999	438	31	27
2000	433	31	27
2001	442	30	25
2002	486	29	26
2003	507	27	25
2004	508	30	25
2005	494	26	25
2006	536	37	31

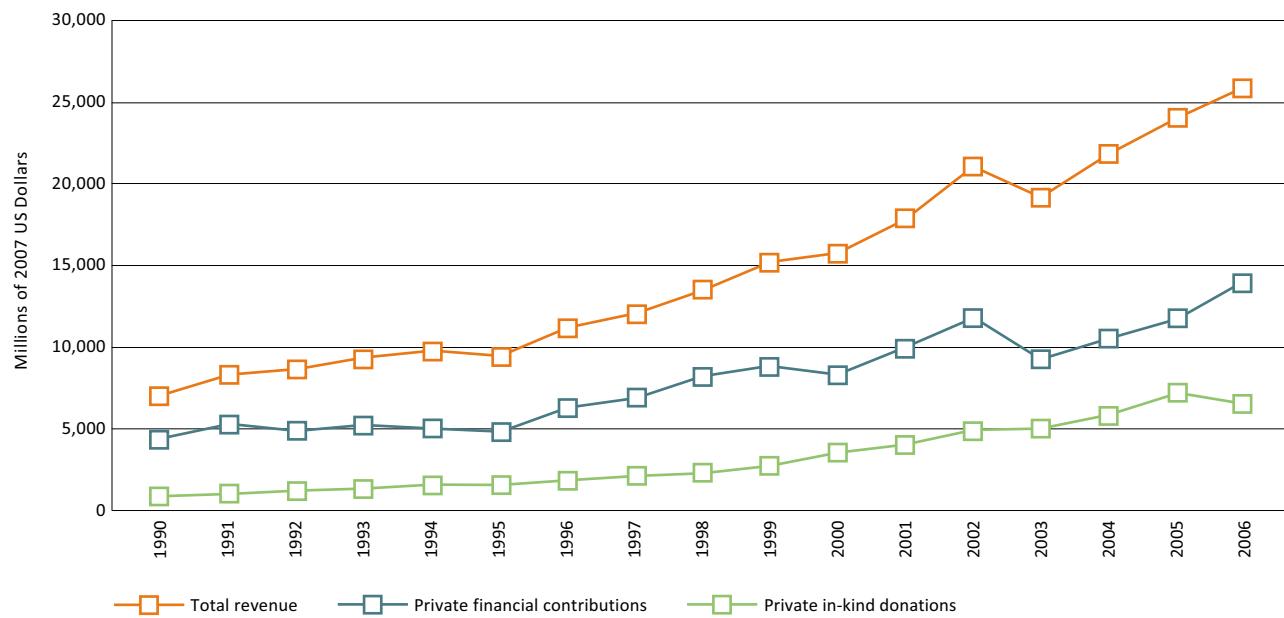
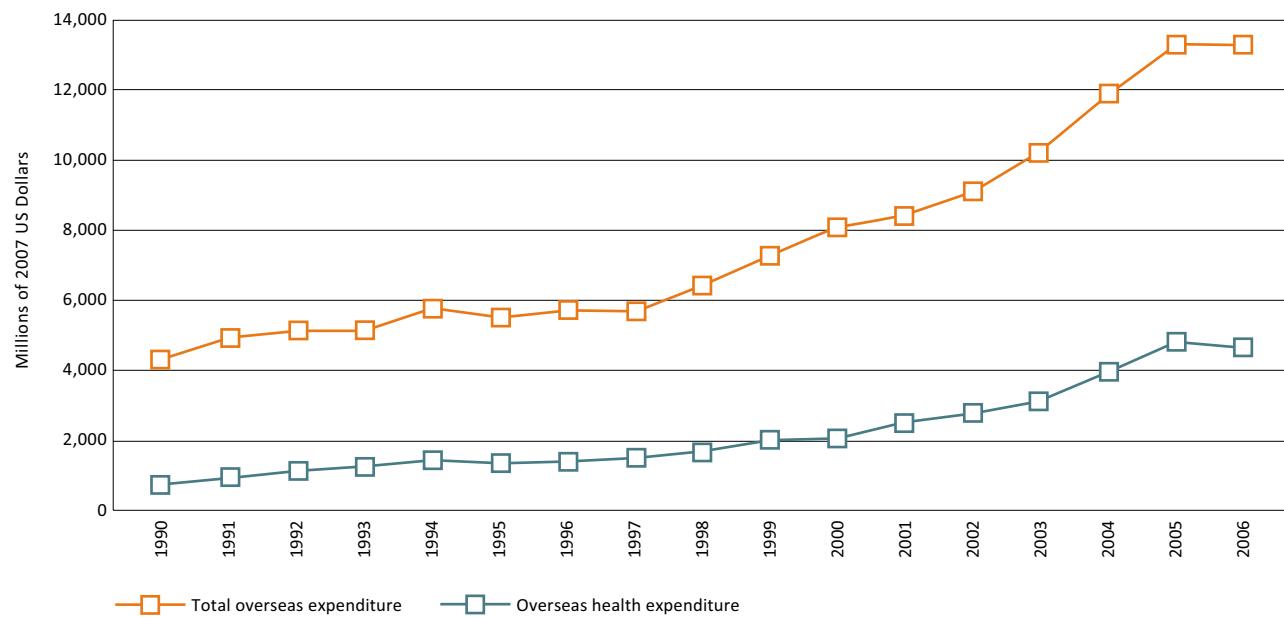
FIGURE 6.1**Total revenue received by US NGOs**

