

Health Financing in Brazil, Russia and India: What Role Does the International Community Play?

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In this paper we examine whether Brazil, Russia and India have similar financing patterns to those observed globally. We assess how national health allocations compare with epidemiological estimates for burden of disease. We identify the major causes of burden of disease in each country, as well as the contribution HIV/AIDS, tuberculosis and malaria make to the total burden of disease estimates. We then use budgetary allocation information to assess the alignment of funding with burden of disease data. We focus on central government allocations through the Ministry of Health or its equivalent. We found that of the three cases examined, Brazil and India showed the most bias when it came to financing HIV/AIDS over other diseases. And this occurred despite evidence indicating that HIV/AIDS (among all three countries) was not the highest burden of disease when measured in terms of age-standardized DALY rates. We put forth several factors building on Reich's (2002) framework on 'reshaping the state from above, from within and from below' to help explain this bias in favour of HIV/AIDS in Brazil and India, but not in Russia: 'above' influences include the availability of external funding, the impact of the media coupled with recognition and attention from philanthropic institutions, the government's close relationship with UNAIDS (UN Joint Programme on HIV/AIDS), WHO (World Health Organization) and other UN bodies; 'within' influences include political and bureaucratic incentives to devote resources to certain issues and relationships between ministries; and 'below' influences include civil society activism and relationships with government. Two additional factors explaining our findings cross-cutting all three levels are the strength of the private sector in health, specifically the pharmaceutical industry, and the influence of transnational advocacy movements emanating from the USA and Western Europe for particular diseases.

Keywords Health financing, Brazil, Russia, India

KEY MESSAGES

- Analysing budgetary allocations in health is the first step towards understanding the power relations among various stakeholders at global, national and local levels, as well as the relative influence of power, ideas, institutions and culture in promoting investment and policy in certain health areas and not others.
- Resource allocation for public health in Brazil and India converge with global priorities while Russia's financing pattern diverges.
- The combination of pressure from donors through financing of particular diseases, from the pharmaceutical industry, and from transnational advocacy movements at the global, national and local level seems to be key to understanding convergence in Brazil and India and divergence in Russia.

Introduction

In recent years, Shiffman (Shiffman 2008; Shiffman *et al.* 2009) and others (OECD 2008; Sridhar and Batniji 2008; Ravishankar *et al.* 2009) have argued that global health financing has become increasingly skewed towards HIV/AIDS and to a lesser extent malaria and tuberculosis (TB). This pattern is reproduced at the national level in many countries. Studies of Mozambique, Uganda and Zambia have shown that a large proportion of health resources is being devoted to address HIV/AIDS in comparison with other disease areas (Oomman *et al.* 2008). While some have argued that the spending on HIV/AIDS has been to the detriment of primary health care and has in fact weakened health systems, for example by taking away skilled staff from other sectors through higher salaries offered by donors (England 2007; Oomman *et al.* 2008), others have noted that HIV/AIDS has brought attention to the importance of strengthening health systems and made new monies available for global health (Horton 2009). The allocations at the country level have been explained by the donor-dependency of low-income countries, resulting in considerable influence of donor countries and multilateral institutions over country priority-setting in health (Global Economic Governance Programme 2008). Do we see the same effect of international influence on budgetary allocation for health in middle-income countries?

Three countries that represent the core of the middle-income group are Brazil, Russia and India, members of the well-known BRIC group (with China). In each of these countries, health funding has become primarily endogenous and independent of external aid (Table 1, Figure 1). Each of their health care systems straddles provision for diseases across the epidemiological transition: having to provide services for both acute infectious diseases and chronic diseases associated with

affluence. They have all embarked on a process of decentralization and reform of the health care sector; they all face the constraints of having to work with several states and hundreds of municipalities, scattered throughout a large geographical area; and they have large populations with high levels of income inequality. However, their political systems show some diversity. Brazil and India are two of the largest democracies, while Russia is one of the largest less democratic states.

Given that these nations are mostly aid-independent, that is, not significantly relying on donor aid and predominantly financing health through domestic sources, we test the assumption that there will be no biased response to any particular kind

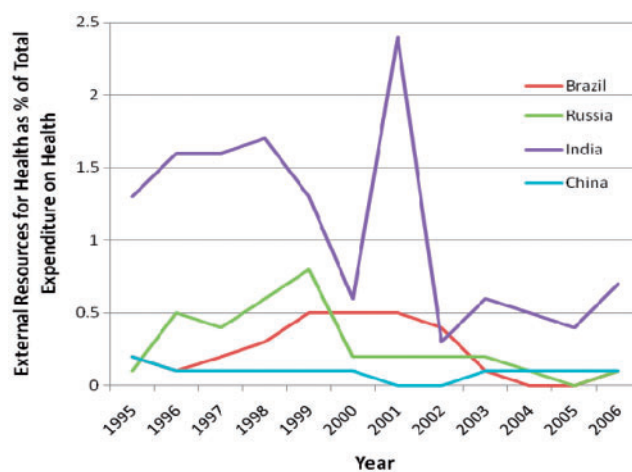


Figure 1 External resources for health as a percentage of total expenditure on health (1995–2006). *Source:* WHOSIS (WHO Statistical Information System), <http://www.who.int/whosis/en/>, 7 August 2009

Table 1 External resources for health as a percentage of total expenditure on health, Brazil, Russia, India and China, 1995–2006

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Brazil	0.2	0.1	0.2	0.3	0.5	0.5	0.5	0.4	0.1	0	0	0.1
Russia	0.1	0.5	0.4	0.6	0.8	0.2	0.2	0.2	0.2	0.1	0	0.1
India	1.3	1.6	1.6	1.7	1.3	0.6	2.4	0.3	0.6	0.5	0.4	0.7
China	0.2	0.1	0.1	0.1	0.1	0.1	0	0	0.1	0.1	0.1	0.1

Source: WHOSIS (2009).

