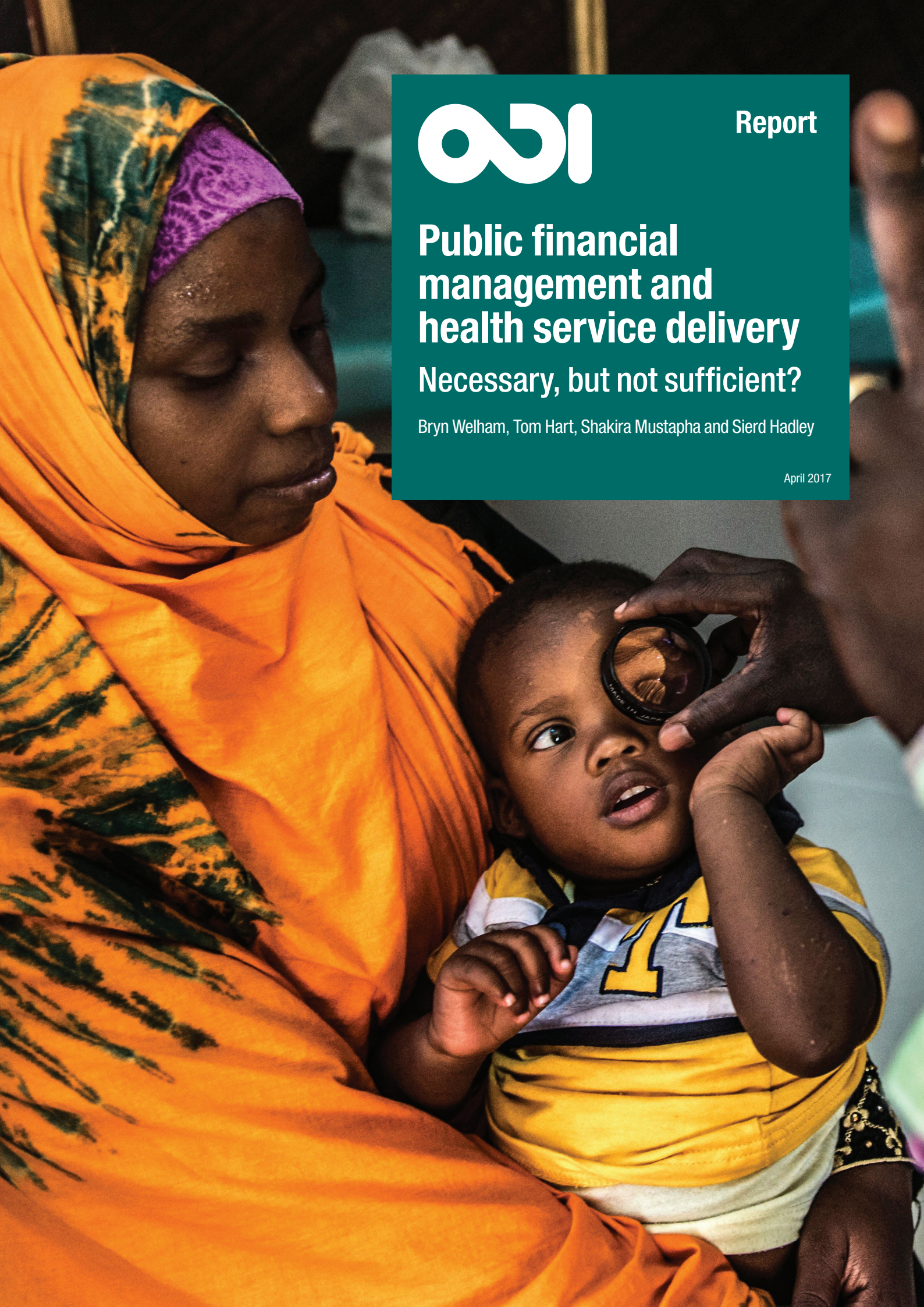

Report

Public financial management and health service delivery

Necessary, but not sufficient?

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Cover photo: Two year old Bakir Rashid, who suffers from congenital cataracts, gets his eyes tested by Dr Paul Nyaluke, a pediatric opthamologist, at Kigbweni hospital, before undergoing a sight restoring operation. Tommy Trenchard/Panos.

Acknowledgements

The authors thank Zac Mills and Paolo de Renzio for commenting on various sections of this report, and Alasdair Fraser who supported the review and coding of Public Expenditure Tracking Surveys. The authors are grateful to Paolo de Renzio and Olivia Tulloch for reviewing the entire document. The authors remain responsible for any errors and/or omissions.

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Abbreviations

ABD	Asian Development Bank
BMZ	Federal Ministry for Economic Cooperation and Development (Germany)
CPI	Corruption Perceptions Index
CPIA	Country Policy and Institutional Assessment
CRS	Creditor Reporting System (OECD)
DFID	Department for International Development
EU	European Union
GDP	Gross Domestic Product
GIZ	Gesellschaeft for Internazional Zusammenarbeiten
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information System
HSS	Health Systems Strengthening
IFMIS	Integrated Financial Management Information System
IPSAS	International Public Sector Accounting Standards
LIC	Low-income country
MDG	Millennium Development Goal
MIC	Middle-income country
MTEF	Medium-Term Expenditure Framework
OECD	Organisation for Economic Co-operation and Development
PEFA	Public Expenditure and Financial Accountability
PETS	Public Expenditure Tracking Survey
PFM	Public Financial Management
OLS	ordinary least squares
QSDS	Quantitative Service Delivery Survey
SDG	Sustainable Development Goal
Sida	Swedish International Development Agency
SWAp	Sector-Wide Approach
UHC	Universal Health Care
USAID	United States Agency for International Development
WHO	World Health Organization
WLS	weighted least squares

Executive summary

The issues of healthcare and public financial management

The issues of public financial management (PFM) and healthcare have long been of interest to the development policy community. Both issues are relatively well discussed and studied in their own right, but the *relationship between them* is comparatively under-theorised and under-researched. Debates in the health and PFM policy networks have tended to take place separately with different policy concerns, enduring issues and terminology. The debates in both policy fields have, however, started to place more of a premium on understanding the links between the two issues.

To support this closer alignment, this research report looks in more detail at the theoretical and empirical links between these two concepts, predominantly from a PFM perspective. Following an introduction, Chapter 2 sets out the policy debates on health service delivery and PFM. Chapters 3 to 6 present a qualitative literature review of the existing theoretical and empirical evidence, and original quantitative and qualitative evidence to determine the strength of the relationship in the following manner:

- Chapter 3: a qualitative review of the implicit and explicit theoretical links between PFM and health service delivery in donor literature on the topic.
- Chapter 4: a qualitative literature review covering journal articles and the most cited grey literature on this topic since 1990.
- Chapter 5: original quantitative work looking at the associations and correlations between various measures of PFM system performance and the outputs and outcomes of health services at the country level.
- Chapter 6: an original qualitative synthesis review of all publicly available Public Expenditure Tracking Surveys (PETS) covering the health sector.

A case study of how PFM and health service delivery issues in Nepal interact in practice is published separately (Hart, 2017).

The theoretical links between PFM and health service delivery

A review of the explicit and assumed links between health service delivery and PFM in leading donor literature suggests general agreement that these are somehow linked; and that better PFM systems are likely to support improved service delivery. There is, however, a lack of detailed conceptualisation as to how exactly, and through what mechanisms, the relationships between them operate. There is a reasonable assumption that the delivery of health services will require certain inputs (such as staff, equipment and operational funding), and that PFM systems will play a greater or lesser role in supporting delivery of these inputs.

Some donors have outlined how various parts of the PFM and/or budget cycle might relate to key elements of health service delivery. Analysis of donor assumptions also reveals a distinction between 'upstream' and 'downstream' elements of the PFM cycle that might relate specifically to service delivery. The literature also notes that PFM systems can support service delivery by providing financial information, which may support *top-down* accountability (through better equipping service overseers with information) and also promote *bottom-up* accountability (by providing service users, citizens and civil society with data to hold service managers accountable). However, very little empirical evidence is presented to support the existence of the theorised links between the two concepts, and some parts of the donor literature call for more research into this area.

Literature review of the link between PFM and health service delivery

The Centre for Health Economics at the University of York undertook a literature review on the relationship between PFM and health service delivery. The full conclusion of this research is published separately (Goryakin et al., 2017). Despite the depth of independent literature on the two subjects, the literature review identified only 53 studies that considered a healthcare and PFM angle, and a lack of high-quality and large-n studies and a large number of single case studies. The review grouped the 53 studies into three broad categories: 'system quality' studies looking overall at how measures of 'governance' (which includes an element of PFM system strength) relate to health outcomes; 'PFM reforms' studies that considered whether specific PFM-related reforms (such as Medium-term Expenditure Frameworks (MTEFs) or transparency/accountability activities) related to health service delivery; and 'donor reforms', which considered whether donor-driven PFM-related reforms, such as sector-wide approaches (SWAps), had an impact on health service delivery.

The 'system quality' reviews confirmed the relatively established finding that better governance is associated with better and more efficient health service delivery. Many of the 'governance' metrics used in the studies reviewed included an element of PFM system strength. The relationship between specific PFM indicators (including Public Expenditure and Financial Accountability (PEFA) and Country Policy and Institutional Assessment (CPIA) component scores) and the quality of healthcare outputs and outcomes is uncertain, and the evidence is mixed, although measures of corruption were more robustly negatively associated with health outcomes. The review of specific 'PFM reforms' studies found evidence that greater accountability and transparency is associated with better health outcomes, as is decentralisation under certain conditions, although the number of studies reviewed is relatively small. The review did not find strong evidence that common PFM reforms (e.g. MTEFs, activity-based budgeting) affected health outcomes, although again the evidence base for individual reforms was very small. The evidence on the impact of donor-related reforms was based on only three studies and found mixed impacts.

Quantitative analysis of PFM and healthcare outcomes

Original econometric work compared high-level measures of PFM system quality (through PEFA scores) with key measures of population health (under-five mortality; infant mortality; life expectancy at birth) using control variables commonly found in the literature (gross domestic product (GDP) per capita; female literacy; corruption perceptions; human immunodeficiency virus (HIV) prevalence; and total health expenditure). The results demonstrate a positive correlation between the two issues; that is, the econometric analysis finds that improved PFM systems appear to correlate with better health outcomes in these three areas, in the presence of controls. This result holds under basic robustness checks. However, such a study is inevitably limited and challenged by a number of data and methodological issues, so that any result should be interpreted with caution. Nevertheless, it provides some tentative high-level evidence that there is a correlation – although not necessarily causation – between these two issues.

Public Expenditure Tracking Surveys

A qualitative synthesis of available English-language and machine-readable Public Expenditure Tracking Surveys (PETS) and Quantitative of Service Delivery Surveys (QSDS) studies covering the health sector was undertaken, using text-coding software to support manual analysis. Twenty-seven survey reports were identified, predominantly (although not exclusively) covering low-income countries (LICs) in sub-Saharan Africa around the early to mid-2000s. The analysis tagged and coded the PETS to reveal the type, frequency and level of government at which PFM system problems and issues were identified. Such a study naturally has methodological limitations – not least the difficulty in extrapolating general findings from a synthesis of only 27 case studies that are not globally representative.

The study found common PFM-related issues affecting health service delivery across the sample study. These issues (in order of frequency of identification) were: (i) overall resource levels and the equity of their allocation; (ii) the effectiveness of resource flows between layers of government in terms of timeliness, predictability and completeness; and (ii) the effectiveness of the management and use of resources at facility level. Within these three headings, further common sub-issues were found in many – although not necessarily a majority – of the studies. Many of the PETS studies concluded that certain PFM dysfunctions – particularly the effectiveness of resource flows between layers of government – resulted from cash-budgeting and cash-rationing practices operating upstream in the budget cycle. The studies also noted, however, that while deficiencies in the operation of PFM systems may contribute to poor service delivery in a number of ways, a range of other non-PFM factors (including the incentives provided by service overseers, management behaviours and attitudes of staff) had a strong impact on the quality of service delivery.

Conclusions on policy implications and next steps

Much of the literature and evidence reviewed focuses on the *general* relationship(s) between PFM and health service delivery. Where more *specific* mechanisms through which different aspects of PFM systems might affect health service delivery are examined, the evidence base is often small, and the results conflicting. This inevitably makes it difficult (perhaps impossible) to develop policy recommendations that would be useful in all or most contexts. Indeed, the development policy debate on institutional reform in general, and support for the health sector specifically, puts a clear emphasis on the value of deep understanding of the local context to identify pathways for reform, rather than on top-down transmission of generic best practice to the local level.

To the extent that it is possible to make specific recommendations as a result of this research, the findings might tentatively support a 'basics first plus accountability' approach for PFM reform to support health service delivery. The review of assumptions in donor literature suggests the perhaps common-sense point that some form of financial management capability is necessary to implement public policy in healthcare (or other service area). The literature review also concludes in its review of 'system quality' that better governance (of which PFM is typically one component) is associated with better healthcare outcomes. The literature review further notes that transparency and accountability efforts in

health service delivery have positive impacts on health outcomes (although the evidence base is relatively small) and that corruption has negative impacts – and in many circumstances transparency and accountability reforms may be one approach to reducing corruption risk. The quantitative research identified a positive (albeit qualified) high-level correlation between the two issues, suggesting that investment in PFM is worthwhile as a supporting mechanism to delivering better health services. In terms of where to focus PFM reform efforts, the PETS work found clear PFM-related challenges in (i) the level and equity of resource allocation; (ii) the reliability of financial transfers; and (iii) the use of resources at the local level. The objective of basic functioning PFM systems is that they can provide reliable financial transfers. But they should also provide useful data that can better inform policy choices on levels and equity of funding, and that can support both 'top-down' and 'bottom-up' accountability pressures identified in the donor literature to improve the use of resources at the local level.

Looking at the issue from a health services policy angle, the conclusions of the research are in line with the broader health systems strengthening agenda. This approach to health services reform explicitly notes the numerous sub-systems of laws, processes, procedures and behaviours across (and often beyond) government that must operate in order to deliver health services effectively; and in doing so also broadly assumes that 'governance matters'. PFM systems appear to matter to some of these sub-systems, but are rarely the determining factors.

In terms of further research, many sources reviewed noted the relative absence of clear evidence in this field. This study has attempted to fill part of this gap by looking at the relationship between health and PFM in different ways. Building on this research, there could be useful further investigation into the different kinds of PFM systems that might be needed to support health service delivery at different country income levels; the kind of accountability and transparency initiatives that support health service delivery in different contexts, and the various mechanisms through which such interventions might work; and a clearer understanding of the impact and implications of cash budgeting on health service delivery in LICs.

1. Introduction

1.1. The 'health services' and 'public financial management' debate

This document presents the findings of a research project looking into the relationship between public financial management (PFM) and health service delivery, with a focus on the actions and impact of donors operating in these areas in low- and middle-income countries (LICs and MICs). Both of these issues – PFM reform and health service delivery – are longstanding concerns in the development community and relatively well discussed and studied issues in themselves. The *relationship between them* remains, however, relatively under-explored. Debates in the health and PFM policy networks have tended to take place separately with different sets of policy concerns, enduring issues and terminology. This work is part of an effort to bring the discussion of the two issues closer together, and to provide evidence of possible links between them.

1.2. The nature of this research

This document synthesises the findings of research looking at the issue of healthcare and PFM from various angles. Of the four analytical chapters, the first two are qualitative literature reviews that seek to understand the current state of theoretical and empirical knowledge in this area. The second two then present original quantitative and qualitative analyses in order to test and/or challenge the emerging conclusions of the literature reviews, as follows:

- A review of the implicit and explicit theoretical links between PFM and health service delivery in donor literature on the topic.
- A literature review covering journal articles and the most cited grey literature on this topic since 1990.
- Original quantitative work looking at the associations and correlations between various measures of PFM system performance and the outputs and outcomes of country-level health systems.
- An original synthesis review of all publicly available Public Expenditure Tracking Surveys (PETS) covering the health sector, using a mixture of quantitative and qualitative methods to identify the most common PFM-related issues in service delivery.

The annexes offer greater detail of the findings of the quantitative work, and a full list of the PETS reviewed and sources considered in the literature review.

The research work focused on all types of LICs and MICs, but the recommendations are particularly focused on governments and donors working in LICs, where the need for improvements to health services and PFM systems is greatest. The report predominantly considers 'public' (i.e. government-run) financial management systems, although national health services – at all income levels – include varying levels of activity from public, private and not-for-profit organisations. This means that it is not always easy to draw a clear distinction between 'public' and 'private' health service delivery. However, even in national health contexts where private and/or other 'non-public' sources of financing and delivery play a large role, the importance of the *public* aspects of health service delivery is well recognised in the policy debate. For example, public funds are typically described as the 'cornerstone' of sustainable financing of universal health care (UHC) and that in any national mixture of financing sources UHC requires sustained government funding (Cashin et al., 2017).

The research concludes with some tentative policy recommendations for governments and donors, but does not aim to provide specific guidance or universal recommendations. The diversity of national approaches to health service delivery and the heterogeneity of systems to support it mean that specific recommendations for healthcare and PFM systems reform is best left to those with significant experience in a particular context, as is recognised in the literature:

> *[F]ew clear-cut conclusions can be drawn with regard to the best strategies for strengthening countries' health care systems…This is hardly surprising: health care systems are complex social systems, and the success of any one approach will depend on the system into which it is intended to fit as well as on its consistency with local values and ideologies (Mills, 2014: 556).*

1.2.1. Additional documents to support this study

Two supporting documents are published alongside this study. A longer discussion of the findings of the literature review (Goryakin et al., 2017) sets out in more detail the studies considered in Chapter 4. Second, a case study on the changing relationship between health service delivery and public finance reform in Nepal (Hart, 2017) provides detailed analysis of one national context and a real-world illustration of how these two policy agendas can operate in practice.

2. The policy debates on health service delivery and PFM reform

This chapter reviews the evolution of policy debates on health service delivery and PFM reform in the context of development interventions, particularly in LICs. This is not a comprehensive survey of each aspect of the policy debates but serves as a summary background to how key concepts in the relevant policy areas have developed. This will situate the research work within a broader policy discourse and explain why the issues of PFM and health service delivery may be particularly salient at this point.

2.1. Background to the health and development policy debate

2.1.1. The evolving nature of the health policy debate

Over the years, donors have given increased priority to public services delivery and pro-poor 'social sector' interventions in development policy. The 2000 Millennium Development Goals (MDGs) made the achievement of a wider set of development outcomes, including health, one of the ambitions of global development interventions. As the role of healthcare in development has grown, there have been significant increases in aid for the health sector. Donor funding to the health sector, as recorded in constant prices by the Organisation for Economic Co-operation and Development (OECD) Creditor Reporting System (CRS), increased from around $4 billion in 2002 to $12.5 billion in 2015. This is perhaps most visible through the establishment and operation of several high-profile 'vertical funds' targeting health issues (e.g. the Global Fund for AIDS, Tuberculosis and Malaria; the Global Alliance for Vaccines and Immunization). In 2000, in the Abuja Declaration, African governments committed to allocate 15% of their expenditure on health. Overall, evidence suggests that in real terms, total health spending in LICs (from country sources and donors) doubled between 1995 and 2010 (Fleisher et al., 2013).

The policy agenda has also been shifting. Major global commitments have been made by all United Nations member states, international institutions and development agencies to achieve UHC by 2030 (e.g. WHO, 2010; World Bank, 2015a), culminating in the inclusion of this goal in the Sustainable Development Goals (SDGs). Given that there is unlikely to be a dramatic rise in development assistance for the health sector after the increases of recent years, this has led to greater recognition that progress towards UHC will have to be mostly funded by domestic resources (e.g. Cashin et al., 2017). This is leading to a greater focus on how countries are raising and managing public finance.