FIGURE 6.2**Expenditure by US NGOs**

Total overseas expenditure and estimates of overseas health expenditure by US NGOs are shown in orange and blue, respectively.



The third challenge in using the data from the USAID reports for this study relates to the fact that the reports do not subdivide overseas expenditure by sector. Collecting financial data on health expenditures for each NGO would have been prohibitively time consuming. Therefore, a sample of NGOs was drawn from the list each year; the sample included the top 10 NGOs in terms of overseas expenditure, as well as 10 randomly selected NGOs from the remaining pool, with the probability of being selected set proportional to their overseas expenditure. Next, we collected health expenditure data for each NGO in our sample using annual reports, audited financial statements, 990 tax forms, Web sites, and personal communications. Health expenditure was carefully reviewed to ensure that expenditure on food aid, food security, disaster relief, and water and sanitation projects were not included. Table 6.1 summarizes the number of NGOs included each year in the USAID report, the number of NGOs in our sample from each year, and the number of NGOs for which we successfully found health expenditure data.

We fit a linear regression model for predicting health expenditure as a fraction of total expenditure using

the data in the sample and used it to predict health fractions for the remaining NGOs. Since several NGOs in the sample were observed for multiple years, we included random effects for each NGO. Variables used to predict the health fraction were the fraction of revenue from in-kind donations, fraction of revenue from the US government, fraction of revenue from private financial contributions, overseas expenditure as a fraction of total expenditure, calendar year, and receipt of US government food aid; all these variables were drawn from the USAID reports. To ensure that the predicted health fractions were bounded between zero and one we used the logit-transformed health fraction as the dependent variable.

Overseas health expenditure was calculated for individual NGOs in each year by multiplying the health fraction and total overseas expenditure. Figure 6.1 shows the income of the NGOs in our tracking universe. Figure 6.2 shows estimated overseas health expenditure for these from 1990 to 2007 in constant 2007 dollars. The estimates for 2007 were projected from previous years since data for 2007 have yet to be published.

PART 7:

CALCULATING THE TECHNICAL ASSISTANCE AND PROGRAM SUPPORT COMPONENT OF DEVELOPMENT ASSISTANCE FOR HEALTH FROM LOAN- AND GRANT-MAKING CHANNELS OF ASSISTANCE

We used the following method to estimate the costs incurred by loan- and grant-making institutions for administering and supporting health sector loans and grants, which includes costs related to staffing and program management. We collected data on the total administrative costs for a subset of institutions in our universe for which this data were readily available: IDA, IBRD, BMGF, GFATM, GAVI, USAID, and the UK Department for International Development (DFID). The sources of data for the institutions in our sample are summarized in Table 7.1. For each of them, we calculated the ratio of total administrative

costs to total grants and loans, by year. We assumed that the percentage of operating and administrative costs devoted to health would be equal to the percentage of grants and loans that were for health. In other words, if 20% of a foundation's grants were for health, we assumed that 20% of administrative costs of the foundation were spent on facilitating these health grants. Given this assumption, we used the observed administrative costs to grants/loans ratios to estimate the in-kind contribution made by each of these organizations towards maintaining their health grants and loans. For the institutions not