of disease and that health budgetary allocations will reflect the epidemiological burden of disease. This assumption is based on the higher likelihood that countries that are less dependent on aid are less constrained by donor aid assistance and are, consequently, much more autonomous in how they allocate funding (Buse and Walt 1997; Brautigam 2000; Brautigam and Knack 2004; Van de Walle 2005; Moss *et al.* 2006; Whitfield 2009). Because they receive far less funding for particular health sectors, such as AIDS, relatively compared with low-income countries, they are expected not to be as influenced by international pressures and biased in broader funding patterns. In the process of exploring the influence that global players have in setting health care priorities in these countries, we ask the following: ‘how do country-level budgetary allocations compare with epidemiological estimates of burden of disease?’ By relating disbursements to burden of disease, we create a baseline from which we can assess deviations in priority that may be due to influences other than epidemiological evidence. Underpinning the analysis is the question of whether Brazil, Russia and India have similar health financing patterns domestically to those observed globally. Analysing budgetary allocations in health is the first step to understanding the power relationships among various stakeholders at global, national and local levels, as well as the relative influence of power, ideas, institutions and culture in promoting investment and policy in certain health areas and not others (Gilson *et al.* 2008).

We look in particular at the major causes of burden of disease in each country, as well as the contribution that HIV/AIDS, TB and malaria make to the total burden of disease estimates. We focus on these three diseases because of their centrality on the global stage (Shiffman 2008; Ravishankar *et al.* 2009; Shiffman *et al.* 2009), demonstrated by the establishment of multilateral bodies such as the Global Fund to Fight HIV/AIDS, TB and Malaria (Global Fund) and UNAIDS, major bilateral programmes such as the President’s Emergency Plan for AIDS Relief (PEPFAR) and the President’s Malaria Initiative, and Millennium Development Goal 6 which focuses exclusively on combating HIV/AIDS.

Methods

Our purpose for comparing Brazil, Russia and India is not to illustrate or test the effectiveness of a generalizable theory about the determinants of domestic spending for diseases (Przerworski and Tuene 1970), but rather to highlight each country’s unique policy response (Skocpol and Somers 1980; Katznelson 1997). Our goal is then to propose several hypotheses accounting for differences in spending outcomes. Instead of generating a new theory from our findings, we saw this as an exercise for creating new ideas, hypothesis-building and providing suggestions for new areas of research; others have noted that this is a benefit of conducting comparative case study analysis (Eckstein 1975; Abbot 1992).

With regard to empirical data, to assess whether health allocations are aligned with epidemiological estimates for burden of disease, we used central government budgetary allocations through the Ministry of Health or its equivalent, e.g. National HIV/AIDS or TB programme. Information on health funding—that is, the amount of money allocated from the federal budget for a particular disease—was sourced primarily from

country-specific departments of finance and health, and when primary data were not available, from secondary sources. For Brazil and India, we used actual health budgets from the ministries of health and finance, respectively. As primary data were not available for Russia, we used World Bank summary data. Despite it being a key member of the BRIC group, China has been excluded from analysis and discussion in this paper. This is due to the absence of primary and secondary data for spending on each type of disease in China. We reviewed several prominent journal publications, such as *The Lancet* Special Series on China, as well as consulted senior academics and a consultant for the Ministry of Finance in China, but were not able to obtain the data on allocations.

Financial information is provided in standardized US\$ dollar equivalents. To support the budgetary data, we also reviewed reports published by national governments, multilateral organizations and established academics to better understand the structure and flow of finances within each country’s health system. In addition, for the Brazil and Indian case studies, we have drawn on interviews conducted with health officials and members of civil society by the authors of this paper. These interviews were conducted in July–August 2006 and August 2008 in Brasilia, and in August–September 2007 and July 2008 in New Delhi.

Burden of disease data were taken from the Global Burden of Disease and Risk Factors (for 2001) project published by the World Health Organization (WHO). Burden of disease data are presented as disability-adjusted life year (DALY) rates. While the calculation of DALYs has been criticized by Anand and Hanson (1997), the use of DALYs is in line with previous analyses similar to our paper by Shiffman (2008), Sridhar and Batniji (2008) and Ravishankar *et al.* (2009). Age-standardized rates facilitate cross-country comparisons by adjusting for the differences in population structure between countries. It should be noted that while the most recent DALY data are from the Global Burden of Disease study of 2001, health funding data are from 2001 to 2006.

Resource allocation versus burden of disease

The primary task undertaken in this paper is the comparison of financial allocations between those diseases that cause the greatest burden of disease and the ‘Big 3’ within the three countries.

Brazil

In Brazil, total government spending for health, as a percentage of total government spending, equalled 3.9% in 2001, dipping to 3.2% in 2005, then increasing to 3.7% in 2007 (Brazil Federal Senate 2008). In 2001, total expenditure for the control of communicable diseases equalled 0.001% of the total federal budget, remaining at this level in 2003. Funding for improving the quality and efficiency of SUS (Sistema Único de Saúde), the decentralized health systems programme, was 0.0015% of the total federal budget, increasing to 7.8% of the total health budget in 2003 and remaining at this level in 2005 (Brazil Federal Senate 2008). This surge reflects the federal

Table 2 Burden of disease (in disability-adjusted life years, DALYs) in Brazil, Russia and India

Brazil		Russia		India	
Neuropsychiatric disease (1)	4337	Cardiovascular disease (1)	5551	Cardiovascular disease (1)	3284
Cardiovascular disease (2)	2537	Unintentional injury (2)	4043	Neuropsych (2)	3044
Unintentional injury (4) ^a	1542	Neuropsych (3)	3701	Unintentional injury (4)	2913
HIV/AIDS	229	HIV/AIDS	361	HIV/AIDS	1011
TB	164	TB	444	TB	869
Malaria	22	Malaria	1	Malaria	69

Source: WHO (2002).

^aRespiratory conditions, non-infectious, rank number 3 in terms of age-standardized DALY rates in Brazil.