While it is recognised that UHC will require more spending on healthcare in general, there is a clear understanding that this alone is not the answer to improving poor health outcomes. The influential 2004 *World Development Report* on 'Making Services Work for Poor People' (World Bank, 2004) outlined the importance – and challenge – of accountability in ensuring that public services are delivered effectively. The World Health Organization (WHO) estimates that 20–40% of all health spending is wasted due to inefficiency (WHO, 2010). As a result, greater policy emphasis is now placed on *how* countries spend their resources (Cashin et al., 2017). Indeed, comparative studies of health service delivery at the country level have highlighted that similar levels of spending can yield dramatically different results (Chambers and Booth, 2012). These two pressures – the policy agenda of expanding health services to achieve UHC and that this must largely be domestically financed – mean that the focus on using PFM systems to ensure existing spending is handled more effectively is likely to be relevant for the foreseeable future.

Use of country systems in health finance

Alongside considerations of the volume of funding to health systems in developing countries, donors have also made numerous commitments to make greater use of country systems in disbursing aid. These include pledges to reduce stand-alone project aid and to channel aid through national systems through modalities such as general budget support, sector budget support and/or sector-wide approach (SWAp)-style arrangements (e.g. the 2005 Paris Agenda; the 2008 Accra Agenda for Action; agreements made at Busan in

2011, including the g7+ 'New Deal'). Greater use of country systems to handle aid projects puts a greater emphasis on the quality of the financial systems that underpin them. In practice, however, these commitments to use country systems have not always resulted in significant real changes in how aid is provided. Many of the bold ambitions surrounding these international declarations have not been met and some donors are moving away from general budget support arrangements (although in certain cases towards using 'sector budget support' as an alternative (e.g. DFID/HMT, 2016)). The policy emphasis on use of country systems stemming from these international commitments, and the continued interest in some forms of sector and/or general budget support among some donors, puts a premium on understanding the strength and role of national PFM systems in handling donor funds in the context of the UHC policy agenda.

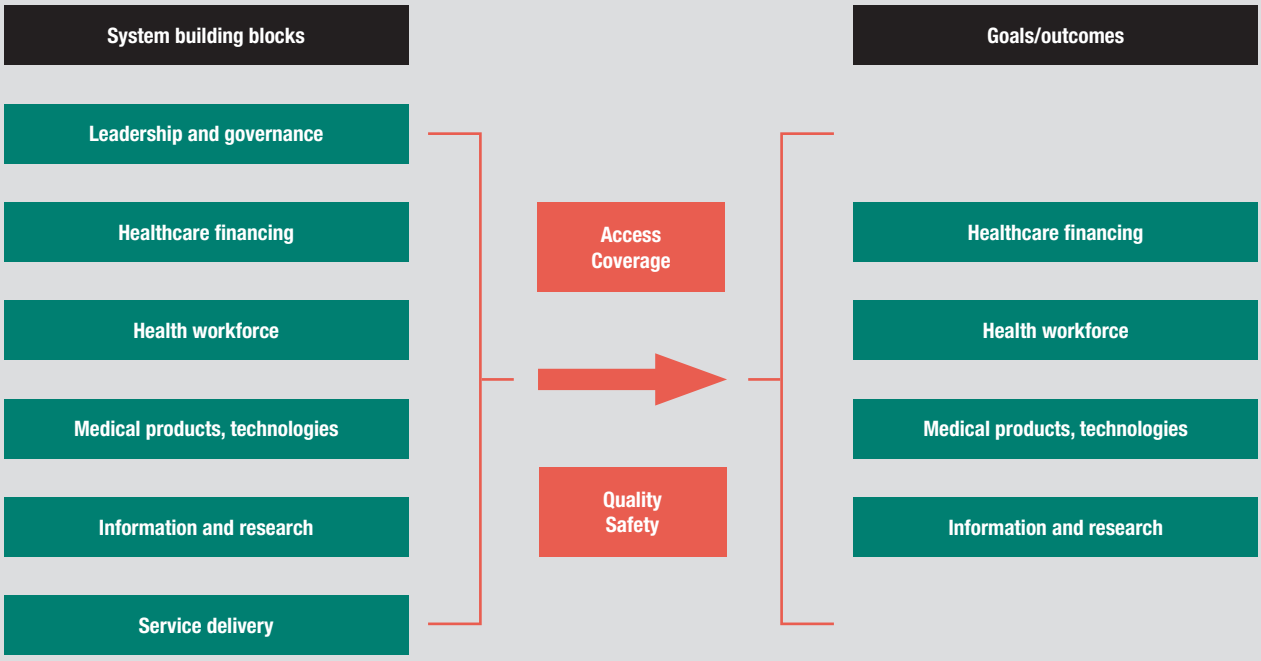
2.1.2. Health systems strengthening and health financing

Building on the recognition that additional financing is only part of the answer, a key development in the healthcare policy debate that relates more directly to PFM is the emergence of a '*health systems strengthening*' (HSS) agenda (e.g. Hafner and Shipman, 2013). This concept focuses on the wider health system, beyond issues of volume and/or sources of financing, or the specific policy choices made in the health sector. It looks at what systems, processes and procedures are necessary to make public health systems actually work. The idea that successful health service delivery requires an often challenging series of reforms to interrelated, but often separate, systems and processes to work together is increasingly part of policy debates. Indeed, many of the key interrelated processes and functions identified in the HSS discussion have a direct link to PFM systems (see Box 1).

Unsurprisingly, the HSS policy agenda includes consideration of how governments raise, manage and deploy public finance for health services, or 'health financing'. It is this element of the HSS debate that most closely links the PFM and health service delivery issues, and includes the argument that country PFM systems have to adapt and be aligned to meet the service-delivery needs and that traditional budgeting approaches may not best address the requirements of the health sector (e.g. Cashin et al., 2017). Health financing issues are themselves wide-ranging and cover a great deal of PFM-related issues,

Box 1. Health Systems Strengthening

The World Health Organization (WHO) defines health systems strengthening (HSS) relatively broadly as *'any array of initiatives and strategies that improves one or more of the functions of the health system and that leads to better health through improvements in access, coverage, quality, or efficiency'* (WHO n.d.(a)). WHO has also defined a specific range of 'areas for intervention' that will support health service delivery and can therefore be considered part of the HSS approach.



Source: WHO, n.d.(b)

continued on next page

Box 1. Health Systems Strengthening continued

To give a further sense of the diversity of approaches that could be considered 'HSS', a research project funded by the United States Agency for International Development (USAID) reviewed 13 different types of HSS intervention and mapped how they might affect the different output and outcome objectives of a health system in a developing country.

Health impacts and health system outcome measures

Types of intervention	Improved service provision quality	Increased financial protection	Increased service utilisation	Uptake of healthy behaviours	Reduced morbidity/ mortality
Accountability and engagement	X		X	X	X
Conditional cash transfers			X	X	X
Contracting out service provision		X	X		X
Health insurance		X	X		X
Health worker training to improve service delivery	X			X	X
Information technology			X	X	
Pharmaceutical systems strengthening	X				
Service integration			X	X	X
Strengthening health services at community level			X	X	X
Supply-side performance-based financing			X		
Task sharing/shifting			X		X
User fee exemptions			X		X
Voucher programme		X	X	X	X

Source: Hatt et al., 2015

The authors note that even this review of 13 types of HSS intervention is likely underestimate the breadth and variety of what might be considered a part of this topic. As can be seen, many HSS interventions in this framework have direct links to PFM systems, such as workforce training (implications for salary costs); pharmaceutical systems (financing and method of procurement of drugs), cash transfers, fee exemption and performance-based financing (reforms to financing the demand and supply sides of health services); and improvements to accountability (provision of relevant financial information). Other kinds of HSS intervention listed are less likely to have a direct PFM component, for example information technology reform and task-sharing/shifting.

including high-level questions of how best to structure risk-pooling across populations in the context of unpredictable uptake of health services, through to specific questions of how line-item budgets can be best adapted to the specific strategic purchasing requirements of health services.

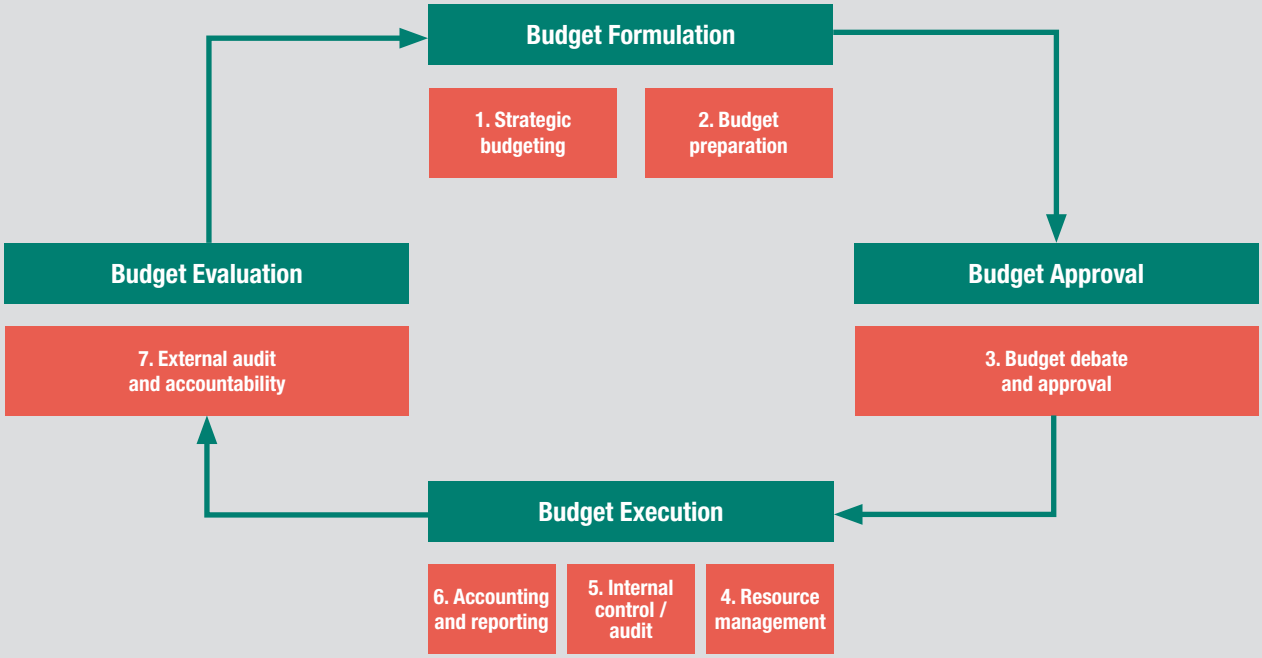
2.2. Background to the changing debate on PFM and service delivery

In terms of the policy focus for PFM reform, the debate for developing countries has traditionally been centred on 'whole of government' and/or 'finance ministry-centred' issues. The traditional aims of a PFM systems are formulated as a hierarchy involving: first, achieving fiscal discipline to support macroeconomic stability; second, a focus on allocative efficiency between competing priorities; and third, the question of operational efficiency and effectiveness of spending (e.g. Campos and Pradhan, 1996). These objectives are then typically achieved through a four-stage budget cycle (see Box 2).

Within this traditional conception, HSS and effective delivery of health services would be most related to the second objective of efficient *allocation* (i.e. how much overall public financing to allocate to health services) and the third objective of *operational efficiency* (i.e. how to deliver healthcare efficiently and effectively). However, the policy discussion on how governments can achieve the three objectives of PFM systems – a debate historically led by the International Monetary Fund and the World Bank – has tended to focused on cross-public sector and cross-government reforms (e.g. chart of accounts reform; financial reporting reform; performance budgeting; Medium-term

Box 2. The four-stage budget cycle

Although the specifics of national systems will differ, the 'classic' budget cycle through which the three PFM objectives of macroeconomic stability, allocative efficiency and operational efficiency are achieved is typically considered as a four-stage process. Within these four stages, other sub-stages of the budget are often identified, although there is often less consensus on the specifics of these sub-functions.



Source: Andrews et al., 2014

The stages of the budget cycle can be further considered in terms of 'upstream' and 'downstream'. Typically, strategic budgeting, budget preparation and budget approval would be the considered 'upstream' elements of designing and planning the government's expenditure plans. The 'downstream' elements involve the actual execution and provision of the approved budget, for example through resource management, internal control and audit, and accounting and reporting.

Expenditure Frameworks (MTEFs); Integrated Financial Management Information System (IFMIS) implementation etc.), and not specifically highlighted individual sectors, or issues of service delivery.[1]

In terms of *how* to achieve PFM reform, following the implications of the 'good governance' agenda of the 1990s, donors have tended to support developing countries to copy PFM institutions and systems found in advanced economies. The aim has been to replicate the effect of these institutions in developing countries' PFM outcomes. This has led to many developing countries receiving a similar 'package' of top-down 'whole of government' PFM reforms that reflect good, or even best, practice in more developed environments (e.g. adoption of an IFMIS, development of a treasury single account, move towards accrual accounting, institution of an MTEF, adoption of some form of performance-based budgeting, move towards International Public Sector Accounting Standards). However, there has been mixed success in 'transplanting' these institutional forms globally (e.g. World Bank, 2013; Andrews, 2010) and many have critiqued the underlying theory of institutional reform that accompanies this approach (e.g. Schick, 1998; Pritchett et al., 2010).

In response, the debate in the PFM policy sphere has evolved. There has been a move away from this 'consensus' on the need for developing countries to adopt *forms* of 'best practice' OECD-style financial management systems (not least as the aftermath of the 2008 financial crisis exposed significant weaknesses in the public finance institutions of advanced economies) and towards a focus on developing genuine *functional* capacity. Indeed, the broader debate on institutional reform in developing countries, of which PFM would be an example, now almost offers a 'new consensus' (at the theoretical level at least) on the need for 'bottom-up' approaches that 'work with the grain' to change the effectiveness of specific functions, behaviours and practices in response to issues identified by government

1 Although debates on 'public financial management' and its reform have typically not considered sectoral issues in depth, there is a wide literature on *policy* and *public expenditure* analysis in social sectors (e.g. Pradhan, 1996; Gottret and Shieber., 2006) that touches on some PFM issues.

(e.g. Andrews, 2013; Williamson, 2015; Levy, 2014). This approach puts a premium on starting with an agreed problem and 'purposeful muddling' towards improving functionality and performance and reduces the importance of the 'correct' form of a country's PFM system. This also places greater emphasis on the potential diversity of national systems in achieving functional effectiveness. Alongside this change of focus to *functional* effectiveness rather than *form*, greater attention has been paid to the question of what PFM systems actually achieve in terms of development outcomes (e.g. Welham et al., 2013). This debate has opened up the question of how PFM systems – and their problems – operate differently in particular sectors and within ministries and agencies outside the centre of government (e.g. Sida, 2007) in order to achieve specific results.

2.3. Conclusion

There is a clear recognition in the health policy field that health service delivery is more than just a question of adequate financing and technical choices. Health service delivery, as outlined particularly in the HSS debate, involves a number of often quite disparate sub-systems coming together with the right incentives in order to achieve quality outcomes. PFM systems will impinge more or less on each of these contributing sub-systems.

Thinking on PFM has developed from consideration of best-practice institutional reform focused on the central government or finance ministry issues to a greater focus on a bottom-up view of 'problems' that face government officials on the ground in sectors outside the finance ministry, alongside questions that ask 'PFM for what?' in terms of how financial systems can support service delivery in specific sectors.

This confluence of the two issues is already being considered by leading institutions in the field. The World Bank has recognised the paucity of evidence on relationship between PFM and service delivery and has set up a community of practice on this topic (World Bank, 2014). In addition, since 2007 the WHO International Health Partnership Plus (IHP+)[2] initiative and health financing policy work have taken up the issue of the need for better alignment between national financial management systems and the needs of the health sector. In addition, the USAID has funded a multi-year project into 'Health Finance and Governance' that deals with a number of issues related to PFM and health service delivery (USAID, n.d.).

This study aims to support this work by surveying the theoretical and empirical relationships between PFM and health service delivery in order to inform policy-making in health financing. Having discussed the evolution of the debate on health service delivery and PFM, Chapter 3 considers how the theoretical links between PFM and services delivery are currently conceptualised.

2 IHP+ has now become the International Health Partnership for UHC 2030, with four goals:
1. Improve coordination of HSS efforts for UHC at global level, including synergies with related technical networks.
2. Strengthen multi-stakeholder policy dialogue and coordination of HSS efforts in countries, including adherence to IHP+ principles and behaviours in countries receiving external assistance.
3. Facilitate accountability for progress towards HSS and UHC that contributes to a more integrated approach to accountability for SDG3.
4. Build political momentum around a shared global vision of HSS for UHC and advocate for sufficient, appropriate and well-coordinated resource allocation to HSS. See https://www.internationalhealthpartnership.net/en/about-ihp/transforming-ihp/

3. Assumed theoretical links between PFM and health service delivery

3.1. Introduction

Each national health system is unique. Healthcare is provided through a mix of public, private and not-for-profit providers; the government may provide services directly or contract out delivery to private or not-for-profit or voluntary sector providers; financing can come direct from government, insurance schemes (compulsory or voluntary, with or without subsidies) or out-of-pocket expenditures; local and central government may have different responsibilities for different elements of health services; and services themselves can be delivered through a mixture of primary, secondary and tertiary care facilities operating to varying clinical protocols.

Alongside this diversity of provision, health service delivery has particular challenges that differentiate it from other public services such as education (e.g. Arrow, 1963). Healthcare involves strong asymmetries of information between providers and consumers; a situation of potentially infinite demand; constantly changing options for medical procedures; unpredictable incidence and frequency of disease; and the possibility of catastrophic impact on livelihoods. These factors taken together make it a particularly difficult service to manage and deliver, and therefore less suited to a 'one-size-fits-all' approach.

Overall, this makes it very difficult to generalise across countries in terms of what 'public financial management and health service delivery' means. In one country, government's main role may be one of a 'regulator' that oversees the sustainable financing of social and private insurance schemes, which then contract with service providers directly according to government financial regulations. In this context, PFM may relate primarily to securing financial balance in the insurance system and enforcing effective financial regulations between funders and providers. In other contexts, healthcare may be funded and delivered by the public sector as an integrated service. Central and local government may be directly responsible for raising taxes, allocating health budgets, employing staff, procuring goods and services and ultimately accounting and reporting on expenditure and results. The PFM systems required in each of these examples will vary significantly.

A recognition of this diversity of approaches to health service delivery and PFM systems makes identification of *any* specific commonalities in the relationship between PFM and healthcare across countries – let alone suggestions of recommendations – very challenging, and perhaps impossible. Taking into account this challenge of diversity, the following discussion presents as a first stage how existing thinking in the field tends to consider the *theoretical* links between health services and PFM. After identifying these supposed theoretical links between PFM and service delivery in many different contexts and countries, we then formulate hypotheses that can be empirically tested by using the specifics of real-world cases to review related evidence.

3.2. Methodology

The conclusions of this chapter are drawn from a critical literature review of donor documents considering *public* services delivery and how this relates to PFM. Although the review looked at 'public' services predominantly from a PFM perspective, the points identified are applicable to the health sector. The task requires an element of critical review, focusing on both the explicit and implicit linkages that donors make between the issues; this work has therefore aimed to 'read between the lines' and expose implicit knowledge and assumptions.

The review considered published documentation from the eight largest donors to PFM over the past ten years, identified from the OECD CRS,[3] alongside material from WHO and the OECD which, although not donors, act as a policy and

3 These are International Development Association/World Bank; EU institutions; UK/DFID; Asian Development Bank; US/USAID; Germany/GIZ/BMZ; and Sweden/Sida.

knowledge hubs on these issues. This was done through a review of material on donor websites supplemented by a snowballed references search. The focus was on donor literature given donor agencies' role in funding PFM and health system reforms at the country level, the fact that they often take a multi-country or global view of these issues, and because they do much of the analytical and conceptual thinking on the relationships between them. Given the volume of material reviewed, sources used to develop the summary conclusions are cited only if specifically quoted. Although this work focused on reviewing donor documents, informal discussions of these findings with a small number of current and former donor officials has bolstered confidence that the findings are broadly valid. The findings also broadly align with the case-study evidence gathered in Nepal as part of this project (Hart, 2017).