TABLE 7.1**Summary of data sources for calculating in-kind contributions**

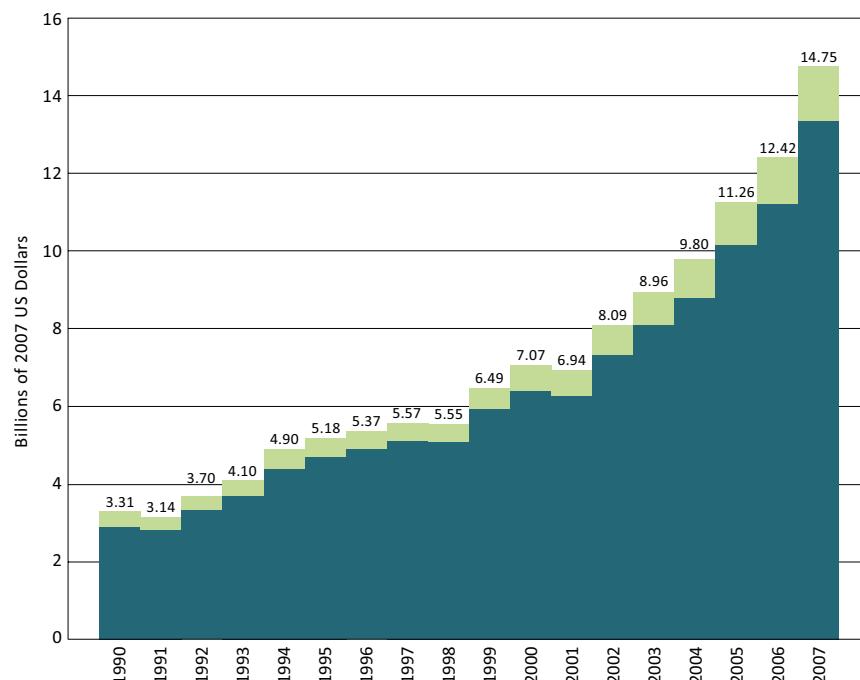
Organization	Source	Notes
BMGF	990 Tax Returns	Used “cash basis” column to calculate ratio of total operating and administrative expenses to grants paid.
GFATM	Annual Report Financial Statements	Calculated ratio of operating expenses to grants disbursed.
GAVI	Annual Report Financial Statements	Calculated ratio of management, general and fundraising expenses to program expenses.
USAID	US Government Budget Database	Used outlays spreadsheet to calculate ratio of total outlays for USAID operating account to sum of outlays for bilateral accounts.
DFID	Annual Report Expense Summary	Calculated ratio of DFID’s administration expenses to DFID’s bilateral program expenses from 2002 onwards.
IDA	World Bank Audited Financial Statements	Calculated ratio of management fee charged by IBRD to development credit disbursements.
IBRD	World Bank Audited Financial Statements	Calculated ratio of administrative expenses to loan disbursements

FIGURE 7.1**In-kind contributions by loan- and grant-making DAH channels of assistance**

The graph reflects the bilateral agencies in the 22 DAC member countries, the EC, the development banks, US foundations, the GFATM, and GAVI.

Transfers:

- In kind
- Financial



in this sample, we used the ratio from the institution most similar to it to arrive at an estimate of in-kind contributions.

We used the average ratio observed for IDA and IBRD for all other development banks; the average of the ratios for BMGF for all other US foundations; the average ratio for DFID from 2002 to 2006 to calculate the in-kind component for DFID in other years; and the average ratio for USAID and DFID for all other bilateral agencies and the EC.

Total in-kind contributions from all grant- and loan-making global health institutions are shown in Figure 7.1. It shows that the in-kind contributions by these channels ranged from 9.2% to 13.7% of the financial transfers between 1990 and 2007. These data mask considerable variation across institutions in the ratio of staffing and administrative costs to loans and grants extended in a year. At the high end, the ratio for USAID was on average 0.18 over the study period, while the comparable ratio for IBRD was 0.06 over the same time-span.

PART 8: KEYWORD SEARCHES

To identify health aid for HIV/AIDS, tuberculosis, malaria, and health sector support, we searched for keywords associated with each in the descriptive fields of our integrated project database, as is shown in Table 8.1. The project database includes a subset for the global health channels for which project-level

information was available, namely the bilateral development assistance agencies from 22 DAC member countries, the EC, GFATM, GAVI, the World Bank, ADB, IDB, and BMGF. When a project was matched to two or more areas, the dollar value of the grant was divided evenly across the matched areas.

TABLE 8.1
Terms for keyword searches

Project type	Search terms
HIV	HIV, HIV/AIDS, H.I.V., AIDS, human immunodeficiency virus, reverse transcriptase inhibitor, acquired immune deficiency syndrome, retroviral
Tuberculosis	TB, tuberculosis, anitubercular, tuberculostatic, DOTS, directly observed treatment, mycobacterium tuberculosis, XDR-TB, MDR-TB, rifampicin, isoniazid
Malaria	Malaria, paludisme, plasmodium falciparum, anopheles, bednets, insecticide, artemisinin, indoor residual spraying
Health sector support	SWAP, sector wide approach in health, sector programme, sector program, budget support

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