Table 3 Brazil's budgetary allocation for health (US\$ million) from 2001 to 2006 vs burden of disease (DALYs, disability-adjusted life years, 2001)

	2001	2002	2003	2004	2005	2006	DALYs
Cardiovascular disease	23	22.3	61.5	n.a.	n.a.	n.a.	2537
Neuropsychiatric disease	0.89	14.4	19.7	0.49	0.24	0.11	4337
Unintentional injury	7	7.1	7.7	8.9	9.6	n.a.	1542
HIV/AIDS	353.7	433.5	372.2	475.5	508.6	705.9	229
TB	n.a.	10.8	9.5	16.2	24.3	26	164
Malaria	42.2	21.4	40.7	37.5	36.8	35.4	22

Source: Brazil Ministry of Health, Brasilia.

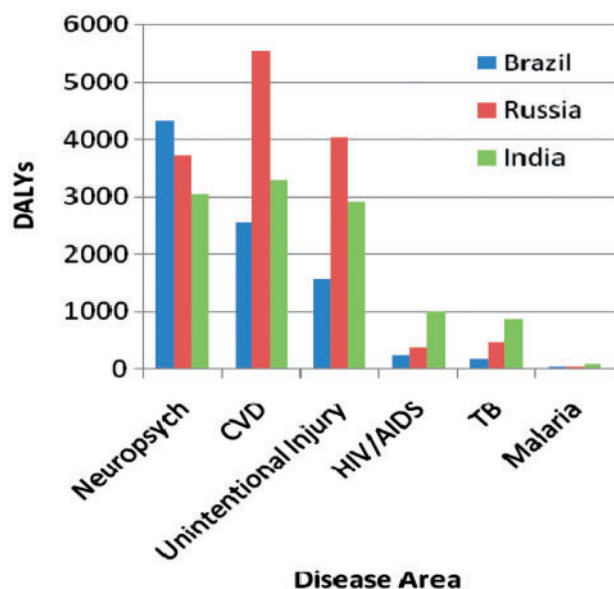


Figure 2 Burden of disease (in disability-adjusted life years, DALYs) in Brazil, Russia and India. Source: Global Burden of Disease Estimates (2002) World Health Organisation, available at: <http://www.who.int/healthinfo/bodestimates/en/>

government's increased commitment to helping municipalities fund crucial diseases, such as AIDS and more recently TB.

If measured using age-standardized DALY rates, several diseases emerge as the most burdensome in Brazil. The first is neuropsychiatric disorders, receiving a measure of 4337, per 100 000 in a population, followed by cardiovascular disease at 2537, then respiratory conditions and fourth unintentional

injury at 1542 (Table 2, Figure 2). HIV/AIDS received a score of 229, followed by TB 164, and malaria 22. The burden of disease by HIV/AIDS, TB and malaria is much less when compared with other disease areas when measured in terms of DALYs.

Yet this does not seem to be reflected in the financing allocated to various disease areas. As Table 3 and Figure 3 demonstrate, the health conditions that are the most burdensome do not receive nearly as much funding from the federal government as HIV/AIDS. Even funding for TB was only US\$10.8 million in 2002, climbing to US\$26 million in 2006. Despite evidence of a co-infection problem with HIV as well as the emergence of multi-drug resistant TB (MDR-TB), these findings confirm the fact that TB has not been a priority for the government when compared with AIDS (Gómez 2007). Since 2006, allocations for TB have gradually increased, and new programmes have been jointly sponsored with the national HIV/AIDS programme (Delcalmo 2006, personal communication; Moherdai 2006, personal communication; Gómez 2007). However, data on budgetary allocations for recent years are not available.

With regard to the Ministry of Health's dependence on donor aid assistance, again the outcomes for each sector vary. When it comes to HIV/AIDS, the government has become less dependent on the World Bank and other creditors. In fact, congressional outlays for the AIDS programme have continued to increase and now far surpass the amount given by the World Bank: US\$353.7 million from the government in 2001 versus a World Bank loan of US\$28 million (which was that year's portion of a total loan package worth US\$100 million signed in 1998); and US\$741 million in 2008 versus a World Bank loan of only US\$13.8 million that year (that year's disbursement of a total US\$100 million loan signed in 2003) (Brazil Ministry

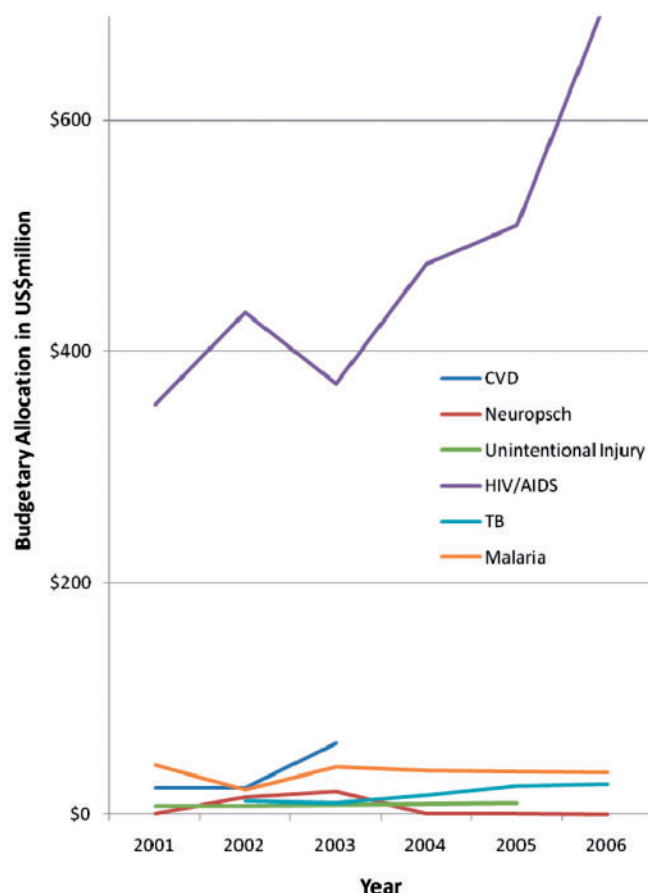


Figure 3 Brazil's budgetary allocation for health (US\$ million) from 2001 to 2006. *Source:* Brazil Ministry of Health, Brasilia

of Health 2008). Nevertheless, the Ministry of Health is still dependent on donor aid for other diseases, such as TB and malaria (Filho 2006, personal communication; Gómez 2007). In 2005, Brazil received a US\$11 million dollar grant from the Global Fund for TB and US\$2 million in 2008 for malaria.