3.3. Donor conceptualisations of the relationship between PFM and health service delivery

3.3.1. Overall conceptualisations of PFM in relation to service delivery

PFM receives a varying amount of attention in donors' overall strategic and policy frameworks. Several donor agencies have a number of strategic and policy publications that relate to PFM (such as the UK bilateral agency, the Department for International Development (DFID), the World Bank, the Swedish bilateral agency Sida, the German bilateral agency GIZ, and the Asian Development Bank (ADB)), whereas others have very limited publically available information on PFM policies and strategies (European Union (EU), USAID). Moreover, half of the donors that produced extensive PFM material did so several years ago. DFID, ADB and Sida's publications date from the 2000s and there is limited reference to PFM reform priorities in more recent policy notes. This perhaps reflects the emphasis in the early to mid-2000s on 'use of country systems' and corresponding policy interest in the quality of public finance systems in aid-recipient countries. Importantly, the available donor documents concerning PFM often focus on the *technical* aspects of the reforms (i.e. the best approach to delivering a certain reform) rather than their expected *impact* (either on service delivery or other development objectives).

The quality of a country's PFM system is important for many donors in making *aid programming choices*, including how to channel funds for service delivery. In particular, DFID, the EU and Sida all emphasise the importance of PFM systems in deciding on whether and how to pursue budget-support operations. Having sufficiently strong PFM systems is not only a minimum condition for budget support, but also an expected outcome of such interventions. Furthermore, these donors note that development of PFM systems is linked to the capability of governments to provide services (DFID, 2006; DFID, 2011; Lawson, 2012 cited in EU, 2015; Sida, 2007), suggesting the general idea that better PFM systems will – somehow – improve service delivery.

3.3.2. The particular relationships between PFM and service delivery

Many donors concur with internationally agreed principles and frameworks in seeing PFM as an important contributor to service delivery. The 'Manila Consensus on PFM', to which almost all the donors under consideration subscribed, spells out internationally agreed approaches to strengthen PFM systems and acknowledges the importance of PFM for effective service delivery and development results:

> *We, representatives of partner countries, multilateral and bilateral development organizations, parliaments and civil society note that strengthening Public Financial Management (PFM) is essential for effective and sustainable economic management and public service delivery. We recognize that weak PFM systems can be detrimental to development outcomes. (OECD, 2002)*

Many donors considered here are also funders of the Public Expenditure and Financial Accountability (PEFA) framework, and/or make frequent use of PEFA assessments because they believe they can provide information on the expected and assumed links between PFM and service delivery. To this end, the PEFA framework uses the traditional three objectives of PFM (as referred to in section 2.2): (i) aggregate fiscal discipline; (ii) strategic allocation of resources; and (iii) efficient service delivery (PEFA, 2011). This again suggests high-level agreement among some donors on the general idea that better PFM will result in more 'efficient service delivery'.

However, despite widespread acknowledgement that PFM and service delivery are positively linked in some way, donor policy documents provide only a superficial presentation of the exact linkages between PFM and improved service provision. In the reviewed literature, the association between the two is almost always described in only a few sentences, without specific explanation of the nature of the relationship or discussion of the evidence to support it. For example:

> *Since public funds are the cornerstone of sustainable financing for UHC in most countries, the public financial management system – the institutions, policies and processes that govern the use of public funds – plays a key role. (Cashin et al., 2017: 3)*

> *Good governance with strong public financial management and effective systems for managing teachers – including the recruitment, training and deployment of good teachers – are all features of effective education systems. (DFID, 2013a: 4)*

Governance problems limit the effectiveness of sector institutions, for example through weak financial management, poor procurement, corruption, or a lack of accountability and responsiveness to users. (DFID, 2011: 12)

Only a few donor documents go into further detail regarding the linkages between PFM and service delivery and/or healthcare. In 2007, Sida produced a 'PFM Handbook', which contains a chapter dedicated to identifying sector interests and needs in relation to PFM reform (Sida, 2007). In addition, GIZ published *Good Financial Governance in Sector Ministries* (GIZ, 2014), which focuses on the same questions of public finance and service delivery. In each case, the relevant publication stops short of suggesting what specific types of reforms are necessary to link PFM and service delivery, but outlines in detail what PFM considerations might be particularly important in different sectors, and how these might affect overall results. WHO has produced perhaps the most detailed discussion of PFM systems and healthcare in a working paper outlining the various ways in which PFM systems and the requirements of health financing may be (mis)aligned (Cashin et al., 2017). It identifies three specific areas (revenue raising; pooling of funds; purchasing) where the requirements of health systems may not align easily with traditional or 'standard' PFM systems. The discussion links health financing requirements to specific PFM (sub-) functions across the budget cycle, and then identifies potential dysfunctions where health finance needs and standard PFM systems can clash (see Box 3).

Overall, while these discussions expand the debate on PFM and (health) service delivery, they do not collectively put forward a *comprehensive theory* about the relationship between them. The documents – as would be expected from policy-focused advisory tools – focus instead on

Box 3. Health financing and PFM functions – conditions and challenges from WHO research

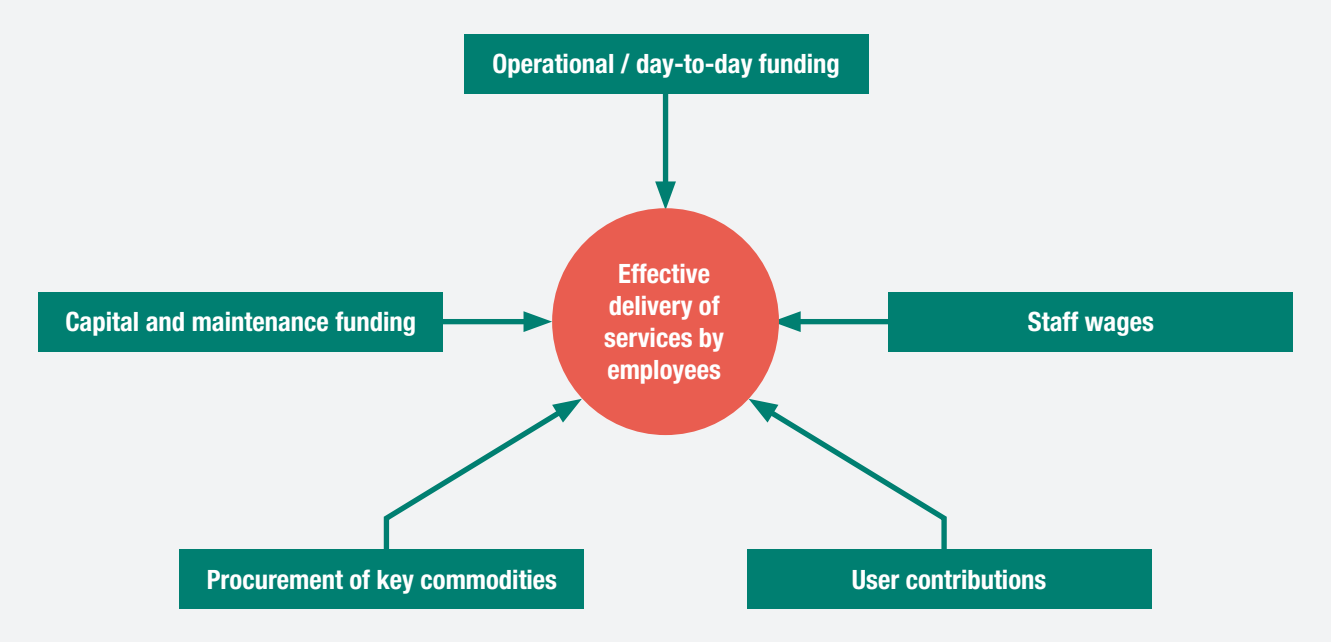
One of the most developed assessments of the various ways in which PFM systems can align – or misalign – with the requirements of health systems comes from work undertaken by the WHO work stream looking at health governance and financing. In many ways, this is similar to the GIZ approach to identifying specific risks in the standard budget cycle that might have a negative impact on service-delivery objectives. Three categories – 'revenue raising', 'pooling' and 'strategic purchasing' – are used to follow the standard stages of the budget cycle and identify where there are risks to effective delivery of health services because of PFM misalignments or policy challenges. In doing so, the three areas identified in the document cover almost all the actions of a typical budget cycle, with the exception of external audit. Taken together, this provides perhaps the most holistic understanding of the various stages in the typical or standard budget process where 'things may go wrong' with regard to the requirements of health services in particular.

The budget cycle and the three categories are considered together in the model as follows:

Health financing function identified by WHO	Associated PFM function	Common challenges
'Revenue raising'	Policy/strategy Revenue projection Budget formulation Budget classification	Budget ceilings do not reflect political commitments Budget classifications do not allow flexibility Poor revenue forecasting leads to unrealistic allocations Poor tax administration leads to under-collection
'Pooling'	Budget formulation	Fiscal decentralisation leads to inequities in funding Different health funding streams (e.g. private insurance, public funding) are handled differently in budget formulation Different parts of the health budget (e.g. salaries, drugs procurement) are handled by different ministries Donor funds are fragmented and poorly integrated with domestic revenue
'Purchasing'	Budget formulation Budget execution and payment Accounting and reporting	Health needs are not matched to budgets, e.g. budgets are based on administrative inputs not outcomes/needs; different purchasing arrangements apply to different revenue streams (government, donor, social insurance) Providers lack autonomy to respond to incentives Private sector cannot engage Government procurement rules reduce flexibility in matching inputs with need Release of funding is delayed, making credible contracting difficult Information systems are poor and do not provide monitoring capacity

Source: adapted from Cashin et al., 2017

Figure 1. Example of the PFM-related inputs required for public services delivery



Source: adapted from Welham et al., 2013

partial conceptualisations of *some* relationships in order to identify particular problems. However, despite their value as diagnostic tools, they represent more a comprehensive list of problems to be aware of, rather than a theory of how PFM and its reform relate to service delivery.

Reading tentatively between the lines, it could be assumed that most donors are working with an implicit (and common-sense) assumption that PFM systems support the provision of the numerous inputs needed for service delivery – including health service delivery – to take place. This is, as noted above, a working assumption of the HSS literature. Donors may consider it to be stating the obvious to formally suggest that numerous inputs are required for public services delivery to take place, and that PFM systems are partly responsible for ensuring their delivery.

Some donor discussion has taken the 'common-sense' assumption about the role of PFM in supporting service delivery to discuss in more detail the different elements of the budget cycle, and how these might interact with service delivery (see Figure 1., above, as an example).

Upstream elements of the budget process

Some donor thinking addresses the links between improved upstream budget formulation and service delivery. Although this is not always explicitly stated, the general underlying theory is that improved upstream budget processes will result in better allocations, which will enhance overall allocative efficiency and ensure that public spending (both across sectors and within the health sector) is well targeted to the most effective uses. A PEFA sequencing paper suggests that programme classification, programme budgeting and performance budgeting are three essential components for

Box 4. Understanding 'PFM' and 'health service delivery' in Nepal

Government officials working in healthcare and PFM in Nepal demonstrated a 'common-sense' and implicit understanding of how health service delivery relates to PFM.

Very few interviewees in Nepal were able to articulate clear linkages between PFM and health service delivery, despite significant donor investment in both the health sector and in PFM systems. Much of the focus of this investment has been on improving financial reporting, and donor-supported reforms have successfully eliminated delays in producing financial statements. However, the main impact of these reforms on service delivery appears to have been in guaranteeing the continued flow of donor resources, which account for around a third of Nepal's health budget, rather than on health service delivery. Theoretically, this improved reporting could also indirectly improve service delivery by informing future budget allocations, but this does not seem to have happened in practice and respondents did not make this link.

Aside from this the only link between PFM and service delivery that was clearly articulated was between (the lack of) procurement of drugs and the negative direct impact on service delivery caused by shortages, which was a particularly severe problem at the time of the research.

Source: Hart, 2017

improved service delivery (PEFA, 2013). In a similar vein, the single ADB PFM-focused governance brief that refers to service delivery is the MTEF brief. It suggests that MTEFs should help improve allocative efficiency as they provide a framework to establish policy-driven spending choices (ADB, 2001/2). Even though the World Bank's 2004 *World Development Report* 'Making Services Work for Poor People' (World Bank, 2004) does not single out the key primary inputs for improved service delivery, it does suggest that budget-formulation activities are key for addressing some of the broader binding constraints of better sector outcomes. For instance, it suggests that aggregate fiscal discipline is important for pro-poor service delivery and can be addressed by better budget formulation, while also suggesting that allocative efficiency can be achieved through implementing MTEFs. WHO's analysis of challenges in aligning PFM systems and health financing identifies a number of upstream budget processes that might support health service delivery (e.g. earmarking revenue flows; improved budget planning; output-based financing models) (Cashin et al., 2017).

Downstream elements of the budget process

Some donor documents suggest that improved technical efficiency of downstream budget execution will strengthen service delivery because leakage and other forms of financial wastage are minimised – again with a positive direct impact on the delivery of services. For example, in one of the more developed discussions of the links between PFM systems and service delivery, an EU-funded PFM evaluation examined the extent to which PFM outcomes have been relevant, among other things, to increasing the quality of services. To measure this they propose a set of indicators, derived from PEFA, that focus on the effectiveness of the financial transfer systems, and the extent to which information on financial performance is available to citizens/delivery units. Regarding the effectiveness of the actual transfers, they highlight: predictability of budget execution, so that service-delivery units receive the necessary inputs; and information on resources received by service-delivery units, to facilitate monitoring and reporting of transfers (Lawson, 2012). In addition, and in a similar vein, a DFID business case for a PFM project proposal for Tanzania identifies as a causal link between PFM and service delivery 'predictability and timeliness of fiscal transfers' (DFID, 2012). Other documents identify financial autonomy for healthcare providers and results-based financing payment systems as supporting health service delivery (Cashin et al., 2017).

3.3.3. Transparency and accountability elements of the budget process

Some donor thinking also notes that PFM can improve service delivery *indirectly* by facilitating more effective *bottom-up* accountability. The 2004 *World Development Report* (World Bank, 2004) is the most detailed on this relationship. In instances where politics is not pro-poor and the 'long-route' accountability chain through political participation is not working effectively, it suggests that financial information should be shared with clients/the public, so that they can hold the service providers to account more directly. This means that PFM-related issues such as accounting and reporting, publishing national budgets, developing citizens' budgets, as well as supporting general public finance transparency, can contribute indirectly to improved service delivery. At the same time, it acknowledges the need to ensure the legal, political and economic means for the public and/or other institutions to use the information to hold providers accountable. This requires strengthening of the formal accountability institutions, such as the independent audit authorities, and/or helping to establish new bodies to enhance accountability.

PFM systems can also contribute to service delivery indirectly by facilitating better *top-down* accountability through performance management. A recent World Bank report on local success stories in service delivery in the Middle East and North Africa region talks about the importance of performance management information and internal audit in delivering effective services (Brixi et al., 2015). In 2004 *World Development Report* terminology, this relates to supporting 'contracting' and managing principal–agent challenges – which it considers to be the main way to encourage accountability for delivery between policy-makers and providers. Both reports identify the importance of using performance information to support performance management, particularly managers' ability to hold their officials to account and use sanctions and rewards to change behaviour. PFM systems can provide some of the information and data that will inform this kind of top-down performance-management system.

3.3.4. Other issues that might affect the relationship between PFM and service delivery

Interests and objectives of finance ministries compared to sector ministries

Some donor documents note that PFM objectives can be different at the sector and ministry of finance level, and that it is sector-level objectives that must be considered in order to improve service delivery. Both GIZ (2014) and Sida (2007) discuss the importance of including both sector and finance ministry interests in PFM reform programmes. GIZ (2014) suggests that tensions between sector ministries and the ministries managing the budget may be greater if there is a dominant finance ministry or the management of the budget process is split across the ministry of finance and ministry of planning. Other literature suggests that sector ministries, including ministries of health, should 'learn the language' of public finance in order to better communicate with, and improve their influencing of, finance ministries (Kanthor and Erickson, 2013). Sida (2007) suggests that finance ministries are primarily interested in fiscal discipline and allocations across sectors,

whereas sector ministries are primarily interested in inter-sectoral allocations and allocations below headquarter level. As a result, the needs for PFM reforms are different between sectors and finance ministries.

Specific constraints within each sector

There is a literature that discusses the nature of particular structural and governance constraints for individual service-delivery sectors and how this relates to strategies to improve service delivery (e.g. Mcloughlin and Batley, 2012). This literature suggests that certain governance reforms are more appropriate for some sectors, based on the nature of the sector and of the good being delivered (e.g. public goods, club goods, private goods). For example, user charges are more feasible as a policy for sector reform where goods are excludable (i.e. those who do not pay can be denied service) and access is easy to monitor (i.e. it is clear who has benefited from the service and who has not). This thinking promotes the idea that the optimal institutional and financial arrangements to promote delivery of public services will vary by sector, implying that different PFM arrangements will be necessary to deliver different types of service (e.g. delivering health services compared to building roads). However, this implication has not been thoroughly extended to explain what the specifics of the PFM system should be according to each type of good, including healthcare.

The limits on measuring the relationship between PFM and service delivery

Some donor literature discusses the challenges of measuring the concept of PFM system effectiveness in order to link it meaningfully with service delivery. Some writers suggest that the limitations of the existing set of PFM monitoring and assessment indicators are one of the reasons why the relationship between PFM and service delivery is not well understood (Fritz et al., 2012; Fritz et al., 2014). It suggests that there are relatively few tools for this kind of analysis, and that the analysis they produce is inadequate to understand how PFM and service delivery are linked. Specifically, it is noted that only three of the 20 commonly used PFM-related diagnostic assessments directly refer to elements of service delivery: PETS, Public Expenditure Reviews and International Organisation of Supreme Audit Institutions assessments (PEFA, 2010). This works alongside the common critique that many PFM assessment exercises fail to monitor actual system *functionality* (such as the regularity of public-sector salary payments, actual budget execution rates at disaggregated levels, or the tracking responses to findings by internal audits and external audits) and focus instead on the *form* of official PFM systems (e.g. the existence of formal rules and regulations) (Hadley and Miller, 2016). This suggests a view in some areas that existing and commonly used metrics of PFM performance are simply not capturing information on the right issues that can then be more explicitly linked with public services delivery.

The need for additional research and analysis

Donors appear to acknowledge the lack of analysis and evidence in this area and often call for further research. One study notes that even after 20 years of PFM research *'[h]ow we can better measure impacts of PFM quality on service delivery capabilities remains a field for further investigation'* (Fritz et al., 2014). Indeed, one of the top recommendations from a DFID literature review on PFM was to better understand the link between PFM and service delivery (DFID, 2009). A World Bank review of PFM reforms in fragile states recommends further work to explore how and when different factors affect service delivery (Fritz et al., 2012). A more recent public-sector governance-reform review (DFID, 2013b) made a similar suggestion, noting that more attention should be given to improving service delivery as part of DFID's governance programmes.

3.4. Conclusion

There appears to be general agreement in the donor literature that PFM and service delivery (including healthcare) are linked and that strong and/or better PFM systems will in some way support improved service delivery (see table 1). However, the detailed conceptualisation of how the two concepts link, by what specific mechanism(s), and under what circumstances, is not fully explained in the literature. Reading between the lines, there is a common-sense assumption that service delivery, including health services, requires certain inputs to be in place; and that PFM systems are partly responsible for providing many of these inputs. The strength of PFM systems will often affect the way in which donors will provide aid to support service delivery, particularly in terms of the perceived fiduciary risk of direct financial aid to government. Accountability relationships can be strengthened in both a top-down and bottom-up manner through the ability of PFM systems to provide relevant information.

