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# **What determines public expenditure allocations?**

A review of theories and implications for agricultural public investment

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# What Determines Public Expenditure Allocations?

## A review of theories and implications for agricultural public investment

Tewodaj Mogues<sup>1</sup>

### Abstract

This paper addresses the determinants of public expenditure policies, by reviewing theories and empirical investigations of what features explain the *budget process* and how the various *attributes of actors*—including politicians, bureaucrats, interest groups, and donors—and *of institutions* and political and economic governance environments affect the prioritization of public investments. It draws conclusions with regard to the determinants of agricultural public investments.

***Descriptions and theories of the budget process:*** Studies that explicitly examine the budget process as it pertains to agricultural ministries and agencies in developing countries question the relevance of the formal budget process to understanding how decisions are actually made. There exists a body of work, adhering to the so-called ‘garbage can budgeting model’, that, although clearly rejecting the notion of a textbook budget process in empirical reality, seems to also reject the notion that there are any systematic politico-economic or other influences on how public expenditures are apportioned across competing needs. The budgetary model of incrementalism, at the other extreme, models budget makers as backward looking and changes in budget allocation as incremental. Another body of literature focuses on nature in which budgetary trade-offs are or are not made. The passage of the final budget—however it is arrived at—is not the end of the budget process, as there is still the implementation and execution of that budget. Discrepancies between the approved agricultural budget and the executed budget in the sector can come in the form of leakages, or they can occur because of a lack of capacity to execute or because of changing priorities mid-fiscal year.

***The role of various actors in resource allocation decisions:*** One conception of the budget allocation process prevalent in the economics literature offers an economic view of public resource allocation undertaken by a benevolent and *autocratic* (in the sense of unencumbered) social planner seeking to maximize aggregate welfare. Other distinct branches have developed within the public choice literature, including those that depart from the notion of an unencumbered policymaker. One such branch of this literature analyses budget outcomes emerging from the interface between budget-maximizing bureaucrats and vote-seeking politicians. In the collective action literature, characteristics of interest groups (in the broadest sense of the term) affect these groups’ ability to press for public policies, including agricultural investments, subsidies, and other public interventions, that are favorable to them. An interesting phenomenon in policy processes is the seeming existence of a status quo bias among policymakers, such that policies that have outlived their usefulness, such as agricultural input subsidies, appear to often fail to be discontinued. A diverse literature examines donors as actors, with their sets of incentives, constraints, and preferences, and the reach of their influence over public spending in developing countries.

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***Characteristics of public expenditures and of the private and public goods they create:*** It is often difficult to attribute to policymakers' actions the creation or improvement of certain services.

Incorrect or imperfect attribution, in turn, dampens policymakers' (political) incentives to undertake effort in improving services and infrastructure and drives the prioritization of investments. The extent to which attribution is achieved depends on the visibility of the investments, and on the length of lag between the time when resources are allocated to provide a good or service and the time when the good or service is created. This helps explain the underinvestment in agricultural research.

***Economic and political governance:*** Areas of public spending in which large infrastructural or other capital investments are undertaken lend themselves more to rent-seeking activities by public officials. The prevalence of corruption in a society thus affects the composition of public spending, by increasing aggregate public investments, although the quality of these investments will be lower. The effect of wider political governance features of countries on the composition of public investments is more complex, nonlinear and not fully conclusive in the literature.

**JEL Codes:** D72, D78, H4, H83, P16, Z18.

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# 1. INTRODUCTION

Public investments in agriculture in developing countries can have profound effects on productivity in the sector but can also be an important tool to address poverty and improve health and nutrition outcomes. To improve the performance of the agricultural sector, not only is public support needed directly within the sector, but investments in infrastructure and in human capital in rural areas matter as well. Much evidence has been accumulated on the impacts of public investments in and for agriculture, although perhaps just as much still remains to be understood (see Mogues et al. [2012a] for a review). In the examination of actual resource allocation decisions by governments and donors, it is striking that strong evidence of the high economic contributions of particular types of public investments seems to coexist with a relative neglect of these public goods provisions in budget portfolios. And, despite rich analysis pointing to the poor or very modest performance of certain forms of public support to agriculture, these very interventions continue to enjoy comparatively large fiscal allocations by policymakers.

Such discrepancies between impact and prominence in the public budget cannot simply be explained by inadequate access to the evidence on the part of public-sector decisionmakers. Instead, it is important not only to identify what effects public investments have on growth and poverty reduction, but also to understand how budgetary allocation decisions are made and how various forces, incentive structures, and characteristics of different actors, as well as political and economic institutions, shape the public resource allocation process. Evidence on the development impact of alternative investments is only one such determining factor, and possibly not even a comparatively large one. An understanding of what shapes the composition of public budgets can help decisionmakers identify how to best encourage productive public investments and scale back ineffective public expenditures.