In sum, despite Brazil's progressive universal health care system, it is clear that the burden of disease does not explain funding allocations. While HIV/AIDS is not even close to being as burdensome as neuropsychiatric disorders and chronic disease, it still receives much more domestic funding. Moreover, while Brazil is no longer dependent on donor aid for HIV/AIDS—in fact, it is now starting to become a foreign aid donor, as evident through its recent contributions to the Global Fund (Moherdai 2006, personal communication; Kaiser Family Foundation 2009)—it is still dependent on aid assistance for other diseases.

Russia

In Russia, total central government spending on health is estimated to be 5.3% of GDP, while as a percentage of total health spending (including both government and private), it equalled 60.4% in 2001, rising to 64.3% in 2005 (WHO 2007).

Total spending for public health nevertheless declined during the 1990s and has not increased since then (Marquez 2005). Most spending for public health occurs at the oblast (regional) level, which reflects the government's commitment to health policy decentralization, which started in 1993.

As Table 2 and Figure 2 demonstrate, when measured in terms of DALY rates, cardiovascular disease, neuropsychiatric disorders and unintentional injury are the most burdensome disease categories. Marquez (2008) notes that the government has allocated an estimated US\$2.9 billion, or 20.8% of total federal health spending for hypertension, ischaemic heart disease and cerebrovascular disease. When combined, spending for cardiovascular, unintentional injuries and neuropsychiatric disorders assume more than 50% of the country's total health spending (Marquez 2008).

This is much higher than spending for other types of disease, such as HIV/AIDS, TB and malaria. Although new HIV cases did not begin to increase sharply until after 1998, there was nevertheless a sizeable increase in newly reported cases from 1995 until that period, increasing from 1090 in 1995 to 3971 in 1998, jumping radically to 19 758 in 1999 (World Bank 2009). However, no domestic funding for prevention or treatment emerged prior to 1998, which indicates an initial weak government response to the epidemic. Nevertheless, in 1998 federal funding commenced with an allocation of US\$0.09 million, followed by US\$1.3 million in 2000, and US\$3.7 million in 2001, and it stayed at this level through to 2004. There was also a disparity in funding by each level of government. Finally, it has been noted that the lack of transparency about the HIV/AIDS budget has led to the diversion of HIV/AIDS funding for other purposes (Vinokur *et al.* 2001). While in recent years, essentially beginning in 2005, the government has publically announced its commitment to increase its funding for HIV prevention and treatment, it remains to be seen if it can follow through with its commitments (Kaiser Family Foundation 2005). The Associated Press (2009) recently noted that since 2006, Russia has increased by 33 times its spending on AIDS programmes, but we are unable to verify this claim empirically.

With regard to TB, funding is minimal and new. Prior to 1999, there was no federal funding for TB (Vinokur *et al.* 2001). Thereafter, approximately 90% of all funding for the production of drugs was provided at the oblast level. Federal spending for TB has gradually increased, but the bulk of all funding still comes from the state level. With regard to malaria, federal spending is essentially non-existent. This is due to the rapid decline in the number of cases since World War II. From 2001 to 2005, the total number of malaria cases dropped from 984 to 34 (WHO 2009a). Funding allocations and commitment seem to reflect the low number of cases.

Government receptivity to donor assistance is minimal but has started to gradually increase. In 1996, US\$18.3 million in aid was provided by all sources of foreign aid, increasing to US\$65.8 million in 1999, yet this declined to US\$30.9 million in 2001 (Twigg and Skolnik 2004). In 1999, the World Bank began to work closely with the Ministry of Health for the implementation of a new TB programme, with HIV/AIDS being added later that year. In the same year, the World Bank offered a loan package of US\$150 million, with US\$100 million going towards TB and US\$50 million to HIV/AIDS. After a long delay due

to the Russian Ministry of Health's negotiations with the World Bank over the implementation of WHO DOTS (Directly Observed Treatment, Short-course) standards (Vinokur *et al.* 2001), agreements were finally reached and the loan was provided in 2003. Before the World Bank, other donors, such as WHO, the UK Department for International Development (DFID), the Canadian International Development Agency (CIDA) and the Open Society Institute/George Soros Foundation, provided assistance, though this has been limited in amount and overall effectiveness.

Since 2001, the government has been more receptive to donor aid. The receipt of several grants to combat HIV/AIDS and TB since 2003 from the Global Fund provides a good example. Nevertheless, while this has helped to strengthen the TB and HIV/AIDS programme and kindled greater political commitment to combating these diseases, it is not clear that donor aid has shaped the historic evolution of Russia's AIDS and TB programme, or any other health programme for that matter. In fact, in 2006, Russia pledged that it would reimburse the Global Fund by 2010 for the US\$270 million the country had received for HIV prevention and treatment programmes (Global Fund 2006; Global AIDS Alliance 2009).

In sum, it seems that central government spending for disease reflects domestic need, rather than global priorities. This is evident through the secondary data which shows that more funding is allocated for the most burdensome diseases, such as cardiovascular diseases, neuropsychiatric disorders and unintentional injury, and not HIV/AIDS or TB. This, in turn, could reflect Russia's on-going decision to implement policies that do not reflect international pressures to conform to global priorities.

India

In India, total government spending for health, as a percentage of total government spending, equalled 3.6% in 2004, with household expenditure forming 73.5%. Central government expenditure formed 23% of government health spending, with state government expenditure being 77% (WHO 2006). While health is constitutionally a state responsibility, it has been noted that despite only controlling 23% of the funds, central government sets the priorities in health which are executed by state governments (Berman and Ahuja 2008). In addition, the central government dominates financing of public health and family welfare activities as well as centrally sponsored communicable disease programmes for HIV/AIDS, TB and malaria (Deolalikar *et al.* 2008). Thus central government priorities in public health provide an important indicator of state priorities in public health.

If measured using age-standardized DALY rates, several disease areas emerge as the most burdensome in India. The first is cardiovascular disease at 3284, followed by neuropsychiatric disease at 3044, then respiratory conditions and then unintentional injury at 2913 (Table 2, Figure 2). In contrast the DALY rates for HIV/AIDS, TB and malaria are 1011, 869 and 69, respectively.