The donor literature does not present a comprehensive conceptualisation of how PFM systems relate to service delivery. The literature does contain some more detailed considerations of specific upstream and downstream elements of the budget process that might positively or negatively affect service delivery, although there is limited evidence to justify the selected budget process features (which, taken in aggregate, cover most parts of the 'traditional' stages of the budget cycle). The literature also suggests that central government (through the finance ministry) and service-delivery sectors (through line ministries) may have different objectives and interests in relation to PFM reform; and indeed there is scope in some contexts to improve the quality of the dialogue between the two actors.

The literature appears to draw a divide between *direct* and *indirect* impacts of the PFM system. Upstream (budget preparation) and downstream (budget execution) systems are implicitly suggested to have a direct impact on service delivery; whereas it is also noted that PFM systems can have a role in *indirectly* supporting both bottom-up and top-down accountability structures by providing the necessary financial information.

Donor literature also raises some questions regarding the knowledge base in this field. Some donors explicitly note the relative paucity of evidence regarding the relationship between PFM and service delivery and call for further evidence. Other literature reviewed questioned whether the existing set of PFM diagnostic assessment indicators are able to capture the information necessary to fully explore the link between PFM and service delivery.

3.4.1. Linking this to the empirical work

This review provides a useful background to the current state of understanding of these concepts among a key constituency and potential user of the findings of this research. The fact that the donor literature calls for more research, does not consistently provide clear evidence for clear links between the two topics, and in some ways questions the ability of existing indicator sets to provide meaningful information on this kind of enquiry, suggests there is value in pursuing this kind of research.

This chapter has explored and presented a summary of the expected and assumed links between these two issues. Chapter 4 reviews the existing academic literature to identify and/or confirm these and other theoretical hypotheses and then summarise the state of the empirical evidence that underpins these assumed links.

Table 1. Summary of donor assumptions on the relationships between PFM and health service delivery

PFM element	Summary of the theorised link between PFM and health service delivery extrapolating from donor literature
General conclusions on PFM and service delivery	
PFM systems in general	Better PFM systems will support better service delivery
Decisions on whether to use country systems through general/sector budget support or other modalities	Better PFM systems mean more assurance that donor funds will be used appropriately and therefore less risk of misuse Better PFM systems will allow for more/greater use of country systems
Upstream elements of the budget process	
Strategic budgeting across government (e.g. through MTEFs or other forms of medium-term budgeting)	Effective MTEFs support strategic budgeting and improve allocative efficiency by providing a clearer framework to make policy-driven spending choices Predictable multi-year resource allocation allows for medium-term planning for health services
Budget preparation and classification	Good budget preparation processes result in allocative efficiency with public spending effectively targeted at health needs Good budget preparation avoids inequities of funding to decentralised government Good budget preparation processes allow for flexibility in deployment of health resources Good budget preparation processes avoid excessive rigidity in classifying by line item/facility rather than by need/outputs
Downstream elements of the budget process	
Execution of budget to allow for purchasing/provision of inputs	Predictable and timely provision and/or purchasing of inputs through effective budget execution (e.g. payment of staff salaries, procurement of drugs, provision of operating costs to health facilities; supply of capital and maintenance funding) is an essential part of health service delivery Leakage of funds must be minimised to ensure funds reach intended beneficiaries Financial autonomy of, and in some cases result-based payments to, health facilities can improve service delivery
Transparency and accountability in the budget process	
Top-down accountability	Service managers can use information on resources budgeted, received and used by heath facilities to hold providers accountable for delivery
Bottom-up accountability	Citizens/service users/civil society can use information on resources budgeted, received and used by health facilities to hold providers accountable for delivery
Other issues	
Wider constraints and issues in the PFM/service delivery relationship	Health ministries and finance ministries have different interests and different 'languages' in approaching reform of PFM systems for health delivery The structural nature of healthcare services (e.g. unpredictable, some public good benefits, potentially infinite private demand, potential for catastrophic loss to households) requires particular PFM systems

4. Literature review on the relationship between health service delivery and PFM

4.1. Approaching the literature review

To begin considering the empirical evidence for the assumed links between PFM and health service delivery, a literature review of the existing knowledge base was undertaken. The literature review aimed to build on the review of donor assumptions by (i) identifying a number of implicit hypotheses in the debate that in many cases match those assumed by donors; and (ii) reviewing the evidence from published sources that would support or refute the hypotheses. The Centre for Health Economics at the University of York undertook the review. A more detailed version of this analysis and search strategy is published as a separate document (Goryakin et al., 2017) (see Annex 2 for a full list of the sources reviewed).

4.1.1. Literature review methodology

The literature review used biomedical and economics search engines (PubMed and EconLit), as well as Google Scholar. It was restricted to English-language publications from 1996 to 2016. The database search resulted in 782 references, and the first 200 Google Scholar articles for each search term were also reviewed. These results were then further narrowed down by a manual review based on relevance, resulting in a final selection of 52 articles for review[4].

These shortlisted articles were then divided into three groups:

- System quality – studies looking at the overall quality of PFM systems and their impact on health service delivery. This group also included a number of studies looking at the quality of governance *more generally* and its relationship to health service delivery.
- Specific PFM reforms – studies looking at the impact of specific PFM reforms, such as MTEFs, budget transparency, participatory budgeting and decentralisation.
- Donor-related reforms – including a number of studies that considered the impact of donor-related reforms on health service delivery, such as the introduction of sector-wide approaches (SWAps).

For each group of studies, the theoretical hypotheses being implicitly or explicitly tested by the literature were identified; in practice these were typically a reformulation of the various implicit and explicit assumptions held by donors, as outlined in Chapter 3. The literature review then made a judgment on the strength of the evidence supporting each hypothesis.

4.1.2. Data challenges

Overall, across the three areas considered there was only patchy evidence to support the existence of a relationship between PFM and/or the impact of PFM reform and health results. The number of studies identified, and the number of high quality and large-n studies in particular, was relatively small. Perhaps most notable was the relative lack of studies that look at how specific parts of the PFM system affect health service delivery (e.g. procurement, information systems). Furthermore, a significant proportion of reviewed articles looking at the second group (specific PFM reforms and their impact on health service delivery) and third group of issues (donor reforms and their relationship with health service delivery) were single-country case studies, where significant caution must be exercised in extrapolating findings to other contexts; or qualitative studies where the methodology and logic used to determine the conclusion were unclear.

The most developed area in the literature reviewed looked at the 'system quality' issue of the relationship between 'good governance' and health services (11 empirical articles, with most of them of high-quality design). One of the strongest and most consistent findings from this review was that

4. References in this section are in Annex 2.

health spending overall is more effective in countries that are better governed; and that PFM systems quality is typically an element (albeit often a small one) in considering 'quality of governance'. This accords with the literature reviewed to undertake the quantitative analysis in Chapter 5. In contrast only two studies looked at the impact of *PFM system quality* (measured directly) on health service delivery (Fonchamnyo and Sama, 2016; Fritz et al., 2014).

The literature review raised other issues related to the quantity and quality of the data. First, and as discussed above, the few attempts that have been made to link PFM and health service delivery at a high level use mostly aggregate scores that typically combine the influence of several relevant – and irrelevant – sub-dimensions. To avoid having too few studies in this review, therefore, it was necessary to broaden the definition of PFM to include studies that considered some dimensions of 'governance' at least potentially related to the quality of PFM. Second, the studies reviewed tended to measure the performance of health services by population-level health outcomes such as infant mortality or maternal mortality. While such data is easy to obtain, population-level health outcomes are driven by a number of factors beyond the effectiveness of the national health system, and such measures may not be sufficiently sensitive to changes in inputs to the health service specifically. A further limitation in the reviewed evidence is that most studies estimated only simple *associations*, although there were a few exceptions that used more advanced econometric designs such as instrumental variable analysis and panel regressions and one study that used a random assignment of participants to a monitoring intervention that provides more information on causation (Bjorkman and Svensson, 2007). Overall, however, the simple design of many of the studies reviewed limits the internal validity of their conclusions.

These facts are perhaps an interesting finding in themselves. They concur with the conclusions of Chapter 3, that despite donors' strong sense that there *must be* a some link between PFM and health service delivery, there is a lack of data and high-quality evidence on the *specific* relationship between them.

This lack of clear evidence of a connection may suggest two explanations. First, that there is simply little or no link between the quality of PFM systems and health service delivery, and the existing evidence accurately reflects this. Second, that there is a relationship, but for various reasons it has not yet been demonstrated. Both the preceding discussion and the evidence from the literature review, provide reasons to think the latter explanation may be the case.

It is hard to demonstrate such a relationship because of measurement error. As shown in the discussion of the PEFA indicators, it is hard to measure the functionality of PFM systems, as opposed to their form. Without accurate measures of PFM functions, it is difficult to properly measure their impact and relate them to health service delivery. On the health side, ideally the variable of interest would be a measure of effective public health service coverage (which the PFM system directly affects). However, data limitations mean that broader population health measures are often used instead (such as child mortality or life expectancy). These population health outcomes will be determined by a number of factors outside the functioning and effectiveness of the health system, and the impact of the PFM system on it, making any relationship harder to detect. Beyond these measurement problems, there is also a conceptual problem with isolating the concept of PFM. PFM is one aspect of 'good governance', and how the PFM system operates depends on the broader institutional and political context. There is strong evidence of the positive impact of good governance, of which PFM is one component, on health service delivery. This provides some tentative support to the idea that the relationship is difficult to identify rather than that is does not exist. But it also provides tentative support to the idea that what matters is a broader set of governance relations, of which one part is the PFM system, and that the specific impact of PFM systems is uncertain.

4.2. Key findings from the literature review

The above discussion has noted that there is relatively patchy evidence on the issue of PFM and health service delivery in general. Relating this to the three groups of studies identified above, Table 2 sets out the implicit hypotheses being considered by the studies under review, and summarises the evidence found in the literature review. (For the full literature review see Goryakin et al., 2017.) Donor assumptions identified in the relevant literature predict that high-quality PFM systems will have a positive impact on various performance dimensions of health service delivery. However, the evidence from the empirical studies reviewed is mixed and limited in quantity, though for the most part indicating some positive impact – at least at the higher level of overall system quality of 'governance'. The evidence is similarly conflicting regarding the impact on health service delivery of introducing specific PFM-related reforms, such as MTEFs and activity based budgets, although the (very limited) evidence does indicate some positive impact.

A key finding is that good governance appears to have a positive role in health service delivery. A range of good governance indicators was found to be positively related to health service delivery outcomes, while corruption was persistently negatively related to many of these outcomes. One of the strongest and most consistent findings was the evidence that increased public funding of health programmes is likely to be more effective in countries with better governance. There is also strong evidence of a positive relationship between health service delivery-related outcomes and various indicators of transparency.

Table 2. Hypotheses on PFM and health service delivery and summary of evidence

Hypothesis	Summary of evidence	Key sources
Quality of systems		
Hypothesis 1: Better PFM quality is positively related to health service delivery.	The evidence on the impact of PFM quality (as measured by broad, generic indicators) on health service delivery is uncertain. One study found that the Country Policy and Institutional Assessment (CPIA) quality of budgetary and financial management rating had a positive and significant association with public-sector efficiency in the health sector (Fonchamnyo and Sama, 2016). Another found that more focused PEFA scores and the broader CPIA index were unrelated to efficiency in health service delivery (Fritz et al., 2014).	Fonchamnyo and Sama, 2016; Frtiz et al., 2014.
Hypothesis 2: The quality of general governance is positively related to health service delivery, including health outcomes.	A range of quality of governance indicators (which in some cases include a PFM-related element) was generally positively related to health service delivery-related outcomes (Holmberg and Rothstein, 2011; Hu and Mendoza, 2013; Rajkumar and Swaroop, 2008 and the corruption-focused studies below).	Azfar and Gurgur, 2008; Burnside and Dollar, 1998; Feeny and Rogers, 2008; Gauthier and Wane, 2009; Gupta et al., 2002; Holmberg and Rothstein, 2011; Hu and Mendoza, 2013; Lewis, 2006; Rajkumar and Swaroop, 2008; Wagstaff and Claeson, 2004.
Hypothesis 3: The extent of corruption is negatively related to health service delivery, including health outcomes.	Corruption was negatively related to a range of health service delivery-related outcomes	
Hypothesis 4: Good governance helps translate public health spending into more effective health service delivery.	In all but one of the reviewed studies, public spending on health was more effective in better-governed systems (Holmberg and Rothstein, 2011; Rajkumar and Swaroop, 2008; Lewis, 2006; Wagstaff and Claeson, 2004; Feeny and Rogers, 2008; Burnside and Dollar, 1998; this result was not statistically significant in Hu and Mendoza, 2013; Filmer and Pritchett (1999) attribute their finding that public spending accounts for less than 1% of the variation in child mortality rates to a potential lack of efficacy in public sector spending, which in turn may be related to the quality of public sector institutions.). One of the strongest and most consistent findings was the evidence that simply increasing public expenditure on health programmes is likely to be less effective in improving health results in poorly governed countries than in countries that are better governed (with many measures of 'governance' including elements of quality of PFM). Good governance is also likely to be positively correlated with public-sector efficiency in achieving good population health.	
Impact of PFM reforms		
Hypothesis 5: The introduction of MTEF systems is likely to lead to improvements in health service delivery.	The evidence base on the positive impact of MTEF reforms on health service delivery is small and conflicting, consisting of only three studies. Two cross-country studies (Brumby et al., 2013; Vlaicu et al., 2014) found that MTEF reforms improve fiscal discipline and budget reliability (reduced volatility of expenditure), and that the most advanced MTEF reforms, medium-term performance frameworks, can improve the cost-effectiveness and technical efficiency of public health expenditure.	Bevan et al., 2000; Brumby et al., 2013; Vlaicu et al., 2014.
Hypothesis 6: Fiscal and budgetary transparency are positively correlated with health service delivery.	The quality of the research design was weak in most studies in this area. There is evidence of a positive relationship between various indicators of fiscal and budget transparency and health outcomes in several studies (de Renzio et al., 2005; Cimpoeru, 2015; Simson, 2014; Fukuda-Parr et al., 2011; Bellver and Kaufmann, 2005) as well as to service delivery-related outcomes (Bellver and Kaufmann, 2005). There is evidence of greater funding allocations on the health sector (as well as greater reliability of health-sector funding) in countries with greater budget transparency and less corruption (Sarr, 2015; Simson, 2014; Robinson, 2006; Gauthier, 2006; Ablo and Reinikka, 1998; Mauro 1998). In some cases, this was even translated to better health outcomes, such as lower infant mortality rates, as well as better use of health services.	Ablo and Reinikka, 1998; Barata and Cain, 2001; Bellver and Kaufmann, 2005; Cimpoeru, 2015; de Renzio et al., 2005; Fukuda-Parr et al., 2011; Gauthier, 2006; Mauro, 1998 Robins, 2001; Robinson, 2006; Sarr, 2015; Simson, 2014.

Hypothesis	Summary of evidence	Key sources
Hypothesis 7: Transparency and accountability initiatives such as participatory budgeting and community scorecards will be positively correlated with health service delivery.	There is some evidence on the positive impact of initiatives such as participatory budgeting (Gonçalves, 2014; Baiochhi et al., 2006; Touchton and Wampler, 2014) and community scorecards (Ho et al., 2015; Mistra and Ramasankar, 2007; Bjorkman and Svensson, 2007; Edward et al., 2011) on health outcomes. Greater participation of stakeholders in the design, implementation and evaluation of health services may be an effective way to improve their quality.	Baiochhi et al., 2006; Bjorkman and Svensson, 2007; Edward et al., 2011; Gonçalves, 2014; Ho et al., 2015; McGee, 2010; Mistra and Ramasankar, 2007; Touchton and Wampler, 2014.
Hypothesis 8: Fiscal decentralisation is likely to lead to better health service delivery outcomes, although the effect is likely to depend on local institutional capacity.	Fiscal decentralisation in general was found to be positively related to positive health and services delivery outcomes (Asfaw et al., 2007). Decentralisation is more likely to deliver positive results where there is sufficient local institutional capacity and accountability (Robalino et al., 2001; Soto et al., 2012; Uchimura and Jütting, 2009; Habibi et al., 2003). Decentralisation may also lead to some negative impacts on health services, such as declining proportions of budgets going to primary health care or other public goods (Channa and Faguet, 2016; Akin et al., 2005; Brixi et al., 2013). Evidence does not indicate that decentralisation is unambiguously positive for health service delivery (Channa and Faguet, 2016; Khaleghian, 2004).	Akin et al., 2005; Asfaw et al., 2007 Brixi et al., 2013 Channa and Faguet, 2016; Habibi et al., 2003 Khaleghian, 2004; Robalino et al., 2001; Soto et al., 2012; Uchimura and Jütting, 2009.
Hypothesis 9: Activity-based budgeting is likely to be positively related to health service delivery outcomes.	There is limited evidence on the impact of activity-based budgeting. One study found it had limited impact on cost-effectiveness and cost containment (Bentes et al., 2004).	Bentes et al., 2004; Chaulagai et al., 2005; Fritz et al., 2012; Vian and Collins, 2006.
Hypothesis 10: Introduction of a health management information system (HMIS) is likely to lead to better health service delivery outcomes.	No evidence was found on the impact of IFMISs on health service delivery, although one study of an HMIS in the health sector found that there was no empirical evidence that their introduction led to better decision-making (Chaulagai et al., 2005).	
Impact of donor reforms		
Hypothesis 11: Introduction of SWAps is likely to be positively correlated with health service delivery, although its predicted impact on aid flows towards health is less certain as donors may reduce aid in response to losing control over how it is spent.	Evidence on the impact of SWAps was mixed. In one case a range of health service delivery outcomes declined, despite the increases in health funding from the SWAp (Bodart et al., 2001). In another the introduction of the SWAp was found to be related to small improvements in the administrative efficiency of the health sector, although the effect on technical efficiency was negative (Chansa et al., 2008). Another case provided tentative evidence that SWAps may contribute to better service delivery by increasing the reliability of funding flows to the district level (Dickinson, 2011).	Bodart et al., 2001; Chansa et al., 2008; Dickinson, 2011.

In terms of more specific PFM-related reform, greater accountability and responsiveness was found to have a positive relationship with health outcomes. There is some evidence for the positive impact of participatory initiatives such as participatory budgeting and community scorecards – albeit based on a limited number of studies. Fiscal decentralisation in general was found to be positively related to good health and services delivery outcomes, especially in communities with sufficient local institutional capacity and accountability. However, the evidence suggests that decentralisation may also entail some potentially undesirable consequences, such as a decline in the share of the budget going to primary health care. It should be borne in mind that in general the number of studies in this review is relatively small, and in some cases there are very few to respond to specific hypotheses.

Relating these findings to the earlier discussion suggests a number of conclusions. First, to the degree that 'good governance' includes an element of 'good PFM', the system quality studies tentatively support the idea that better PFM systems will support better health services. It also suggests that whereas donors may have – implicitly or explicitly – identified a number of upstream, downstream, direct and indirect channels through which PFM may exert a positive impact on services delivery, the evidence for validity of these assumed links is variable. Certain accountability, transparency and (perhaps) decentralisation reforms appear to be positively related to health service delivery in some studies. The importance of upstream initiatives such as SWAps, MTEFs and activity-based costing to delivering better health services is less clear, and the evidence is not extensive.

This chapter and Chapter 3 have considered the relationship between PFM, PFM reform and health service delivery through two forms of literature review – a review of donor assumptions and a review of the existing literature on the topic. It has identified hypotheses regarding the links between PFM and health service delivery, and presented a review of the existing evidence to test the empirical validity of these hypotheses. Chapter 5 considers the link between PFM and health services through the generation of original econometric evidence.