This paper is concerned with the question of what determines public expenditure policies. It reviews theories regarding and empirical investigations into what features explain the budget process and how the different attributes of actors—including politicians, bureaucrats, interest groups, donors, and so on—and of institutions and political and economic governance environments affect the prioritization of public investments. Although some of the canonical literature on the political economy of policymaking has focused its attention on the agricultural sector, many very relevant and interesting theories and empirical works have not been applied to the dynamics of public investments in or for agriculture. In this paper we concern ourselves with both sets of works and try to draw tentative lessons for the agricultural sector from the latter.

The body of work on the determinants of public investment (and, more broadly, public policy) decisionmaking is disparate across disciplines: It straddles economics, political science, public administration, public finance, and organizational sciences. This review does not limit itself to the insights of one discipline, although it may draw more extensively from some fields than from others. It should also be noted that by no means does this review have the ambition to be comprehensive of all studies on this topic; instead, it seeks to bring together key insights that are related or relevant to decisionmaking processes on public expenditures in and for agriculture. In this sense, for example, it has left out (or more accurately, draws only very selectively from) the extensive body of work specifically focused on the determinants of other types of public policies, such as trade policies or regulatory policies.

We have—somewhat loosely—organized the discussion into four areas and issues. In the next section we explore the evidence that focuses on the *process* of budget making. Section 3 hones in on the role of key *actors*—and their attributes and incentives—in determining which types of investments and expenditures are realized. Section 4 discusses the literature that identifies how the *characteristics* of different public expenditures themselves (or the resultant public or private goods) affect the relative weight and magnitude of these spending types, or the probability that such outlays will be incurred by public officials. Section 5 turns its attention to the influence that the political and economic *governance environment* has on spending priorities. Finally, we conclude by interpreting

the range of the findings discussed and by drawing conclusions for policy entry points and extensions of research.



## 2. DESCRIPTION AND THEORIES OF THE BUDGET PROCESS

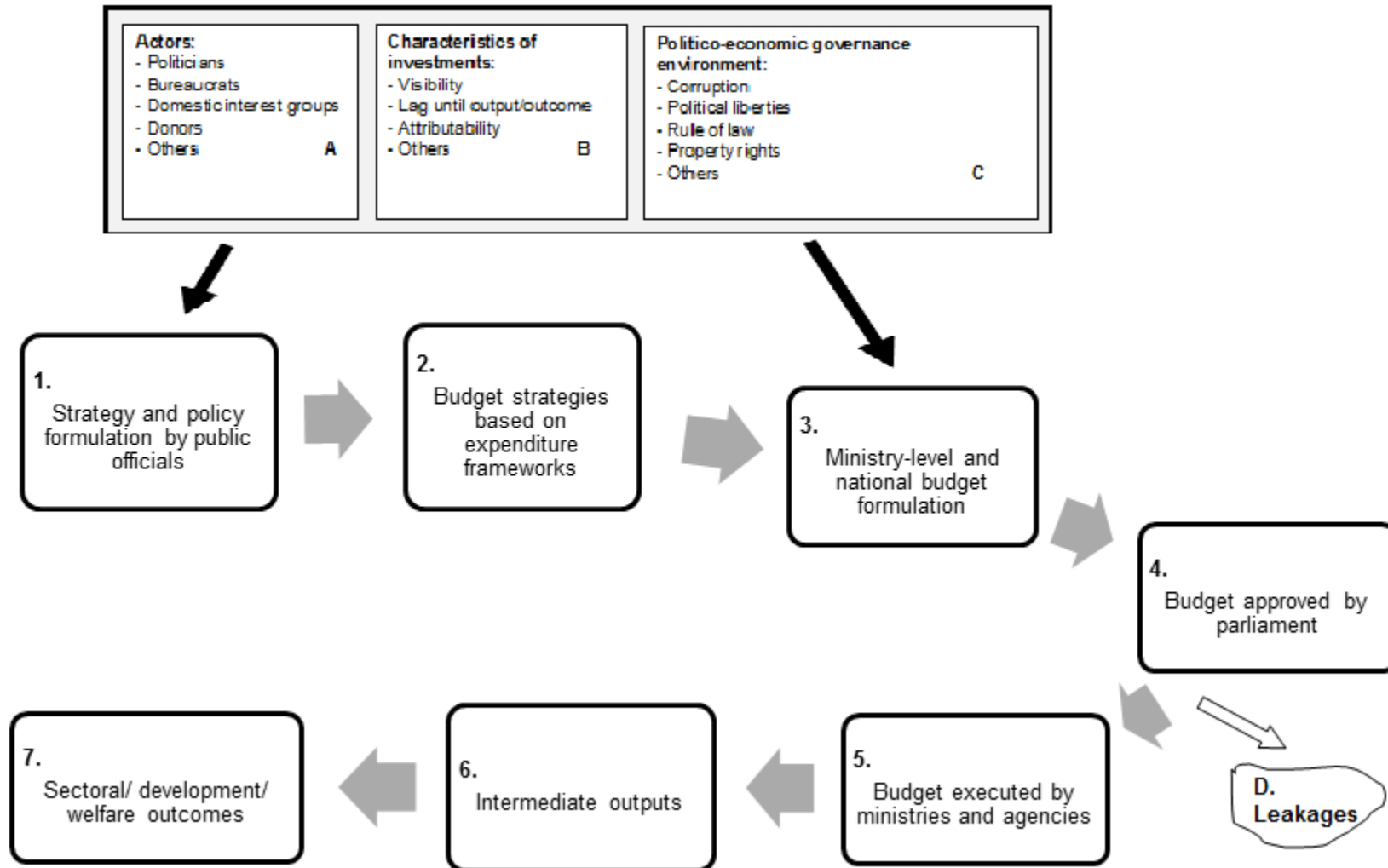
We begin, in this section, by discussing descriptions and theories of resource allocation decisions that primarily focus on the *processes* from which budget portfolios emerge. The first discussion is on the formal budget process according to documented procedures. This allows us to consider to what extent allocation dynamics derived from the subsequently reviewed theories, models, and empirical investigations are consistent with, or diverge from, these formal procedures. The second subsection briefly reviews models from organizational sciences and public administration, which, while disparate, have in common that they implicitly or explicitly negate the notion of systematic influence by key actors such as interest groups. We also discuss a body of literature that puts to the test the notion that different budget items are traded off against each other. A final element of this section considers what may happen after a budget portfolio is decided on, and how a discrepancy between the initial budget and its execution can further affect the distribution of public expenditures.