How financing compares with the burden of disease is shown in Table 4. HIV/AIDS receives a significantly higher allocation than all the other health areas, with a huge increase since 2004 (Figure 4). HIV/AIDS has been addressed through the National AIDS Control Organisation (NACO) within the Ministry of Health and Family Welfare. External donors have played a significant role in funding NACO's National AIDS Control Projects (NACP) as well as providing technical assistance (Table 5, Figure 5). In the second phase of NACO (1999–2006), the government only contributed 9.5% to the total budget, although by the third phase (2006–11) the percentage had increased to 40.8%. The total budget for the third phase is US\$1484.96 million, which divided by 5 years equals roughly US\$297 per year. In contrast, the National TB programme was allocated only US\$39.02 million for 2006–07. From 2001 to

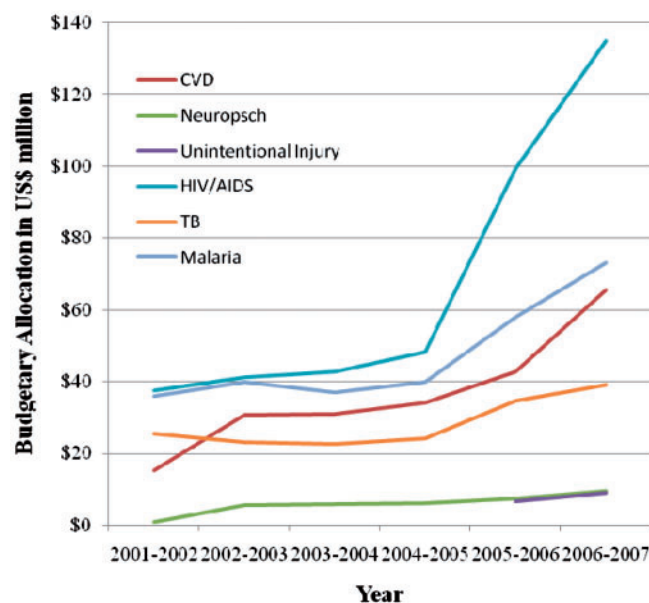


Figure 4 India's budgetary allocation for health (US\$ million) from 2001 to 2007. *Source:* India Ministry of Finance, available at: <http://indiabudget.nic.in>

Table 4 India's budgetary allocation for health (US\$ million) from 2001 to 2007 vs. burden of disease (DALYs, disability-adjusted life years, 2001)

	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	DALYs
Cardiovascular disease	15.2	30.7	30.8	34.1	42.7	65.6	3284
Neuropsychiatric disease	0.93	5.6	5.8	6.3	7.5	9.5	3044
Unintentional injury	n.a.	n.a.	n.a.	n.a.	6.67	8.9	2913
HIV/AIDS	37.5	41.3	42.7	48.4	99.31	134.9	1011
TB	25.4	22.9	22.5	24.0	34.7	39.0	869
Malaria	36.1	40.0	37.2	40.1	58.1	73.1	69

Source: India Ministry of Finance (2008).

Table 5 Funding of India's National AIDS Control Project-2 (NACP-2) (1999–2006) and National AIDS Control Project-3 (NACP-3) (2006–2011)

	NACP-2 (US\$ million)	NACP-3 (US\$ million)
Government of India	41.53 (9.5%)	606.14 (40.8%)
World Bank	203.18	281.36
USAID	48.85	47.67
Global Fund	26.0	367.60
DFID	n.a.	171.19
Total	437.43	1484.96

Source: National AIDS Control Organization (2007).

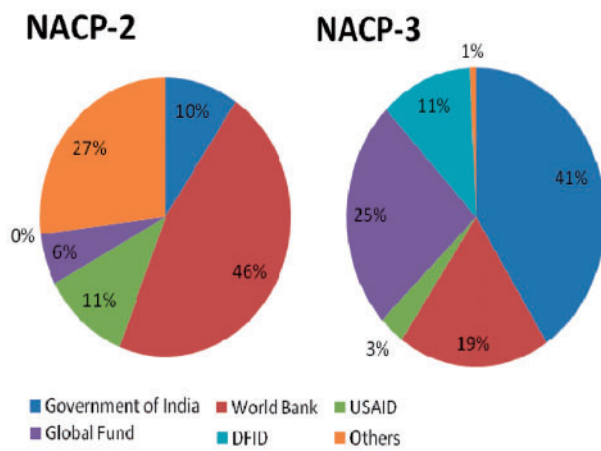


Figure 5 Funding breakdown (percentage of total funding) of India's National AIDS Control Project-2 (NACP-2) (1999–2006) and National AIDS Control Project-3 (NACP-3) (2006–2011). Source: National AIDS Control Organisation, available at: http://www.nacoonline.org/About_NACO/Funds_and_Expenditures/

2006, malaria was addressed through the National Anti-Malaria Programme. The programme was then integrated into the National Vector-Borne Disease Control Programme (malaria, kala-azar, Japanese encephalitis, filaria, dengue) in 2006. This programme is predominantly funded externally through the World Bank's US\$520.75 million National Vector Borne Disease Control and Polio Eradication Support Project (World Bank 2008).

The findings for 2001–2007 seem to be in line with what earlier researchers have noted: that although only roughly 1.6–2% of financing in the health sector in India comes from external funds, this small percentage is distorting national priorities. For example, Qadeer (2000) notes that from 1990–91 until 1998–99 investments only increased for selected programmes for TB, leprosy and AIDS control at the expense of the National Malaria Control and Diarrhoeal Diseases Control Programmes. Similarly, Deolalikar *et al.* (2008) note that external assistance constitutes a sizeable share of national disease control programmes for TB, HIV/AIDS and malaria.