5. Quantitative approaches to linking PFM and health outcomes

5.1. Introduction

This chapter considers the available quantitative evidence regarding whether countries with better PFM systems have better health outcomes, controlling for other intervening factors. This empirical study follows on from the discussion of donor and academic literature in Chapters 3 and 4 by attempting to generate original evidence to test the widely hypothesised and key assumption that better PFM systems support better health service delivery, and therefore health outcomes. The estimation methodology faces several challenges – including identifying relevant proxies for PFM quality and limited cross-country data – which are discussed in detail below. The findings should therefore be seen as a first step to filling the gap in the literature and providing some tentative conclusions on this topic.

5.2. Previous studies

As noted in the literature review discussion, existing empirical studies investigating the institutional determinants of health outcomes have tended to focus on broad governance measures (e.g. Hu and Mendoza, 2013; Uchimura and Jütting, 2009) rather than on PFM specifically. These studies find that a wide range of governance indicators are generally positively related to health service delivery-related outcomes. These are discussed in greater detail below.

Relatively few studies have examined the linkages between PFM performance and specific outcome variables. Those that have done so have focused primarily on linking PFM to measures of aggregate fiscal performance (for example, the budget deficit) rather than to services delivery outcomes (e.g. von Hagen and Harden, 1996; Prakash and Cabezon, 2008; Alesina and Perotti, 1996). Generally, the findings from these studies confirm a relationship between better PFM systems and a more sustainable fiscal balance, albeit with various caveats and nuances.

Of the even fewer studies that aim to link PFM performance to services delivery outcomes, most tend to rely on extremely parsimonious models. For example, Fritz et al. (2014), finding no evidence that health results relative to public-sector spending (i.e. cost-effectiveness) are better in countries with stronger PFM systems, control only for income. There is a greater likelihood, therefore, of omitted variable bias (i.e. the risk that a factor outside the scope of the study is the real determining factor in the relationship between the dependent and independent variables).

5.3. Data and variables

To estimate the effect of the PFM quality on health outcomes and generate empirical data to support or refute the assumption that there is such a link, this approach uses an ordinary least squares (OLS) regression. For the dependent variable, three measures of health outcomes are used: infant mortality rate, under-five mortality rate and life expectancy at birth. These measures are chosen because they are widely used in the other literature on governance and health policy, in large part due to their availability for a large set of countries; and because they are widely perceived as reliable aggregate measures of the population's health status. Following previous studies (Wagstaff and Claeson, 2004; Filmer and Pritchett, 1999; Çevik and Taşar, 2013), these variables are transformed by taking their natural logarithm for easier interpretation of coefficients. As noted above, the limited data availability of more intermediate health outputs (such as the proportion of births attended by skilled personnel or availability of generic medicines), together with the lack of standardisation of these measures across countries, constrains the possibility of examining the relationship between the selected PFM variable and these more intermediate measures.

For the independent variable (i.e. the measure of PFM quality), the data set used is the Public Expenditure and Financial Accountability (PEFA) score average, using the 2011 PEFA methodology. The PEFA assessment is widely regarded as the most comprehensive reflection of a

country's PFM performance based on detailed in-country assessments. PEFA offers more specificity and detail than other commonly used measures of the strength of PFM systems, such as the World Bank's CPIA-13[5] quality of budgetary and financial management. PEFA comprises 28 indicators which assess the quality of institutional arrangements at all stages of the budget cycle, together with cross-cutting PFM-related dimensions and overall outcome indicators of budget credibility.

To transform the raw PEFA scores into the PEFA average independent variable, a series of steps was followed. First, only those indicators that cover the quality of PFM systems on the expenditure side were considered. As a result, indicators PI-1 to PI-4 (which measure PFM outcomes and not the quality of underlying PFM systems) were excluded. Indicators PI-13 to PI-15 (which cover transparency and effectiveness of tax administration) and D1-D3 (which are donor-related indicators) were also omitted. This leaves 21 indicators (PI-5 to PI-12 and PI-16 to PI-28) for analysis. The alphabetic indicator ratings included in the PEFA assessments were then converted into numerical values, with higher scores denoting better performance (i.e. A = 4 to D = 1). This follows the common practice of other econometric literature using PEFA scores in this way (e.g. de Renzio et al., 2011). Using these numeric values, a simple average of the selected 21 summary indicator scores was calculated, assuming equal weights for each indicator, to derive a measure of overall PFM performance. For each country, the most recently available PEFA scores were used over the period 2005 and 2015.

It is worth noting that attempts were initially made to explore the relationship between different sub-dimensions of the PFM system[6] and the abovementioned health outcomes. This was not pursued, however, given that the PFM sub-dimensions were so highly correlated with the PEFA average that there was little variation in results.

For the control variables, the approach of the existing literature was followed and variables were chosen that are widely regarded as influencing overall population health status. This was done with the recognition that it is not possible to control for all variables that might influence the relationship between PFM and health service delivery. The variables used in the health production function were: (i) share of public or total health expenditure in GDP; (ii) HIV prevalence rate; (iii) GDP per capita; (iv) female adult literacy rate; and (v) perceived level of corruption. More specifically, female education level is included to acknowledge its importance in affecting child survival rates. All regressions also had an indicator of the HIV prevalence due to the overall effect of the disease on population mortality and therefore on life expectancy at birth. In addition, given that the PFM system is one aspect of the overall governance environment, this study also includes Transparency International's 'Corruption Perceptions Index' (CPI) as a broad control for misuse of public power. This choice was made to minimise the risk that the PFM measure simply mirrors the broader relationship between the overall quality of government and health outcomes already identified, although with the recognition that the CPI – as the name suggests – is a perceptions-based indicator and therefore has methodological weaknesses. Nonetheless, CPI is used because it is solely focused on public-sector corruption, has a well-defined methodology that has been made more robust over the years, and covers a large number of countries on an annual basis. Several other explanatory variables were also considered, but ultimately dropped due to problems of multi-collinearity.[7]

Table 3 presents the summary statistics of these variables, and their respective source. Tables and figures in Annex 1 show the correlation statistics for these variables, the scatterplot diagrams and the list of countries used in the regression models.

The estimation equation used was as follows:

$$\text{Log}\,(HS_i) = \alpha + \beta_1 PEFA + \beta_2 \ln GDPpc_i + \beta_3 femlit_i + \beta_4 HIVprev_i + \beta_5 healthexp_i + \beta_6 cpi_i + \varepsilon_i$$

where *i* indexes countries, *HS* is the dependent variable of interest (under-five mortality rate, infant mortality rate and life expectancy at birth), *PEFA* is PFM quality, measured by the most recent PEFA assessment, followed by the various control variables respectively (log GDP per capita, female adult literacy rate, HIV prevalence, health expenditure (% of GDP) and CPI) and ε is the error term.

5 CPIA-13 measures the quality of budgetary and financial management on a six-point scale along three dimensions: (1) a comprehensive and credible budget, linked to policy priorities; (2) effective financial management systems to ensure that the budget is implemented in a controlled and predictable way; and (3) timely and accurate accounting and fiscal reporting, including audit.

6 PFM sub-dimensions in the 2011 PEFA methodology include: (1) Strategic budgeting; (2) Budget preparation; (3) Resource management; (4) Internal control, audit and monitoring; (5) Accounting and reporting; and (6) External accountability. The correlation between the PEFA average and the six sub-dimension scores was above 0.8 in most cases, indicating significant correlation. In addition, the study created a 'PEFA service delivery' score based on a subset of PEFA indicators thought to be most relevant for service delivery. This used the indicators relating to: (i) predictability of funds available; (ii) procurement; (ii) expenditure commitment controls; (iv) payroll controls and (v) availability of information at service delivery level. This 'PEFA-service delivery' measure was strongly correlated with the PEFA average (correlation of roughly 0.90), and therefore produced very similar results when used as the main explanatory variable.

7 Control variables that were eventually dropped include: access to improved sanitation; public health expenditure per capita; private health expenditure per capita; externally funded healthcare per capita, and a fragility dummy. These variables tended to be very highly correlated with GDP per capita.

Table 3. Summary statistics used in the regressions

Variable	Obs.	Mean	Std. dev.	Min.	Max.	Source
Dependent variables						
Under-5 mortality*	99	49.13	36.17	3.5	160.2	WDI
Infant mortality*	99	35.82	23.39	2.9	107	WDI
Life expectancy at birth*	100	66.69	8.08	47.63	80.59	WDI
PFM measure						
PEFA average	109	2.47	0.52	1.45	3.55	PEFA Secretariat
CPIA budgetary and financial management	64	3.23	0.62	2.00	4.50	WDI
Control variables						
GDP per capita*	100	4410	9889	216	90,806	WDI
Female adult literacy	91	73.28	25.96	8.94	99.72	WDI
HIV prevalence	83	2.80	5.50	0.01	27.60	WDI
Public health expenditure (% of GDP)	98	3.57	2.45	0.82	16.84	WDI
Total health expenditure (% of GDP)	100	6.44	2.69	1.48	16.98	WDI
Corruption Perceptions index	89	32.84	11.34	8.00	79.00	Transparency International

5.4. Limitations

As with most econometric studies of this type, there are some important limitations and caveats, three of which are particularly relevant: (i) potential bias from measurement error in the PFM variable; (ii) model specification; and (iii) endogeneity bias, to a lesser extent.

First, in terms of measurement error, PEFA indicators tend to measure the *form* of PFM systems and processes, not necessarily their *functional quality* (e.g. Hadley and Miller, 2016). There is a risk, therefore, that PFM quality is judged on 'how it looks' rather than 'how it actually functions'. Furthermore, averaging each indicator assumes equal weights for different PFM processes. This is unlikely to be an accurate reflection of the relative importance of each PEFA segment in delivering health services. Indeed, the discussion of donor assumptions highlighted that some PFM areas are generally considered to be more important than others in affecting service delivery. However, in the absence of any other PFM assessment system offering more specification and detailed granular scores, and given the high degree of correlation across all PEFA scores for individual countries, the average PEFA scores were chosen as the best available current comprehensive measure of PFM systems.

Second, there is a potential endogeneity bias in the study, meaning that the dependent variable itself influences the behaviour of the control variables, which are supposed to be independent. When this occurs, the results are likely to be biased. As an example of endogeneity bias in this study, better health outcomes may be the result of higher income per capita if healthier people are living longer and working more productively. In the literature, there has been a mixed approach to controlling for this issue, with some authors pursuing an instrumental variable approach (Fayissa, 2001; Hu and Mendoza, 2013; Rajkumar and Swaroop, 2008) while others (Çevik and Tasar, 2013; Fritz at al., 2014) chose to assume there was no bias present. We adopt the latter approach given that conceptually, while there is a clear theoretical argument for a positive impact of a better PFM system on health service delivery, it would be difficult to think of ways in which the causation should run in the opposite direction.

Third, there are challenges with the overall model and, in particular, the dependent variables. Changes in health outcomes resulting from PFM systems changes are likely to take many years to materialise. Due to the limited number of PEFA observations, it is not possible to adopt a panel-data approach to determine the relationship between changes in PEFA scores and changes in health outcomes over time. Even in the cross-section analysis, the time lags may be too short to capture the impact on health outcomes of the quality of the existing PFM system. This is likely to be a particular issue with the life expectancy at birth indicator, which is subject to long-term change and is unlikely to move significantly from year to year. With these limitations, the results should be interpreted cautiously and as a first step in providing information to test the hypotheses that there is a positive link between PFM systems quality and health outcomes.

5.5. Results

Table 4 and Table 5 present the results from the regression analysis. Columns 1 and 2 use under-five mortality rate as the dependent variables, columns 3 and 4 use infant mortality rate while columns 5 and 6 use life expectancy at birth. Columns 2, 4 and 6 include the impact of the CPI control variable.

As shown in the first row of all columns, the PEFA average variable has a significant effect on health outcomes: a better PFM system yields lower under-five and infant mortality, and higher life expectancy at birth in the presence of controls. More specifically, a one-point increase in the PEFA score, for example, moving from 'B' to 'A', is associated with roughly a 23–24% fall in under-five mortality rate, a 20–21% fall in infant mortality and a 2–4% increase in life expectancy at birth, all else being constant. Furthermore, the effect is statistically significant at the 1% level when corruption – as a proxy for broader financial governance – is not controlled. Although the effect becomes slightly smaller once corruption is controlled in columns 2, 4 and 6, it remains statistically significant. This slightly smaller coefficient may be because of the close theoretical relationship between PFM and control of corruption (i.e. better PFM is expected to reduce corruption itself) as well as measurements limitation of the perception-based corruption variable, which may not correspond to actual corruption.[8] Nonetheless, the control variables are also statistically significant (with the exception of public health spending in columns 5 and 6; and the CPI in columns 2 and 4) and have the expected sign.

To test the robustness of the results, Table 5 provides the results with CPIA-13 as an alternative measure of PFM quality. To ensure comparability with the PEFA regressions, which are based on data from the three previous years of the PEFA assessment date, the results are calculated using three years' average of CPIA scores prior to the year of the most recent PEFA assessment. Despite the smaller number of observations, the CPIA coefficients in these regressions also support the hypothesis that countries with better PFM systems have better health outcomes, though the size of coefficients is smaller.[9] More specifically, a one-point increase in the CPIA score is associated with roughly a 13–15% fall in the under-five mortality rate, a 12–13% fall in infant mortality and 3% increase in life expectancy at birth, all else being constant.

For further robustness checks, Table 6 illustrates the regression results using a weighted least squares (WLS) estimation process to further address the potential bias from heteroskedasticity.[10] The results are largely consistent with the OLS regressions. More specifically, a one-point increase in the PEFA score is associated with roughly a 20–21% fall in the under-five mortality rate, a 17–18% fall in infant mortality and a 2–3% increase in life expectancy at birth, all else being constant

Ultimately the results suggest that at a very aggregate level, improving PFM systems performance is associated with better general health outcomes. This is compatible with the governance literature, which has tended to find better governance is associated with better health outcomes based on cross-country variation (Bellver and Kaufmann, 2005; Gupta et al., 2002; Holmberg and Rothstein, 2011; Lewis, 2006). However, and importantly, the measure of PFM functionality presented here does not identify the specific mechanisms and channels through which this effect occurs. In this respect, some forms of intermediate data points are needed to capture and identify the steps in the causal chain that are more directly influenced by PFM systems than final outcomes. Furthermore, as with any study of this kind, the data presents associations and correlations between variables, but does not provide direct information on causal relationships and their direction. That said, the overwhelming theoretical assumption in the literature is that effective PFM systems support better health outcomes, rather than that (somehow) better health outcomes drive effective PFM.

Building on this finding of a high-level correlation between indicators measuring the strength of PFM systems and key health outcomes, the following chapter considers detailed case-study reviews of public expenditure flows in health service delivery through a synthesis of PETS health-sector studies.

8 There remains the important issue that the perceived level of corruption may not conform to reality, and thus that this indicator may be highly subjective. To test the robustness of the results the International Country Risk Guide indicator of quality of government and the Worldwide Governance Indicator of government effectiveness are used in place of CPI, and the results were largely unchanged despite the smaller number of observations.

9 The smaller coefficient on the CPIA measure of PFM is to be expected given that this indicator ranges from 1 to 6 while PEFA ranges from 1 to 4. One should therefore expect smaller coefficients, because a shift in one point on the CPIA is 'smaller' than a similar shift on the PEFA average.

10 Heteroskedasticity occurs when the standard errors are biased due to the error term not being uniform and independently distributed, a key assumption for OLS. Put more simply, if a regression model is consistently accurate when it predicts low values of the dependent variable, but highly inconsistent in accuracy when it predicts high values, then the results of that regression should be questioned. WLS is one method for dealing with heteroskedasticity.

Table 4. OLS regression using PEFA average as the measure of PFM quality

VARIABLES	(1) Under-five mortality	(2) Under-five mortality	(3) Infant mortality	(4) Infant mortality	(5) Life expectancy	(6) Life expectancy
PEFA average	-0.241***	-0.228**	-0.207***	-0.198**	0.0368***	0.0246*
	(0.0811)	(0.0907)	(0.0733)	(0.0822)	(0.0123)	(0.0139)
Ln GDP per capita	-0.236***	-0.230***	-0.204***	-0.199***	0.0326**	0.0266**
	(0.0736)	(0.0754)	(0.0653)	(0.0677)	(0.0125)	(0.0118)
Female adult literacy	-0.0131***	-0.0132***	-0.0112***	-0.0112***	0.00163***	0.00173***
	(0.00215)	(0.00215)	(0.00203)	(0.00201)	(0.000394)	(0.000387)
HIV prevalence	0.0552***	0.0557***	0.0476***	0.0480***	-0.0139***	-0.0144***
	(0.00681)	(0.00702)	(0.00626)	(0.00647)	(0.00198)	(0.00161)
Public health expenditure (% of GDP)	-0.0901***	-0.0886***	-0.0908***	-0.0896***	0.00430	0.00282
	(0.0254)	(0.0254)	(0.0245)	(0.0243)	(0.00421)	(0.00446)
Corruption Perceptions Index		-0.00168		-0.00129		0.00164*
		(0.00477)		(0.00450)		(0.000903)
Constant	7.108***	7.085***	6.409***	6.391***	3.752***	3.774***
	(0.377)	(0.383)	(0.345)	(0.354)	(0.0666)	(0.0603)
Observations	78	78	78	78	78	78
R-squared	0.813	0.813	0.779	0.779	0.821	0.830

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 5. OLS regression using CPIA-13 as the measure of PFM quality

VARIABLES	(1) Under-five mortality	(2) Under-five mortality	(3) Infant mortality	(4) Infant mortality	(5) Life expectancy	(6) Life expectancy
CPIA budgetary and financial management	-0.147**	-0.134*	-0.131**	-0.118*	0.0331***	0.0292**
	(0.0638)	(0.0716)	(0.0605)	(0.0653)	(0.0112)	(0.0117)
Ln GDP per capita	-0.260***	-0.248***	-0.210***	-0.198***	0.0290	0.0255
	(0.0794)	(0.0816)	(0.0707)	(0.0730)	(0.0198)	(0.0195)
Female adult literacy	-0.0126***	-0.0127***	-0.0106***	-0.0107***	0.00182***	0.00185***
	(0.00215)	(0.00212)	(0.00202)	(0.00199)	(0.000443)	(0.000432)
HIV prevalence	0.0420***	0.0421***	0.0351***	0.0353***	-0.0154***	-0.0155***
	(0.00895)	(0.00921)	(0.00994)	(0.0103)	(0.00169)	(0.00170)
Public health expenditure (% of GDP)	-0.0302	-0.0266	-0.0349	-0.0314	0.00247	0.00141
	(0.0297)	(0.0311)	(0.0286)	(0.0300)	(0.00572)	(0.00606)
Corruption Perceptions Index		-0.00271		-0.00269		0.000811
		(0.00497)		(0.00433)		(0.000680)
Constant	7.049***	7.001***	6.261***	6.213***	3.751***	3.766***
	(0.514)	(0.519)	(0.469)	(0.471)	(0.113)	(0.111)
Observations	51	51	51	51	51	51
R-squared	0.802	0.803	0.768	0.770	0.802	0.806

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 6. WLS regression using PEFA average as the measure of PFM quality

VARIABLES	(1) Under-five mortality	(2) Under-five mortality	(3) Infant mortality	(4) Infant mortality	(5) Life expectancy	(6) Life expectancy
PEFA average	-0.209**	-0.197**	-0.179**	-0.166**	0.0315**	0.0204
	(0.0795)	(0.0847)	(0.0763)	(0.0814)	(0.0136)	(0.0147)
Ln GDP per capita	-0.228***	-0.220***	-0.189***	-0.182***	0.0444***	0.0333***
	(0.0561)	(0.0585)	(0.0542)	(0.0564)	(0.00778)	(0.00861)
Female adult literacy	-0.0132***	-0.0133***	-0.0113***	-0.0114***	0.00130***	0.00154***
	(0.00191)	(0.00193)	(0.00185)	(0.00186)	(0.000337)	(0.000343)
HIV prevalence	0.0525***	0.0529***	0.0452***	0.0456***	-0.0135***	-0.0142***
	(0.00784)	(0.00793)	(0.00751)	(0.00760)	(0.00118)	(0.00117)
Public health expenditure (%GDP)	-0.0760***	-0.0735**	-0.0810***	-0.0783***	0.00133	0.00161
	(0.0278)	(0.0287)	(0.0268)	(0.0276)	(0.00405)	(0.00400)
Corruption Perceptions Index		-0.00196		-0.00203		0.00161*
		(0.00464)		(0.00444)		(0.000832)
Constant	6.945***	6.916***	6.213***	6.187***	3.708***	3.752***
	(0.319)	(0.325)	(0.308)	(0.314)	(0.0465)	(0.0482)
Observations	78	78	78	78	78	78
R-squared	0.831	0.832	0.799	0.800	0.825	0.834

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

6. Review of Public Expenditure Tracking Surveys in the health sector

6.1. Public Expenditure Tracking Surveys and their usefulness for considering the relationship between PFM and health service delivery

Public Expenditure Tracking Surveys (PETS) and Quality of Service Delivery Surveys (QSDS) provide another angle for considering the relationship between PFM and health service delivery.[11] PETS aim to track the flow of financial and non-financial resources through government systems in a given country, ideally from central government to the service-delivery level. In this manner, they represent a relatively in-depth case-study approach to understanding the flow of public expenditure in that country, for a particular year or set of years, in a particular sector.[12] A comprehensive review of these studies in the health sector, therefore, provides detailed case-study evidence on the relationship between PFM and health service delivery.

PETS are particularly useful for providing a different angle on the relationship between PFM and health:

- They typically focus on the experience of service-delivery units by tracking resource flows through all administrative levels and so can reveal specific areas of 'leakage' in public resources and where they occur.
- These studies can follow both financial and non-financial resources (e.g. drugs), which are often managed very differently and through different parts of the PFM system.
- A few PETS/QSDS also go further than the standard 'tracking of funds and/or inputs' to also review the experiences of service users, and how the benefits of the services in question are distributed, providing further detail.
- QSDS approaches may also pick up on incentive and management issues that may be undermining the manner in which financial inputs relate to quality of service delivery.

Despite these advantages, only a few papers have aimed to synthesise reviews of findings from PETS (Gauthier, 2010; Glassman et al., 2008; Gurkan et al., 2009). This chapter builds on these earlier studies by reviewing 27 PETS reports from the health sector, spanning 24 countries in Africa, Europe, the Americas and Asia, and synthesises the findings outlining how PFM systems relate to service delivery in the health sector.

6.1.1. Sample description

PETS do not have a standardised methodology or a formal institutional 'home' – although in the sample identified most were undertaken by the World Bank. Most of the 27 PETS used in this study were retrieved from the International Household Survey Network.[13] These were supplemented with reports from the World Bank's online portal for PETS,[14] searches on Google and contacts with various organisations. Only English-language, machine-readable PETS covering the health sector were included

11 Public Expenditure Tracking Surveys is used here as a generic name for a broad set of methodologies that includes both PETS and QSDS. PETS use qualitative and quantitative data collection at different levels of government and the supply chain to examine the proportion of expenditures that reaches service providers, and to identify leakages. QSDS also collect data on service providers in order to examine the efficiency and effectiveness of spending, including staff absenteeism and use of inputs, and the quality of service delivery.

12 While PETS have been recognised as useful for providing information on the effectiveness of expenditure flows through public services delivery systems, their usefulness in stimulating policy change as a result depends on a range of other factors beyond the quality of the PETS undertaken (e.g. Sundet, 2008; World Bank, 2015b)

13 http://www.ihsn.org/

14 http://pets.prognoz.com/prod

in the final sample, but the variety of report types was maintained, so the review covered PETS and QSDS reports, publications that derive from them, and lighter resource-tracking studies. Key characteristics of the sample are summarised in Figure 2, and Annexe 3.[15]

PETS in this sample are typically published between 2000 and 2004, with none published between 2009 and 2010. Interestingly, this put them in roughly the same period of publication as most donor policy and research documents covering PFM issues, as discussed in Chapters 2 and 3 of this report. The studies in the sample tend to follow a core PETS approach (rather than QSDS) and were mostly conducted in LICs or lower-middle-income countries in sub-Saharan Africa, though there are also examples from Europe, Latin America and Asia. Brazil is a major exception, with a GDP per capita of nearly $12,000 in PPP terms at the time of publication, but most countries surveyed had a national income of between $1,000 and $3,000 per capita.

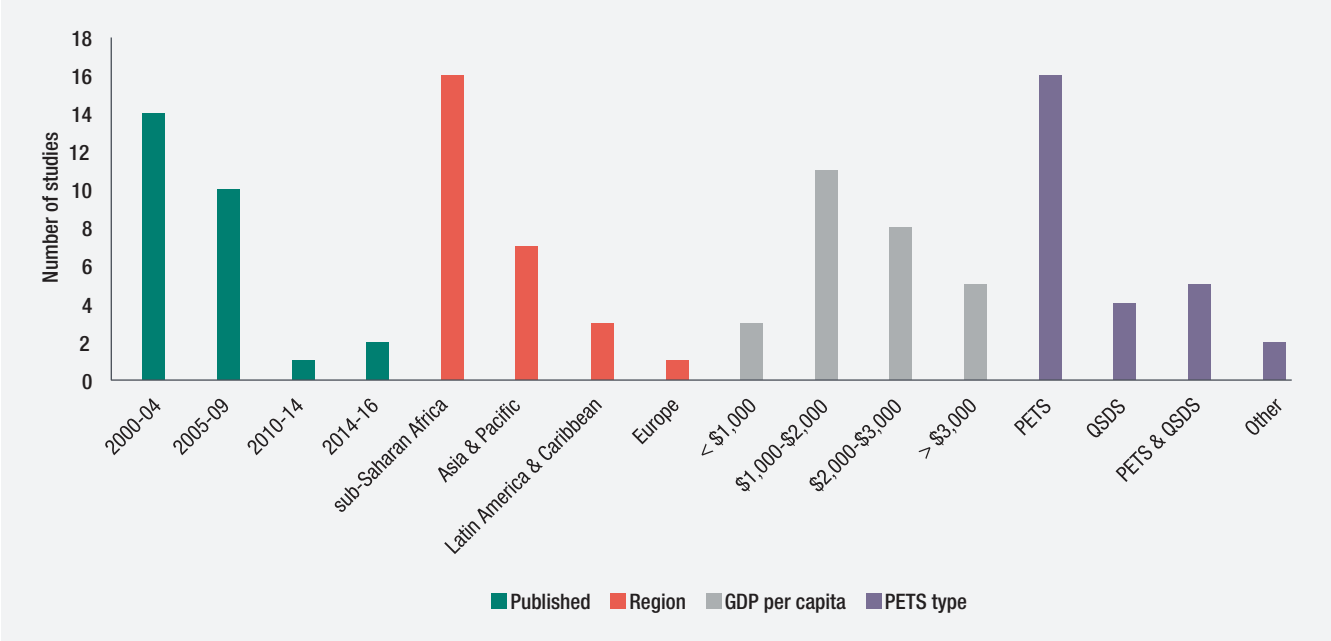
6.1.2. Methodological approach

Each PETS was read and coded manually (and subsequently analysed) by two people using QDA Miner, a qualitative research software tool. The coding sought to identify four broad types of information:

- information about the study and the methodology used (country, type of study, sample, year published, what was tracked/analysed)
- the common problems (level of services, equity of services, quality of services, efficiency of services, other issues)
- the public finance constraint associated with those problems, if any (funding level, resource flows, use of resources, other constraint)
- where the constraint is located (level of government, stage of the PFM system, type of resources, etc.)

To illustrate the application of the coding consider the extract from the 2006 PETS conducted by the World Bank in Brazil (Figure 3). This paragraph identifies two issues related to the reliability of federal transfers to the municipal level. One is the reliability of transfers from the federal level (in this study, a resource-flow issue related to resource management at the federal level). The other is that municipalities are unable to execute their budgets in full, which was traced to difficulties in revising their annual Work Plans (in this study, a budgeting or planning issue at the municipal level).

Figure 2. Summary of PETS sample used for analysis



15 From the full sample frame, certain PETS were excluded. The PETS files for Kenya (2004) and Mozambique (2002) were not machine-readable. The PETS for Cameroon (2003), Chad (2004), Madagascar (2003) and Mali (2006) were in French, though the findings from Chad were documented in a separate, English-language journal article, which is included. Similarly, the PETS for Brazil (2004) was in Portuguese, but the findings are summarised in English in a World Bank report, which was included in the analysis.

Figure 3. Example of coding approach used in PETS review

The level of execution of the funds transferred also varied considerably across municipalities and programs (Figure 2.16). Even though the mean level of fund execution varied within an acceptable 80-100% range, the observed dispersion across municipalities was wide, with a standard deviation of 25-40%. Overspending means that the municipality spent some of its own funds on the program, while underspending means that either the original amount was cut short, or that the municipality was not able to execute available federal funds. For some programs 'actual' transfers received were greater than what was budgeted

In general, underspending was explained by budget cuts and freezes (Rio Grande do Sul), delays in federal transfers (Rio Grande do Sul, Mato Grosso and Ceará), and difficulties in revising the time-line of the Work Plan (Rio Grande do Sul).

Problem: resource flow: delay/non-transfer
Level: central government
PFM system: resource management
Resource type: not specified

Problem: resource use: under-execution
Level: district
PFM system: budgeting issue
Resource type: not specified

Source: World Bank, 2006: 44

The electronic coding analysis was combined with a more general manual 'read-across' of all studies to capture common cross-cutting issues, themes and problems not identified through the standard coding. This qualitative approach allows for important nuances, caveats and similarities to be identified that may not be directly picked up by the text analysis. Where possible, the discussion that follows identifies issues that emerged from the general read-across as well as from the text analysis.

6.1.3. Limitations

There are several limitations associated with this kind of study. Clear challenges relate to the external validity of the sample of PETS/QSDS that was reviewed, as discussed above, given the particular time period, region, income and country focus of the sample. In addition, other limitations concern the nature of the PETS methodology and the coding approach.

In terms of the nature of the PETS, while there are guidelines for conducting them,[16] such studies do not have a formal institutional 'overseer' or 'accreditor'. In practice, the individual studies vary significantly in their approach and comprehensiveness. As a result, findings from PETS cannot be compared systematically across countries, and in some cases cannot even be used to generalise for the country as a whole (e.g. Gauthier, 2010; Gurkan et al., 2009).

Notable differences between approaches taken to PETS work include the following:

- *Number of sectors and facilities covered.* Eleven PETS (out of 27) cover multiple sectors (e.g. Sierra Leone, 2001) while the rest are focused exclusively on the health sector. Some survey a handful of facilities (e.g. Honduras, 2001) though the majority (16/27) are based on surveys of 100 facilities or more (e.g. Chad, 2008). In some PETS only public-sector funding and facilities were surveyed, but in others private-sector facilities are included as well (e.g. Uganda, 2003).
- *Resources tracked and analysed.* Most PETS focused on recurrent rather than capital resources. A few studies aim to follow all resources through the health sector (e.g. Nigeria, 2003; Chad, 2008) but most have a narrower focus on non-wage transfers or the distribution of goods and services. Where capital resources are discussed, they mainly relate to medical equipment rather than buildings. At least 11 PETS interviewed staff or assessed their presence, while nine considered users' experiences or characteristics. Several QSDS studies focused solely on staff behaviours and incentives, often with little analysis of funding flows. Only a few of the studies directly consider own-source revenues or fees.

Methodologically, PETS focus less on analysing upstream PFM systems, such as budget preparation, than on following, tracking and documenting challenges with downstream systems for resource transfer, management and reporting/accounting. One exception was the PETS

16 See: http://pets.prognoz.com/prod/Guidelines.aspx

conducted in Brazil, which also included an extensive review of the planning and budgeting process at different levels of government, making it more akin to a Public Expenditure Review. Many studies also faced difficulties in identifying whether 'leakages' were really leakages (i.e. unauthorised or unexpected loss of funds). In some cases, budgets did not explicitly set out whether resources *should* have been retained at intermediate levels of government, or passed on down the chain of resource flow to other institutions. In others, accounting problems made it difficult to determine the level of resources allocated and/or if they were actually received by facilities.

In addition, there are also important limitations in the approach used to code the text. The codes were generally most useful for a standard PETS report, and less relevant for other kinds of studies, such as journal articles with more complex or in-depth analysis of QSDS data. For example, an initial attempt to capture whether problems were linked to public or donor resources was unsuccessful because many PETS did not make this distinction in the analysis. Equally, some codes did not easily bridge the differences in content and approach of different types of studies and reports. Finally, discussions have inevitably focused on issues identified by PETS rather than QSDS studies, as PETS were more suited to the coding framework described above and more numerous in the sample of studies analysed.

6.2. Findings from the review of PETS

Following the analysis, the common public-finance constraints identified in the studies that were noted as having an impact on service delivery can be broadly categorised into three areas:

- The *level of resources* allocated to and within the sector, including the adequacy of staffing, equipment and infrastructure.
- The *flow of resources* between different levels of the health system, including financial transfers and in-kind distribution of medical supplies and equipment.
- The *use of resources* by different agents in the health sector, including local governments and facilities.

The findings suggest that, despite the heterogeneous nature of the sample, certain issues appear to be relatively common.

6.2.1. The level of resources – allocation and equity

Issues related to the level or equity of allocation of resources were identified in 24 of the 27 cases (89%). Using manual sorting of the issues identified as relating to this topic by the machine-based coding, this has been further refined into three categories:

- *Equity:* instances where reports found significant differences in horizontal allocations between similar groups of beneficiaries, which may have been identified explicitly (i.e. patients, population) or implicitly (i.e. differences across districts).
- *Adequacy:* instances where reports noted that resources were insufficient to provide services or meet certain demands, such as the gap between subsidies for health insurance schemes and the level of payments those schemes were expected to make.
- *Allocative efficiency:* instances where reports identified potential problems with the allocation of resources across economic categories (staff, drugs, etc.) and across health-service categories (primary, secondary, tertiary). For example, there were cases where high levels of staffing were crowding out other areas of spending.

Table 7 shows that while all the issues concerning resource allocation are relatively common, the most widespread challenges identified by PETS are associated with *equity of resource allocations*.

Table 7. Coding frequency for problems with resource levels

Code	# of studies (of 27) where noted as issue	Count (# of times highlighted across studies)	Within the count, the % of times a specific PFM failing identified as contributing to this issue
Equity	21	56	Budget preparation (14%) Resource management (4%)
Allocative efficiency	17	45	Budget preparation (29%) Resource management (16%)
Adequacy	16	44	Audit and oversight (7%) Resource management (13%)

Equity – the most frequently tagged resource-level issue – was assessed in different ways in different countries. Most often the studies reviewed differences in per capita allocations of non-wage resources and fiscal transfers across different geographical areas, or the extent to which services were aimed at the poor (e.g. Brazil, 2006; Madagascar, 2007; Cambodia, 2005; Lao PDR, 2008; Timor-Leste, 2014). Another common source of inequities was the distribution of human resources (e.g. Namibia, 2004; Honduras, 2001), while a few studies considered equity in the distribution and quality of health-service infrastructure (e.g. Nigeria, 2003).

Issues of total adequacy of resources overlap with the problems of equity in health services just described. Unsurprisingly, given that most PETS were conducted in LICs, studies are often critical of the total level of resources provided to health services. Facilities in many of the cases were found to lack staff, equipment, medical supplies or basic infrastructure (e.g. Zambia, 2007; Namibia, 2004).

There is also evidence that local governments and facilities were compensating for the lack of government resources by levying user fees (e.g. Papua New Guinea, 2004). These challenges rarely fall evenly across regions and population groups, which ties the codes closely to issues of equity in the analysis here.

In the studies, issues regarding adequacy and equity are sometimes directly attributed to weaknesses in PFM systems, rather than being the result of clear policy choices. Fourteen per cent of inequities coded were associated with deficiencies in the budget-preparation process. For example, the studies on Tajikistan (2008) and Zambia (2007) suggested that inequities were the result of an incremental, input-based budget-allocation process that continued to provide resources based on previous circumstances rather than on the current needs of the population served by the facilities. Formal allocation criteria that might help reduce inequities either did not exist (Namibia, 2004), covered only a limited portion of the budget (Zambia, 2007), or were not rigorously applied (Brazil, 2006). In a few cases, these inequities were created or exacerbated during budget execution. For example, the PETS conducted in Chad (2008) showed that the 'arrival rate' of resources differed markedly between regions, generating additional inequities in the system.

PETS have also identified inefficiency in financial allocations within the health sector, which were typically defined as one type of spending dominating the budget and being inefficiently high compared to other inputs. Albania (2004) struggled with inflation in wage spending, while in Cambodia (2005) budget rules mean that resources have increasingly been allocated to non-wage recurrent costs at the expense of raising staff salaries. In other cases, there were clear examples of governments failing to coordinate recurrent and capital expenditures. For example, building facilities that were subsequently not staffed in Lao PDR (2008) or allocating the majority of health spending to major district hospitals to the detriment of primary care facilities in Tajikistan (2008). These challenges may be partly tied to the overall budget process or other parts of the PFM system, but the evidence from the PETS themselves is not strong enough to state this conclusively.

Overall, the majority of the studies identified challenges with the level of resources provided and how these were allocated. In a few cases, clear links were made between these challenges and the PFM systems responsible for budget preparation and resource management, rather than attributing them to clear policy choices. In particular, PETS suggest that inequitable resource allocations may be reinforced by poorly managed input-based budgeting systems; because mechanisms for more equitable allocations are not developed; and/or such mechanisms have been developed but are not being followed. However, in most cases the links between resource levels and allocation were not clearly associated with problems in the PFM system.

6.2.2. The flow of resources

Issues with distribution or 'flow' of resources were identified in 21 of the 27 PETS (78%) and provide some of the clearest examples of the links between PFM systems and health service delivery. Many PETS generally refer to 'leakage' to mean an absence of funds received by institutions for which they are intended, and frequently this is taken as meaning 'corruption' or other forms of unauthorised (mis)use of funds. In this study the coding framework disaggregated problems with resource flows further to distinguish cases where (i) resources were not released or transferred by higher-level institutions to lower-level bodies (non-transfer), (ii) resources were transferred but not according to schedule (delay), (iii) resources were held and/or improperly taken by other authorities (capture) and (iv) there was a problem in the distribution across the sector of in-kind services and resources received, such as drugs (distribution).[17]

Table 8. Coding frequency for problems with the flow of resources

Code	# of studies (of 27) where noted as issue	Count (# of times highlighted across studies)	Within the count, the % of times a specific PFM failing identified as contributing to this issue
Delay	16	53	Internal control (2%) Resource management (40%)
Capture	15	56	Budget preparation (2%) Resource management (9%)
Distribution	15	35	Budget preparation (6%) Resource management (23%)
Non-transfer	12	38	Budget preparation (8%) Resource management (24%)

As Table 8 demonstrates, problems with the regularity, completeness and timeliness of resources transfers are widespread in the sample. Resources were not transferred in 12 studies, delays noted in 16 and problems with in-kind distribution identified in 15. The magnitude of these issues varied between countries, but can be very large. For example, the gap between budgeted and actual resources received ranged from over 95% in Chad (2008) to under 10% in Peru (2002). Delays in transfers in Cambodia (2005) were estimated at over four months, and in Rwanda

17 There is some overlap between non-transfer and resource capture, as both document cases where resources are not transferred to lower levels of government or, ultimately, health facilities. The key distinction used when coding is that 'non-transfer' was associated with cases where resources were not released because of cash-flow constraints while 'resource capture' was more explicitly tied to the discretion of intermediate budget holders to protect their own resources and interests first, whether legitimately or not.

(2003) only about 20% of the budgeted funds were released in the first three quarters of the year, and 80% released at the end of the year.