Discussion

This comparative case study design illuminates some key similarities and differences in government response to various

disease areas. It is important to note that there are several limitations to our work. The first is in terms of data availability. While two of the countries, Brazil and India, provide solid primary data on budgetary allocations for 2001–06, the other case, Russia, did not; this, in turn, reflects differences in government transparency. For Russia, secondary data provided by the World Bank allowed us to examine financing patterns; however, we are unable to verify how comparable this data is to that provided by the Brazilian and Indian governments. The second limitation relates to our focus on central government expenditure. This is in line with other analysts' work (WHO 2005). Despite their lower share in financing compared with state/local expenditure, across the countries studied, central government expenditure provides a solid indication of priority-setting in health (see Deolalikar *et al.* 2008). The third limitation relates to comparing the burden of disease and disbursements, as the cost per DALY gained is not equal for all diseases, with differences in cost-effectiveness of essential interventions. Additionally, other dimensions to resource allocation are equally, if not more, important than disease burden, and thus decisions should not focus solely on this measure. Finally, as noted in the methods section, we have relied on burden of disease data for 2001, which is the most recent data available, while budgetary allocations are for 2001–06.

By tracking the resources that Brazil, Russia and India have devoted to various disease areas, we can see that in Brazil and India there has been a bias in the level of investment in various health areas and convergence with global patterns of financing. HIV/AIDS, for example, seemed to obtain the most assistance from the federal government. And this occurred despite the fact that AIDS and other related disease, such as TB, were not the most burdensome. In contrast, Russia shows divergence from global patterns of financing, although with increased spending for HIV/AIDS and TB, this might be shifting slowly towards convergence.

We would like to put forth several factors that could explain the current bias in Brazil and India, but not yet in Russia. We build on Reich's framework of examining the state 'from above, from within, and from below'. Reich proposes a complex political ecology, where health policy emerges from the interaction of 'top-down' pressures from international actors, 'bottom-up' pressures from civil society and domestic government politics. We find his approach extremely useful in proposing what factors might be important in resource allocation other than disease burden. It is important to note that we are not testing the relative explanatory impact of each variable, as our goal is not to create and test a generalizable theory. Rather, we primarily draw on evidence from published sources as well as supporting data from primary interviews to describe what factors deserve further attention in understanding this puzzle (Box 1).

The first group of factors relates to those from 'top-down' pressures. The first factor we propose that might be important is the availability of external funding from multilateral banks, bilateral donors, philanthropists and public-private partnerships. Here, the World Bank and the Global Fund seem particularly important (Table 6, Table 7). Funding from the Bank for HIV/AIDS has acted, in certain country contexts, as a

Box 1 Possible explanatory factors for budgetary allocations in health

'Top-down': 'External Actors'

- (1) Availability of external funding for particular diseases
- (2) Impact of the media coupled with recognition and attention from philanthropic institutions
- (3) Government's close relationship with UNAIDS, WHO and other UN bodies

'Within': 'Political System'

- (1) Electoral politics
- (2) Bureaucratic incentives
- (3) Relationship between ministries

'Below': 'Civil Society'

- (1) Civil society activism, formal linkages with government institutions

Private actors (e.g. Pharmaceutical Transnational Advocacy Networks)

Table 6 World Bank loans (in US\$ million) primarily for HIV/AIDS, TB and Malaria to Brazil, Russia and India

Country/date	Project	US\$ million
Brazil	Total	768
March 1988	Northeast Endemic Disease Control Project	109
May 1989	Amazon Basin Malaria Control Project	99
November 1993	AIDS and STD Control Project	160
September 1998	AIDS and STD Control Project-II	100
September 1998	Disease Surveillance and Control Project	100
June 2003	AIDS and STD Control Project-III	100
May 2004	Disease Surveillance and Control Project-II	100
Russia	Total	150
April 2003	Tuberculosis and AIDS Control Project	150
India	Total	1591.2
March 1992	National AIDS Control Project	84
January 1997	Tuberculosis Control Project	142.4
June 1997	Malaria Control Project	164.8
June 1999	Second National HIV/AIDS Control Project	191
June 2004	Integrated Disease Surveillance Project	68
August 2006	Second National Tuberculosis Control Project	170
April 2007	Third National HIV/AIDS Control Project	250
July 2008	National Vector-Borne Disease Control and Polio Eradication Support Project	521

Source: World Bank Project Portfolio (World Bank, undated).

catalyst for increased domestic spending and policy commitment to HIV/AIDS, and more recently to TB. In Brazil, World Bank loans in 1994 instigated domestic institution-building, such as the creation/strengthening of national AIDS programmes/councils (Gauri and Lieberman 2006; Barbosa 2008, personal communication; Teixeira 2008, personal communication). Similarly, although the first case of HIV was detected in India in 1986, it was only with a World Bank loan of US\$84

million in 1991 that India's first National AIDS Control Project (1992–1999) was launched with the objective of preventing new infections, raising awareness and increasing surveillance (Beck and Mays 2000; Sridhar 2009).

External funding seems to be a crucial factor in explaining the relatively earlier convergence in Brazil and India. In both countries it seems that although external funding constitutes a fraction of the total health budget, it is being allowed to distort national priorities. As the former Director of NACO in India, K. Sujatha Rao, and colleagues note, 'Instead of the health system being strengthened by external funding, priorities get skewed and distortions created, as non-funded programmes, which could be equally if not more important, get lower funding priority' (National Commission on Macroeconomics and Health 2005). This shift in priorities has been expressed not only by the WHO (WHO 2009b), but also by several Indian non-governmental organizations (NGOs) and health experts who have argued that the emphasis on HIV/AIDS is detrimental to primary care and other communicable diseases (Chinai 2003). In Russia, a similar concern emerged during the 1990s with donor assistance from the WHO, DFID, CIDA and the World Bank in 2003. However, this concern was temporary and quickly subsided as donor assistance did not skew domestic priority funding towards AIDS.