Problems do not necessarily affect all services and types of spending evenly. The PETS conducted in Rwanda (2003), Brazil (2006) and Cambodia (2005) suggest that resources become less predictable as they flow through the hierarchy of health systems, from central down to regional to district offices. There were differences within countries, such as Tanzania (2001) where the amounts transferred from regional to district health offices ranged from 8% to 100% of what was due to be disbursed. Typically, these resource-flow problems affected non-wage resources (financial transfers and in-kind distribution of drugs and equipment), though salaries were also subject to delays in some cases, such as Uganda (2003) where in 20% of government facilities the delay was reportedly more than 16 weeks.

In a few cases, these resource-transfer problems have been traced directly to service-delivery challenges, including in Brazil (2006) where delays in procuring and distributing drugs were widespread and caused cuts in supplies (in 88% of the cases), which, in turn, resulted in postponement or suspension of services (e.g. cancellation of surgeries in 20% of the cases) or a decline in the quality of service. Similarly, analysis of PETS data from Chad (2008) suggests that higher levels of resources received are associated with better health outputs – as measured by number of patients visiting local health centres per 1,000 inhabitants – but the level of resources received rarely matches the initial budget allocation. In other words, some studies conclude clearly that transfers of public expenditures to facilities directly contribute to providing health services, provided they actually reach them.

As might be expected in a study tracking resources, problems with resource flows are documented in downstream PFM systems associated with budget execution – and specifically the processes used to manage and make financial transfers and distribute in-kind resources. However, reading more generally across the PETS suggests that many problems with delays and the non-transfer of resources can also be traced back to *cash-budgeting practices* used in many LICs, as well as in more advanced economies such as Brazil. Cash budgeting aims to ration spending during the year in order to maintain aggregate fiscal discipline when the total budget is unaffordable or revenues are unpredictable (Miller and Hadley, 2016). The advantages and disadvantages of cash budgeting in developing countries have not been widely reviewed, particularly in relation to the impact on service delivery. In one of the few detailed studies on this issue, Stasavage and Moyo (1999) conclude that cash budgeting provides a greater degree of aggregate fiscal control, but leads to problems in ensuring budget credibility at lower levels, ultimately expressed as a lack of regular, timely and predictable transfers of funds throughout the public sector. The findings of many of the PETS reviewed here would support the conclusion regarding impacts on lower-level budget credibility.

As well as delays in resource transfer, 'leakage' in terms of misuse of funds was also identified in the studies reviewed. The challenges posed by cash budgeting are exacerbated by problems with resource-management systems and the discretionary power of intermediate levels of administration, which allow for capture of resources. Examples of leakages and resource capture were clearest in Peru (2002) and in Cambodia (2005), where the PETS revealed that provincial and district health administrations responded to cash shortfalls by transferring less to lower levels rather than rationing their own budget. This went hand in hand with a culture of paying for 'facilitation' of transfers, with officials at the level of the province, district and health facility believing that if facilitation fees were not paid, funds would be delayed further. The cost of paying these facilitation fees was then passed down the different levels and ultimately to those using the health services. Overall, this kind of resource capture was associated with both the transfer system *and* complex incentives issues that are not necessarily the result of the effectiveness of the core PFM system.

6.2.3. The use of resources

A third group of issues tagged in the analysis related to how resources were actually used once received. This covers a diverse range of issues including, but not limited to: staff behaviour and morale; general management challenges; heavy bureaucracies; and the lack of managerial discretion to adapt services to local needs. Such issues were identified in a smaller number of cases, but they also highlight the challenges of using a simple coding framework focused on PFM systems to capture the many complex dimensions associated with poor 'resource use'.

Table 9. Coding frequency for problems with the use of resources

Code	# of studies (of 27) where noted as issue	Count (# of times highlighted across studies)	Within the count, the % of times a specific PFM failing identified as contributing to this issue
Absenteeism	12	21	Resource management (10%)
Other issue of resource use	11	43	Internal control (2%) Resource management (30%)
Mis-use/ management	10	30	Internal control (10%) Resource management (20%)
Under-execution	4	15	Budget preparation (7%) Resource management (7%)

Staff absenteeism and 'presenteeism' (i.e. attending work but not undertaking meaningful activities) was documented in at least 12 studies, providing the most coherent set of information regarding the use of resources. Though the

basis for calculation varied, the rate of absenteeism ranged considerably, from 40% in India (2005), 27% in Cambodia (2005), 19% in Madagascar (2007) and 17% in Zambia (2007). This often adds to existing difficulties recruiting health staff. In Bangladesh (2003), for example, overall vacancy rates were 26%, but absenteeism was a further 41%, effectively reducing the coverage of doctors from around 20 per 100,000 people to just 12 per 100,000. This was found to have a significant impact on patient attendance in Bangladesh and was particularly damaging in rural areas, where facilities had fewer staff. Even when health professionals are in post, they may do less than they know they should – sometimes referred to as the 'can-do-gap' – as documented for doctors in India (2005). These behaviours are not obviously tied to core PFM systems: even if systems for managing the payroll and posting arrangements could be improved in many of the countries studied, these issues relating to broader incentives and a lack of accountability may remain.

Other issues regarding resource use cover a very broad range of issues from patient-referral systems to stores management that are difficult to group systematically. There was a range of cases where central policies and administrative requirements undermined the efficiency of resource use. In Honduras (2001), for example, highly skilled health professionals are often appointed to administrative positions (affecting 19% of specialist physicians, 12% of general practitioners, 27% of professional nurses and 27% of technicians). In Brazil (2006) the PETS concluded that delays and under-execution of the budget by health secretariats was due as much to the cumbersome requirements of the budget execution and procurement procedures as to the secretariats' managerial weaknesses.

6.3. Conclusion

Overall, PETS provide some of the most in-depth case material for understanding the links between PFM systems and health services. This review has identified and reviewed 27 such studies – although the sample displays clear biases towards certain time periods, regions and types of country. Even with the addition of a quantitative coding approach to systematically review the source material, the research method is inherently somewhat subjective. Furthermore, a case-study synthesis approach such as this must be cautious in making generalisations about the links between PFM and health services more widely. However, with those important caveats, the analysis presented suggests a number of broad conclusions.

The first is that PETS have, as might be expected, identified very similar failings in the health sector in a range of countries. Particularly common issues included (i) the equity of resource allocations, (ii) the regularity and predictability of transfers and (iii) the use of in-kind resources, including staff absenteeism and management behaviours, at facility level.

Second, there is evidence that at least some of the identified problems are clearly associated with weaknesses in core PFM systems. Most obviously, problems related to the level and flow of resources were typically identified as stemming from weaknesses in the overall budget process, in terms of both the original budgetary allocations and the subsequent use of cash-budgeting practices during execution. These PETS studies concur with the findings from other studies that cash budgeting makes receipt of resources for service delivery less reliable, even if the practice might contribute to maintenance of fiscal discipline at an aggregate level. Even when resources are received, the PETS found that using them effectively may be impeded by a lack of local management discretion and/or burdensome administrative procedures (including in procurement).

However, while PFM systems were implicated in many resource-flow and some service-delivery challenges, it should be noted that not all problems raised in the PETS studies were solely – or even mostly – related to PFM systems. In many cases, this is because the underlying problems (e.g. why the approved health budget is never fully funded) were simply not analysed in detail by the PETS; in others, there are numerous examples where service delivery was hampered by mismanagement and resource capture along the distribution chain – including staff absenteeism – rather than because of a failure of basic PFM systems. It therefore confirms the idea that it may be difficult to untangle 'health service delivery failures' and 'PFM systems' from broader governance issues that influence how resources are managed and services are delivered.

Such a conclusion would be consistent with the findings of the quantitative work, which noted that health service delivery appears to have an association with PFM system strength, as does broader governance quality. Given the importance of incentives and managerial behaviour in the use of resources at facility level, it may also suggest the value of greater accountability and transparency efforts as a means to change incentives for service-delivery managers, aligning with the tentative findings from the literature that such interventions may have a positive relationship with the effectiveness of health services. The importance of equity in resource allocation would put a premium on effective budget planning, which was noted as a key upstream consideration in the review of donor assumptions, but this issue was not strongly empirically supported in the literature review. However, the recognition in the PETS reviews that timeliness and predictability of resource flow to service-delivery units is frequently raised as an issue would support donor assumptions about the importance of downstream budget execution, and with the findings of the literature review that decentralisation (which is likely to involve some degree of fiscal transfer) – when effectively implemented – can support better service delivery.

7. Conclusions – the relationship between PFM and health service delivery

7.1. The relationships between PFM and health service delivery

This study has looked through a number of lenses at how PFM and health service delivery in developing countries appear to relate to each other. It discussed how the two policy areas have become of increasing importance to the international development community and reviewed donor documentation to explore how institutions with an interest in both fields have conceptualised their linkages. It used econometric techniques to review the high-level associations that might exist between commonly used PFM and health service delivery indicators. This was supplemented by a review of the relevant literature, and of the detailed PETS studies that have considered the health sector.

7.1.1. Theoretical relationships

The research identified a number of ways in which development institutions *theorise* that the two are linked: 'direct' linkages (e.g. through the provision of funding at various levels, financing of key inputs and specific financial transfers to individual institutions); and 'indirect' linkages (e.g. the role of PFM systems in providing financial information for use in a secondary process). The reviewed literature does not suggest that there is *no relationship* between the two concepts. Much of the discussion relies on the 'common-sense' conclusion that without some ability to handle and direct public funds and/or ensure some form of public regulation of financial matters, there will be no delivery of health services. Some donors have begun to flesh out more expansively the exact linkages between PFM systems and activities and specific sectors, including health, but this does not as yet comprise a comprehensive conceptualisation of the relationship between the two areas. There remains a lack of hard evidence in donor documentation that demonstrates a clear link between PFM, and its reform, and effective health service delivery.

7.1.2. Literature review

A key finding of the literature review was the relatively thin evidence base on the nature of the relationship between healthcare and PFM. There is relatively clear econometric evidence on the (positive) relationship between various broad-brush 'quality of governance' indicators (which often contain a PFM-related component) and measures of health service delivery. This would accord with the conclusion of the quantitative work, which finds an association between better PEFA scores and health outcomes. However, at a more specific level, the literature review's consideration of either particular PFM reforms and/or particular methods of donor engagement with country governments reveals few 'clear winners' in terms of substantial evidence to specific PFM sub-systems and/or their reform that appear to have a consistent and positive impact on health service delivery. A partial exception may again be accountability and transparency initiatives, including decentralisation, where the literature review finds a few studies that point to a positive relationship between various forms of these activities and health service delivery outcomes, although the evidence appears more nuanced with regard to decentralisation.

7.1.3. High-level quantitative relationships

This study undertook original econometric work to consider the relationship between a measure of PFM effectiveness (aggregate selected PEFA scores) and three health measures commonly used in the literature

to provide a view on overall health outcomes (infant mortality; under-five mortality; and life expectancy at birth), alongside commonly used control variables. The results found an association between the two variables, with more effective PFM systems having an associational (but not necessarily causal) relationship with better health outcomes. Basic robustness checks using other proxies of PFM effectiveness and slightly different statistical techniques aligned with the original finding. However, as with any study of this kind, both the nature of the data used for the dependent and independent variables and the specific statistical approach used mean that the results must be interpreted carefully.

7.1.4. Public Expenditure Tracking Surveys

A synthesis of available PETS and related studies in the health sector suggested that resource levels and their equity, reliability of resource flows and low-level resource management (in that order) are the major PFM-related challenges. The study also suggested a number of issues that might be only tangentially related to PFM systems yet nevertheless play key roles in the effectiveness (or otherwise) of how resources are used to deliver services (e.g. staff motivation, presenteesim/absenteeism). With regard to more clearly PFM-related budgeting practices, such as resource flows down to service-delivery units, many of the problems identified in the PETS related to the negative impacts of upstream cash-management or cash-budgeting practices. It should be remembered that the methodology used to analyse the findings of 27 case studies from specific regions undertaken at particular times naturally limits the general applicability of the results.

The discussion on donor assumptions set out a number of implicit and explicit linkages between PFM and service delivery, including health services. The literature review, quantitative work and analysis of the PETS findings provided some tentative statements regarding the evidence for and against the some of the propositions identified. These are summarised in Table 10.

Table 10. Summary of evidence regarding donor assumptions on the relationships between PFM and health service delivery

PFM element	Summary of the theorised link	Summary of evidence gathered in this view
General conclusions on PFM and service delivery		
PFM systems in general	Better PFM means better service delivery.	The evidence from the quantitative work presented in this study suggests an association between higher PEFA scores and improved results in three commonly used indicators of health outcomes, subject to a number of caveats and qualifications. The evidence from the literature review concludes quite clearly that better governance is associated with better health outputs and outcomes.
Decisions on whether to use country systems through general/ sector budget support or other modalities	Better PFM means more assurance that donor funds will be used appropriately and therefore less risk of misuse. Better PFM will allow for more/greater use of country systems.	The research did not directly look at the issue of whether better PFM means reduced corruption and/or risk to donor funds. The decision as to whether stronger PFM systems will allow for more/ greater use of country systems is a policy decision for donors. The literature review found some evidence that health outcomes are negatively correlated with measures of corruption.
Upstream elements of the budget process		
Strategic budgeting across government (e.g. through MTEFs or other forms of medium-term budgeting)	Effective MTEFs support strategic budgeting and improve allocative efficiency by providing a clearer framework to make policy-driven spending choices. Predictable multi-year resource allocation allows for medium-term planning for health services.	The evidence base from the literature review regarding the impact of MTEFs is small and conflicting. More advanced MTEF reforms appear to be associated with more stable health expenditures, but the introduction of an MTEF has also been associated with declining budget allocations to health in Uganda. The PETS review noted that weaknesses in upstream budget preparation – notably the resort to cash budgeting as a result of a lack of budget credibility – had negative impacts on flow of funds to service delivery units.

PFM element	Summary of the theorised link	Summary of evidence gathered in this view
Budget preparation and classification	Good budget preparation processes result in allocative efficiency with public spending effectively targeted at health needs. Good budget preparation avoids inequities of funding to decentralised government. Good budget preparation processes allow for flexibility in deployment of health resources. Good budget preparation processes avoid excessive rigidity in classifying by line item/facility rather than by need/ outputs.	The literature review found limited evidence that budget preparation reforms were beneficial. The literature on the impact of activity-based budgeting on service delivery is limited to high-income countries (literature review) and the small literature on MTEFs found that medium-term performance frameworks appear to be associated with improved cost-effectiveness and efficiency of health expenditures. The PETS review noted that weaknesses in upstream budget preparation – notably the resort to cash budgeting as a result of a lack of budget credibility – had negative impacts on flow of funds to service-delivery units. The literature review did not look at the equity of financing to decentralised government specifically, but found that fiscal decentralisation more broadly was positively related to health and service delivery outcomes, dependent on sufficient institutional capacity and accountability being in place. However, the literature review also found that decentralisation can lead to negative impacts on health services, and the literature review identified instances of reduced allocations to health following decentralisation. There was no evidence linking budget classification to the performance of health service delivery. Indeed, budget classification as an issue did not appear in the evidence reviewed in this study.
Downstream elements of the budget process		
Execution of budget to allow for purchasing/ provision of inputs	Predictable and timely purchasing of inputs through effective budget execution (e.g. payment of salaries, procurement of drugs, provision of operating costs to health facilities; supply of capital and maintenance funding) is an essential part of health service delivery. Leakage of funds must be minimised to ensure funds reach intended beneficiaries. Financial autonomy of, and in some cases result-based payments to, health facilities can improve service delivery.	The PETS review noted that inequitable, unpredictably/untimely and poorly managed resources hindered service delivery outputs in the cases studied. This was clearest with financial flows (i.e. financial transfers direct to facilities), but instances of negative impacts were also noted on the non-transfer of in-kind resources (e.g. centrally paid salaries, key commodities). The literature review did not find evidence that HMIS support better health service delivery, although the evidence base was small. Regarding 'leakage', both the literature review and quantitative work found that corruption levels were negatively associated with health. The PETS review noted that non-transfer of funds from higher to lower levels of government negatively affected service delivery in some of the cases reviewed. The PETS work also noted that 'leakage' is hard to measure and define, and can be caused by a number of factors. The research did not specifically analyse the large literature on results-based financing.
Transparency and accountability in the budget process		
Top-down accountability	Service managers can use information on resources budgeted, received and used by heath facilities to hold providers accountable for delivery.	The system-level regressions discussed in the literature review found that better 'governance' – which in many cases will include elements of transparency and accountability or bureaucratic strength – leads to improved health outcomes.
Bottom-up accountability	Citizens/service users/civil society can use information on resources budgeted, received and used by health facilities to hold providers accountable for delivery.	The literature review noted that there is some evidence for the positive impact of initiatives such as participatory budgeting and community scorecards on health outcomes, and that greater involvement by stakeholders in the design and implementation of health services can help improve their quality.

7.2. Summary of policy implications and future research

Each of the research approaches discussed above comes with a number of specific caveats and limitations. A more overarching challenge for this kind of synthesis study is developing policy recommendations for *specific* contexts based on research that – by its nature – has considered these issues in *general* terms. Indeed, the literature on HSS specifically, and on institutional reform in general, clearly suggests that a good understanding of the local context and bottom-up possibilities for improving services is more important than an understanding of 'global best practice' synthesised from other contexts. Bearing this in mind, this research suggests a few conclusions that might be of use to country governments and donors seeking to support better health service delivery through reforms to PFM systems.

7.2.1. Implications for approaches to PFM reform

In terms of PFM reform, the conclusions would tentatively support something like a 'basics first plus accountability' approach to PFM-related reforms aiming to support health service delivery. The idea of 'basics first' in public finance is certainly not new (e.g. Schick, 1998 (see Box 5)), although the importance of effective transparency and accountability relationships in achieving results is perhaps a more recent development (e.g. World Bank, 2004; de Renzio and Wehner, 2015).

Box 5. Basics first in PFM

Schick set out a list of what he considered 'basics first' in PFM systems reform. This was in response to developments in the PFM policy reform debate at the time that he perceived as inappropriately recommending advanced budgeting practices to countries that were not yet ready to manage them (bullet points added to original text):

- 'First, progress in the public sector requires parallel advances in the market sector. As long as the economy operates according to informal norms and property rights are defined more by practice than by contract, the government is not likely to make much headway in installing rule-based public management…
- Second, modernizing the public sector means establishing reliable external controls, as described above. As old-fashioned as external controls may seem to be, they are building blocks for a formal, rule-based, honest public sector. Operating in an externally controlled environment is an essential phase in the development process…
- Third, politicians and officials must concentrate on the basic process of public management. They must be able to control inputs before they are called upon to control outputs; they must be able to account for cash before they are asked to account for cost; they must abide by uniform rules before they are authorized to make their own rules; they must operate in integrated, centralized departments before being authorized to go it alone in autonomous agencies...'

Source: Schick, 1998: 129-130

First, in terms of whether to bother with PFM systems at all in efforts to improve health services, the quantitative element of the research concludes that there is indeed a high-level positive association between the strength of PFM systems in aggregate (measured through PEFA scores) and health outputs and outcomes. Although the direction of causality cannot be proved using the quantitative techniques employed, a review of theoretical propositions in the donor literature – derived in part from 'common sense' – would overwhelmingly suggest it is PFM systems that support better health care, rather than health care systems somehow driving better PFM systems. The literature review could be said to support this conclusion, in that it repeatedly confirms the relationship between better governance and improved health service delivery, and these 'governance' metrics typically include some PFM-related element. This provides some high-level evidence that investment in PFM systems to support health service delivery is indeed worthwhile.