In contrast to Brazil and India, the World Bank played a more limited role in Russia in the 1990s (Twigg and Skolnick 2005). Despite discussions with the World Bank during the latter part of the decade, the first World Bank loan to Russia for HIV/AIDS and TB was only made in 2003 in parallel with grants from the Global Fund (Table 7). But as recent scholars note (Ancker 2008), this funding has not motivated the government to increase domestic funding commitments to strengthen the Ministry of Health's AIDS Control Program, whether in the area of infrastructural capacity, coordination or resources for the states. Thus, even if World Bank funding had arrived earlier, this by no means suggests that AIDS programme expansion would have occurred at an earlier point in time. It remains to be seen whether external funding will have a future effect for HIV and TB. Yet Russia's response so far corroborates our point that while external funding is important, its positive and enduring consequences are not guaranteed and may only occur within certain historical and political contexts. We therefore consider other factors motivating government response.

A secondary factor related to external forces is the impact of the media coupled with recognition and attention from philanthropic institutions. This creates incentives for countries to focus on certain diseases at the expense of others. For example, in a recent *Financial Times* news article, the Executive-Director of the Global Fund, Michel Kazatchkine, called on emerging countries to fund HIV/AIDS activities using their own resources and to stop relying on external financiers (Jack 2008). Similarly, the head of UNAIDS, Michel Sidibe, visited India in October 2009 and pushed the government to expand access to HIV treatment, to continue to expand its response to the HIV/AIDS epidemic, as well as to start becoming a donor to UNAIDS (UNAIDS 2009a). Russia has also been pushed to expand its response to HIV/AIDS both in terms of quantity of financing and its HIV/AIDS prevention policy (Associated Press 2009; IAS 2009). Our findings suggest that all three countries are

Table 7 Global Fund to Fight HIV/AIDS, TB and Malaria grants (in US\$ millions) to Brazil, Russia and India

	Round 1 (April 2002)	Round 2 (Jan 2003)	Round 3 (Nov 2003)	Round 4 (June 2004)	Round 5 (Sept 2005)	Round 6 (Nov 2006)	Round 7 (Nov 2007)	Round 8 (Nov 2008)	Round 9 (Nov 2009)	Total
HIV/AIDS										
India		106 (Department of Economic Affairs)		81 (Department of Economic Affairs, Population Foundation of India)		76 (Department of Economic Affairs, Population Foundation of India, India AIDS Alliance)	14 (India Nursing Council, Tata Institute of Social Sciences, Department of Economic Affairs)		21 (n.a.)	299
Russia			89 (Open Health Institute)	115 (Russian Health Care Foundation)	8 (Russian Harm Reduction Network)					213
AIDS/TB										
India			13 (Department of Economic Affairs)							13
Tuberculosis										
India	8 (Department of Economic Affairs)	41 (Department of Economic Affairs)		19 (Department of Economic Affairs)		9 (Department of Economic Affairs)			69 (n.a.)	146
Brazil					11 (Foundation Ataulpho Paiva, Foundation for Science and Technological Development)					11
Russia			11 (Partners in Health)	86 (Russian Health care Foundation)						97
Malaria										
India				48 (Department of Economic Affairs)					38 (n.a.)	86
Brazil							2 (Foundation for Tropical Medicine of the Amazons)			2

Note: Principle recipients in parentheses.

Source: Global Fund Grant Portfolio (Global Fund, undated).

responsive to this type of 'soft pressure'. As noted above, Table 5 demonstrates how the National AIDS Control Project-3 is being funded largely by the Indian government (40.8%), from only 9.5% funding in the previous project. Similarly in Brazil, the Congress has started to finance most of the AIDS programme, leading to a substantial and continued decline in World Bank assistance to the programme, as noted above. Recently, Russia was praised by HIV/AIDS experts for expanding antiretroviral treatment drastically for AIDS patients as it has increased coverage of antiretroviral therapy to those at advanced stages of HIV from 4% in 2004 to 16% in 2007 (WHO/UNICEF/UNAIDS 2008; Associated Press 2009). This praise has been accompanied by criticism for the neglect in HIV/AIDS programming injection drug users and the need for opioid drug substitution, such as methadone and buprenorphine (WHO 2009c).

Adding to this, constant media reporting of 'successful' responses to HIV/AIDS may generate incentives for thriving middle-income nations to use this as a way to increase their international popularity and influence, as has been the case in Brazil (Teixeira 2007, personal communication; Passerelli 2009, personal communication). Recognition from leading philanthropists, such as the Bill & Melinda Gates Foundation's granting of a formal prize to Brazil for having the best response to HIV/AIDS in 2003, creates ongoing incentives for the President, Congress and the Ministry of Health to invest more in HIV/AIDS policy at the expense of other diseases (Teixeira 2007, personal communication; Gómez 2009a). Similarly, in 2003, the Gates Foundation entered India and established the US\$258 million Avahan initiative, which is the largest HIV/AIDS prevention programme in the world. Those close to the negotiations with the Indian government mention the key role the Gates Foundation played in lobbying for increased domestic attention to HIV/AIDS (Sridhar 2009); as one respondent noted, 'Bill pressed the government hard to allow a completely parallel programme – he had the clout from his relationships in the private sector with Microsoft.' Avahan is currently working closely with the NACO to transition the programme from the Gates Foundation to the government. Ashok Alexander, the head of Avahan, noted, 'We are not perpetual funders. We try to be catalytic' (Flock 2009). However, asking the government to assume the full cost of Avahan will result in an even higher proportion of funding being allocated to HIV/AIDS, and even the former head of the NACO, Sujatha Rao, remarked, 'We told them you can't create a huge number of assets and then just leave and expect the government to take over everything' (Flock 2009). To address the government's concern, the Gates Foundation donated an additional US\$80 million for HIV/AIDS prevention, as well as praised the Indian government for their stellar response to the epidemic (Gates Foundation 2009). In Russia, the Gates Foundation has not directly set up operations or engaged with government, but rather made a US\$44.7 million grant to Partners in Health to implement programmes to address TB.

A third top-down factor that might be important is a government's close relationship with UNAIDS, WHO and other UN bodies. Functions provided by UN bodies, such as surveillance, policy guidance and technical support for country planning for certain diseases, provide the necessary resources for domestic policy to follow global priorities (Gómez 2008).

A particularly important in-country body is UNAIDS, which was created to advocate for increased institutional and financial commitment to HIV/AIDS, based on the premise that the disease is exceptional and thus deserves an exceptional response (Sridhar *et al.* 2008). In addition, as will be discussed below, strong partnerships between domestic health officials and officials in these agencies can lead to biased commitments to certain disease areas (Gómez 2009a). This does not seem to be as significant a factor as external financing.

We now turn to look at factors within the state, particularly the political and bureaucratic incentives for reform and relationships between ministries. In some instances, biased attention to AIDS may reflect politicians' interest in using the popularity of AIDS as a platform for election (Whiteside 1999). In other instances, politicians may wish to use AIDS policy in order to garner more political support, or use AIDS as a successful platform in order to increase their international influence through donor aid assistance. Since the mid-1990s, this was certainly the case in Brazil (Gómez 2009b; Passerelli 2009, personal communication), and has started to emerge in India (Lieberman 2009). The absence of electoral accountability and competition in Russia has not yielded such a response (Wallander 2005).

Similarly, increased international attention and resources for AIDS in the 1980s compared with other diseases has increased the legitimacy and influence of AIDS bureaucrats. The AIDS epidemic first emerged on the international agenda in 1985 with the creation of the WHO's Global Programme on AIDS, which was directed by the late Dr Jonathan Mann. In contrast, TB was not declared by the WHO as a 'global emergency' until 1993, while the WHO's Stop TB Partnership was only created in 1998. Similarly, international attention to malaria arguably did not begin until 1997 with the first International Conference on Malaria in Dakar, Senegal, and was further reinforced by the Abuja declaration in 2000, where African leaders affirmed their commitment to cutting malaria mortality by half by 2010 (Roll Back Malaria 2009). In this situation where AIDS received earlier international recognition, domestic AIDS bureaucrats have had incentives to use their popularity and influence with the President or Prime Minister, who is supportive of international partnerships for AIDS policy, to obtain more support from the Congress or Parliament. This has certainly been the case in Brazil (Gómez 2007) and seems to also be true in India (Sridhar 2009). On the other hand, in Russia various factors have all contributed to AIDS officials' lack of popularity and influence. These include: Russia's more isolationist approach and tenuous partnerships with donors (Twigg and Skolnick 2004; Wallander 2005), plus politicians' ongoing discrimination towards drug users and the gay community (Tkatchenko-Schmidt *et al.* 2008), with the parliament being consistently influenced by the communist party and its close alignment with the Russian orthodox church, which is always adamantly opposed to sex education in schools and condemns HIV victims for behaving immorally (Chervyakov and Kon 1998). This has not increased AIDS officials' ability to secure Presidential and Congressional support for more funding.

The third group of factors are 'bottom-up' pressures emanating from civil society activism. While there are civil society groups representing a host of disease areas ranging from diarrhoeal

disease to malnutrition, HIV/AIDS activists tend to be better organized and financed (Barnett and Whiteside 1999). HIV/AIDS groups have relatively more access to governments through national AIDS councils and legislative hearings (Loewenson 2003), while having the ability to influence the global policy process through UNAIDS, the World Bank and the Global Fund, which all facilitate civil society–government engagements. While this is true in Brazil (Teixeira 1997; Filho 2006, personal communication; Terto 2006, personal communication) and India (UNGASS 2009), in Russia, the NGO movement is weak and based mainly at the state (oblast) level (McCullaugh 2005). In Russia, in contrast to Brazil and India, there are no direct institutional linkages between national AIDS agencies and NGOs (Wallander 2005). This might account for differences in effective lobbying pressures and budgetary allocations for HIV/AIDS between Brazil and India versus Russia.

Two additional factors explaining our findings cross-cutting all three levels are the strength of the private sector in health, specifically the pharmaceutical industry, and the influence of transnational advocacy movements for particular diseases. The pharmaceutical industry is expanding rapidly in all three countries. As of 2009, India's pharmaceutical market size is US\$10.4 billion with annual growth of 8.4%, Brazil's is US\$13.6 billion with growth of 5%, and Russia's is US\$8.3 billion with 15.9% growth (Espicom 2009). The pharmaceutical industry has an incentive to lobby government towards treatment programmes, specifically in acquiring antiretrovirals for HIV/AIDS treatment programmes, rather than for prevention, or to address health issues, such as unintentional injury, where drugs are not the direct solution. This push for treatment is evident in Brazil, which provides free first- and second-line antiretrovirals, in India, which provides free first-line antiretrovirals, and in Russia, which has rapidly expanded treatment to those affected by HIV/AIDS. The private sector exerts influence not only within these three countries, but also in donor countries, as explored by Reich (2002). It should be noted that it is not only the private sector that pushes for treatment, but also key multilaterals such as UNAIDS (e.g. by holding governments accountable for commitments to universal access to antiretrovirals) and WHO (e.g. through its 3 by 5 initiative), for both patented and generic drugs (UNAIDS 2009b).

The second major cross-cutting factor is the influence of transnational advocacy movements, specifically AIDS activist organizations. These organizations, largely based in the USA and Western Europe, have pushed donor governments to finance programmes for HIV/AIDS in low- and middle-income countries (Behrman 2004), as well as provided financial and technical support to those local civil society organizations in line with their normative agenda (Sridhar 2009). The combination of pressure from donors through financing of particular diseases, from the pharmaceutical industry and from transnational advocacy movements across the three levels seems to be the key to understanding the convergence in Brazil and India with global priorities in health, namely HIV/AIDS, TB and malaria.

Conclusion

The findings in this paper raise issues for future research on the interactions between global, governmental and civic actors.

Although the results in this paper are preliminary, they indicate the need for further investigation into priority setting mechanisms at the national level instead of relying on the traditional explanation that the financial dependence of recipient countries on donors results in national budgetary allocations towards global priorities, such as HIV/AIDS. In particular more attention needs to be paid to the role that the international community plays in shaping domestic policy through identifying the various stakeholders and better understanding how they negotiate and interact. Our paper also indicates the need for further disclosure and transparency on budgetary allocations by the Russian government. While the findings in this paper should be relevant for those interested broadly in global health, they should be of particular interest to those working for key donors, multilaterals such as the UNDP, UNODC, WHO and UNAIDS, the Brazilian, Russian and Indian governments, and academics examining global health financing.

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