Second, in terms of where to focus PFM reform efforts, the findings suggest a focus on using PFM systems to effectively finance basic inputs as a way to support service delivery. The PETS work found the most widespread problems relate to equity and fairness in resource allocations, followed by issues of regularity and predictability of transfers. The overall levels of resources for health services, and the equity of their distribution, may not be solely (or strictly) a PFM-related issue; however, effective basic PFM systems will provide the information that would be needed to review and amend existing systems to improve their equity and adequacy of resourcing. PFM systems are more directly related to the second most widespread issue – regularity and predictability in transfers – with many of the problems identified being related to the negative impacts of cash rationing/budgeting. The literature review noted that decentralisation – if accompanied with adequate institutional capacity – can also improve health services. In terms of a PFM response, this would suggest a reform agenda that aims to moderate the negative influences of cash rationing/budgeting to deliver regular, predictable and timely financing for key inputs, many of which are delivered or handled at a decentralised level (e.g. management of salaries, handling of operational costs, procurement and distribution of key commodities). In terms of 'basics first', the literature review concludes that there are no strongly evidenced 'clear winners' among the range of more complex and commonly prescribed PFM reforms that have been expected to support health service delivery (such as performance budgeting, activity-based costing, MTEFs, donor SWAps etc.). This perhaps reinforces the idea that in many countries a focus on the effective functioning of core basic financial systems is a better place to start improving the delivery of health services, rather than investment in the development of more complex PFM reforms.

Third, the literature review found that accountability and transparency initiatives appear to have a positive impact on health outcomes. It also found that corruption (which transparency and accountability reforms would aim to limit) to be consistently negatively related to health outcomes. Again, however, this should be accepted with the caveat that the evidence is limited. The review of theoretical assumptions suggests the existence of a

view that PFM systems can provide both top-down and bottom-up information to support (different kinds of) accountability relationships. Furthermore, the PETS surveys were clear that there are significant incentive/behaviour/management challenges affecting the delivery of health services that are not directly related to how PFM systems operate, but which might tentatively be assumed to be more likely to change with shifts in accountability relationships that greater transparency might support.

7.2.2. Implications for health systems reform

In health policy terms, the conclusions of this research would fit well within the existing HSS debate and potentially help provide more detail regarding what could be prioritised in the HSS financing stream. The HSS approach recognises the influence and importance of a range of structures, systems and processes on health service delivery, and is broadly founded on the idea that 'governance matters', in that the manner in which these structures, processes and systems interact with incentives, political economy considerations and behaviour will determine results. Various elements of financing would cut across the range of what is required to deliver health services. The research has noted that there is some high-level association between strength of PFM systems and health service delivery, and logic would suggest it is the former that affects the latter (quantitative work). It has reinforced the finding that there is a broader link between better 'governance' and health service delivery (quantitative work and literature review). It notes that when examined in detail there is a range of dysfunctions in the sub-systems that support health service delivery relating to PFM systems in some way; but also many that only tangentially relate to PFM (PETS review). It has also noted that there are no immediate 'clear winners' in terms of typically more complex PFM reforms that are very likely to solve challenges (literature review). These conclusions would suggest something similar to an HSS approach, in that it is indeed worth investing in the PFM systems, while being aware that a range of other systems, factors and variables (that may only partly or not at all relate to PFM issues) will also affect health service delivery. Use of these findings in a country-level HSS debate might also help facilitate better dialogue and clearer understanding between finance and health ministries.

Box 6. Nepal's experience of PFM and health service delivery

Nepal has made impressive improvements in health outcomes since 1990, achieving MDG 4 of reducing the under-five mortality rate by two thirds between 1990 and 2015 (it fell by 75%), and close to achieving the MDG of reducing maternal mortality by 75% between 1990 and 2015 (this fell by 71%). On both indicators, Nepal has outperformed LICs as a whole.

Unlike its health outcomes, Nepal does not seem to have a significantly better PFM system than other developing countries. Its CPIA score for quality of budgetary and financial management is below average for LICs. Nepal has undergone two PEFA assessments. The scores from the 2008 assessment (for FY 2005/06) show a similar result to the current CPIA score and are similar to those of 26 other LICs that have undergone PEFA assessments. The 2015 PEFA assessment (for FY 2013/14), however, showed significant improvements, especially on aggregate budget credibility. That said, Nepal continues to display weaknesses in the areas that arguably matter for service delivery: the composition of expenditure out-turn compared to original approved budget, and in predictability and control in budget execution, where it continues to score little better than the average for LICs. Other studies (Krause et al., 2013) have corroborated the fundamental challenges in how public finances are managed in Nepal.

Nepal thus presents impressive progress on health indicators, but much less progress on indicators of PFM quality. This might suggest only a limited role for PFM in achieving improvements in health service delivery in Nepal. The country has placed a consistent policy focus on child and maternal health, which has translated into allocating resources to these areas, but this seems to have happened *despite* a dysfunctional budget process rather than *because* of budget reforms. Where Nepal appears to have succeeded is in ensuring a reliable flow of resources to an expanding network of health facilities, with salaries and operating transfers paid reliably, although more recently problems in drug procurement have affected distribution.

Nepal's experience would therefore support a 'basics first' approach to PFM and service delivery. PFM systems should aim to support the reliable provision of inputs such as salaries, drugs and operating expenses. Improving the allocation of resources in a more pro-poor direction and creating incentives for performance through the health system are more fundamentally political and influenced by a wider variety of factors. This is arguably in line with the view of Schick (1998) that incentives need to be created for better budgeting and use of resources rather than trying to use the budget system to create those incentives (as with performance budgeting and other similar reforms). Nepal's experience suggests that if these factors are in place, PFM systems that perform these basic functions, even imperfectly, can provide a platform for rapid and sustained progress on health outcomes.

Source: Hart, 2017

7.3. Areas for further research

The review of donors' understanding of the link between PFM and health service delivery noted the need for further research in this area. Furthermore, the literature review found relatively thin evidence in general for a question that touches on two large areas of development policy. This research aims to make a contribution to filling this research gap, but a number of questions and issues suited to further research remain. Further research in this area could usefully consider the following issues:

- What are the underlying drivers of a stable and reliable budget allocation to health? The literature focuses on technical reforms such as introducing MTEFs or performance budgeting, but there is little evidence of their positive effects. A more fruitful line of research may be to examine the underlying political economy and incentive factors that lead to stable and increasing health budgets (e.g. Simson and Welham, 2014), alongside consideration of technical reforms.
- What would a 'next generation' of PETS look like in supporting a better understanding of PFM challenges in the health sector? As noted above, PETS appear to have fallen out of fashion and the number being undertaken has dropped dramatically in recent years. Research could usefully review the reasons for this, and consider which part(s) of the PETS approach remain(s) most useful for understanding how resources are flowing to a particular sector, including health.
- What kind of accountability and transparency work in the field of healthcare, and under what circumstances? A number of studies suggest that transparency and participation matter. However, the evidence comes from a wide range of studies and contexts, and the causal mechanisms operating in each are likely to be very different. Further research could usefully review how the different kinds of transparency and accountability mechanisms affect health service delivery, through what mechanisms, and what role PFM systems can have in supporting them.
- Cash budgeting and service delivery is an issue broader than health service delivery alone. PFM reforms will inevitably involve trade-offs, and with cash budgeting the most obvious is between aggregate fiscal control and lower-level budget credibility. If cash budgeting and cash rationing are the reality in many LICs, what are the good practice or positive examples of where health services, or their key supporting PFM systems, have been 'protected' or 'insulated' to some degree from the unpredictability and volatility inherent in this kind of budgeting approach. What are the options for health ministries and their donors in working with the finance ministries to adapt and align to this?
- Is this just an agenda for LICs? What are the broad differences in PFM system performance between LICs and MICs and how do these play out in health service delivery? As countries develop and perhaps move to more sophisticated forms of UHC financing (e.g. compulsory social insurance; more explicit national risk-pooling) do the requirements and needs of the PFM system change? Similarly, as the disease burden and type of medical interventions change with the process of national development, will the type of PFM system needed to support good health outcomes also need to adapt?
- What do the specific requirements of *universal* health coverage mean for PFM systems? Given the commitment to achieve UHC by 2030, does the requirement to introduce national-level comprehensive approaches to coverage and access require specific PFM systems that a non-universal system does not?

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Annex 1 – Additional details of quantitative analysis

Table A1. Correlation matrix (n=78)

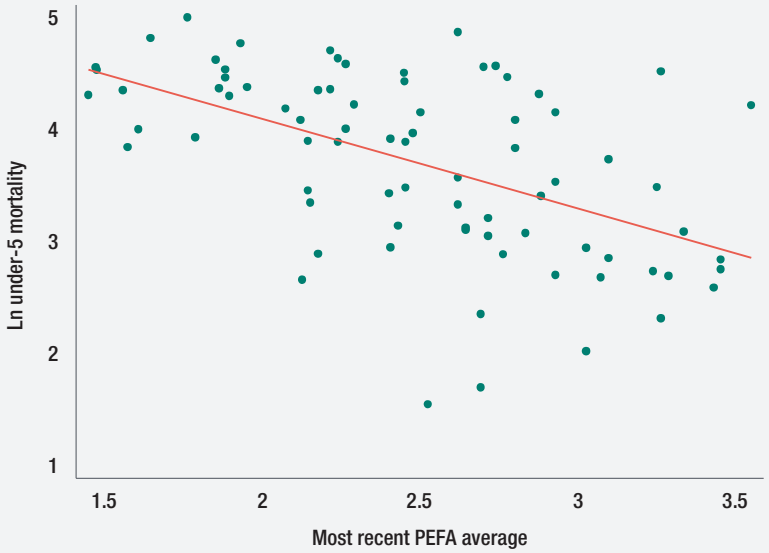
	Ln under-five mortality	Ln infant mortality	Life expectancy at birth	PEFA average	Ln GDP per capita	Female adult literacy	HIV prevalence	Public health expenditure (% of GDP)	Corruption Perceptions index
Ln under-five mortality	1								
Ln infant mortality	0.995	1							
Life expectancy at birth	-0.847	-0.817	1						
PEFA average	-0.532	-0.521	0.473	1					
Ln GDP per capita	-0.723	-0.707	0.593	0.477	1				
Female adult literacy	-0.753	-0.736	0.601	0.361	0.700	1			
HIV prevalence	0.346	0.327	-0.617	-0.091	-0.002	-0.004	1		
Public health expenditure (% GDP)	-0.293	-0.313	0.059	0.206	0.231	0.294	0.307	1	
Corruption Perceptions Index	-0.364	-0.361	0.293	0.537	0.496	0.299	0.187	0.326	1

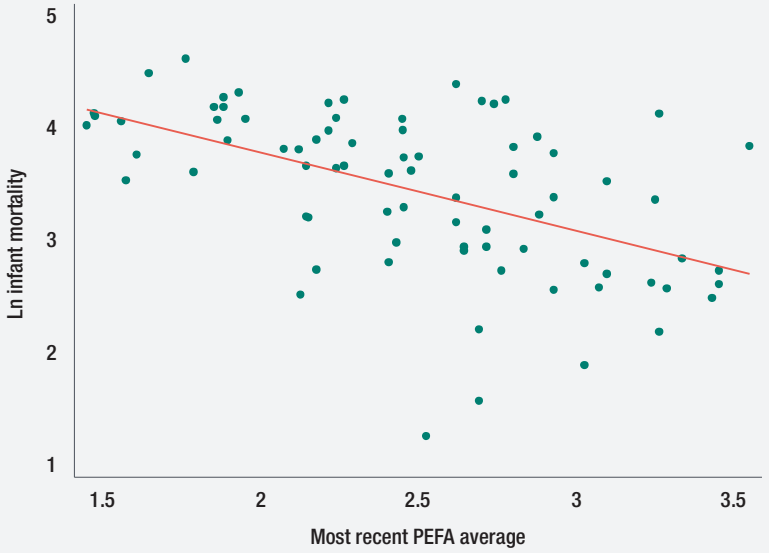
Table A2. Controlling for total health expenditure (% GDP) rather than public health expenditure (% GDP)

VARIABLES	(1) Under-five mortality	(2) Under-five mortality	(3) Infant mortality	(4) Infant mortality	(5) Life expectancy	(6) Life expectancy
PEFA average	-0.220***	-0.190**	-0.190**	-0.162*	0.0352***	0.0222
	(0.0791)	(0.0939)	(0.0718)	(0.0867)	(0.0123)	(0.0137)
Ln GDP per capita	-0.274***	-0.259***	-0.240***	-0.227***	0.0348***	0.0284**
	(0.0709)	(0.0743)	(0.0640)	(0.0677)	(0.0122)	(0.0119)
Female adult literacy	-0.0130***	-0.0132***	-0.0112***	-0.0114***	0.00161***	0.00170***
	(0.00210)	(0.00209)	(0.00200)	(0.00198)	(0.000409)	(0.000402)
HIV prevalence	0.0534***	0.0549***	0.0454***	0.0468***	-0.0139***	-0.0145***
	(0.00680)	(0.00732)	(0.00607)	(0.00664)	(0.00193)	(0.00157)
Total health expenditure (% GDP)	-0.0589***	-0.0583***	-0.0565***	-0.0559***	0.00336	0.00309
	(0.0161)	(0.0159)	(0.0155)	(0.0154)	(0.00294)	(0.00291)
Corruption Perceptions Index		-0.00395		-0.00363		0.00170**
		(0.00483)		(0.00465)		(0.000849)
Constant	7.426***	7.370***	6.710***	6.659***	3.733***	3.757***
	(0.389)	(0.400)	(0.366)	(0.378)	(0.0667)	(0.0631)
Observations	78	78	78	78	78	78
R-squared	0.807	0.809	0.769	0.770	0.821	0.831

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Figure A1. Scatterplots between most recent PEFA average and three health outcomes (n=78)





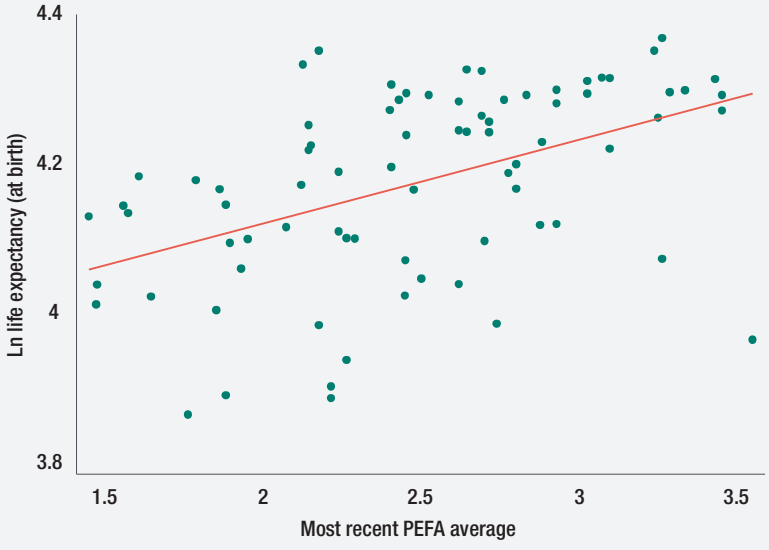


Table A4. List of countries used in the regression models

* = Indicates country included in regression model

Country	PEFA assessment year	Models using PEFA as PFM measure (n=78)	Models using CPIA-13 as PFM measure (n=51)
Afghanistan	2013	*	*
Albania	2012	*	
Armenia	2014	*	*
Azerbaijan	2014	*	
Bangladesh	2010	*	*
Belarus	2014	*	
Benin	2007	*	*
Bhutan	2010	*	*
Bolivia	2009	*	*
Botswana	2013	*	
Brazil	2009	*	
Burkina Faso	2014	*	*
Burundi	2012	*	*
Cabo Verde	2008	*	*
Cambodia	2015	*	*
Central African Republic	2010	*	*
Colombia	2009	*	
Comoros	2013	*	*
Congo, Dem. Rep.	2008	*	*
Congo, Rep.	2014	*	*
Costa Rica	2010	*	
Côte d'Ivoire	2013	*	*
Dominican Republic	2012	*	
El Salvador	2013	*	
Ethiopia	2010	*	*
Gabon	2006	*	
Gambia	2015	*	*
Georgia	2013	*	*
Ghana	2013	*	*
Guatemala	2013	*	
Guinea-Bissau	2014	*	*
Haiti	2012	*	*
Honduras	2013	*	*
India	2010	*	*
Indonesia	2012	*	
Jamaica	2007	*	
Kenya	2012	*	*
Kyrgyz Republic	2015	*	*
Lao PDR	2010	*	*

Country	PEFA assessment year	Models using PEFA as PFM measure (n=78)	Models using CPIA-13 as PFM measure (n=51)
Lesotho	2012	*	*
Liberia	2012	*	*
Macedonia, FYR	2015	*	
Madagascar	2014	*	*
Malawi	2011	*	*
Maldives	2009	*	*
Mali	2011	*	*
Mauritania	2014	*	*
Mauritius	2011	*	
Moldova	2015	*	*
Mongolia	2015	*	*
Morocco	2009	*	
Mozambique	2011	*	*
Myanmar	2012	*	*
Nepal	2015	*	*
Niger	2013	*	*
Pakistan	2012	*	*
Panama	2013	*	
Paraguay	2011	*	
Peru	2009	*	
Philippines	2010	*	
Rwanda	2010	*	*
São Tomé and Príncipe	2013	*	*
Senegal	2011	*	*
Serbia	2010	*	
South Africa	2008	*	
South Sudan	2012	*	*
Swaziland	2011	*	
Tajikistan	2012	*	*
Tanzania	2013	*	*
Thailand	2009	*	
Togo	2009	*	*
Trinidad and Tobago	2008	*	
Tunisia	2010	*	
Uganda	2012	*	*
Ukraine	2012	*	
Vietnam	2013	*	*
Zambia	2005	*	*
Zimbabwe	2012	*	*

Annex 2 – List of studies included in the literature review

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Annex 3 – List of Public Expenditure Tracking Surveys analysed

Country	Published	Sector coverage	Study type	Report type	GDP per capita $, (PPP)
Albania	2004	Health	Other	Primary report	6,631
Bangladesh	2003	Health	QSDS	Working paper	1,730
Brazil	2006	Health	PETS	Other	11,470
Cambodia	2005	Health	PETS	Primary report	1,760
Chad	2008	Health	PETS & QSDS	Journal article	1,585
Ghana	2002	Health and Education	PETS	Working paper	2,273
Ghana	2007	Health and Education	PETS	Primary report	2,651
Honduras	2001	Health and Education	PETS	Other	3,478
India	2005	Health	QSDS	Working paper	2,813
Kenya	2014	Health	PETS & QSDS	Primary report	2,670
Lao PDR	2008	Health and Education	PETS	Primary report	2,552
Madagascar	2007	Health and Education	PETS	Primary report	1,421
Namibia	2004	Health	PETS & QSDS	Primary report	6,471
Niger	2008	Health and Education	PETS	Primary report	824
Nigeria	2003	Health	PETS & QSDS	Other	2,922
Peru	2002	Health, Education and Other sectors	PETS	Primary report	6,460
Papua New Guinea	2004	Health, Education and Other sectors	PETS	Primary report	1,761
Rwanda	2003	Health and Education	PETS	Working paper	781
Senegal	2002	Health	PETS	Primary report	1,922
Sierra Leone	2003	Health, Education and Other sectors	Other	Other	919
Sierra Leone	2012	Health	PETS	Primary report	1,375
Tajikistan	2008	Health	PETS	Primary report	1,801
Tanzania	2001	Health, Education and Other sectors	PETS	Primary report	1,490
Timor-Leste	2014	Health	PETS	Primary report	2,039
Uganda	2003	Health	QSDS	Working paper	1,064
Uganda	2001	Health	QSDS	Working paper	1,065
Zambia	2007	Health	PETS & QSDS	Primary report	2,495

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Cover photo: Two year old Bakir Rashid, who suffers from congenital cataracts, gets his eyes tested by Dr Paul Nyaluke, a pediatric opthamologist, at Kigbweni hospital, before undergoing a sight restoring operation. Tommy Trenchard/Panos.

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