### The Formal Procedures Underlying the Budget Process

The first step in the formal budget process for most countries is the undertaking of strategy formulation, at both the national and ministry levels. Figure 2.1 represents a simplified version of the budget process. This includes taking into account guiding documents that have been produced, such as poverty reduction strategy papers, to prioritize the issues of the upcoming period. Specifically, within the agricultural sector there also exist documents that lay out objectives, constraints, and goals for the sector, such as national agricultural sector development plans, and in African countries the strategy documents arising from the Comprehensive Africa Agriculture Development Programme (CAADP) process. From the overarching policies and strategies, decisionmakers work to link the upcoming period's activities with the medium- and long-term priorities of the country.

For many countries this overarching policy guidance comes in the form of a medium-term expenditure framework (MTEF). The MTEF is a multiyear framework that allows a country to tie its current annual budget to a rolling budget that will be implemented over the coming years while maintaining the policy orientation of the budget within the sectors (see Box 2 in Figure 2.1). The objectives of doing so are greater macroeconomic balance, improved inter- and intrasectoral resource allocation, greater budgetary predictability, and more efficient use of public money (Houerou and Taliencio 2002).

Figure 2.1—The public expenditure decisionmaking process and the factors influencing this process



Source: Author

The MTEF helps steer the budget-making process toward a more results-orientated approach with cross-ministerial coordination, and to a focus on longer-term needs. But it has also been criticized as being incongruent with institutional capacities in place during its introduction, as having failed to foster national ownership, and having given inadequate attention to problems with fundamental budgeting issues (Schiavo-Campo 2009; Lawrence and Wynne 2009). Nevertheless, the MTEF is a proper example of a framework that is intended to guide the formulation of budget strategies and objectives.

With the overall policies outlined, the annual budget allocation process at the ministry level usually begins with the finance ministry providing expenditure ceilings to all the ministries (see Box 3 in Figure 2.1). Depending on the country, either the individual agencies and departments within each ministry develop a budget that is then submitted back to their ministry for inclusion in the ministry-level budget, or the ministry conducts a sector meeting with a range of sector representatives to construct a framework that leads to the budgetary allocation suggestions. Either way, the alignment of agricultural strategies and the budget allocation are crucial in moving the agricultural sector of a country forward and in avoiding under- or misallocation of funds (World Bank 2007). Once a ministry has finalized its budget and the final structure of the budget is established, it is submitted to the ministry of finance for additional intersectoral meetings and revisions before the finalized copy is sent to the parliament for approval. Once any final issues have been weighted and considered, and possibly final amendments to the budget made, the parliament approves the final budget (Box 4).

Having now very briefly summarized the general formal procedures of the budget process as described in national planning and budgeting tools, we must consider to what extent these procedures provide a complete or accurate guide to how decisions are actually made. Studies that explicitly examine the budget process as it pertains to agricultural ministries and agencies in developing countries question the relevance of these formal procedures in understanding how decisions are actually made. For example, Uddin and Tsamenyi (2005), in discussing a Ghanaian agricultural state-owned enterprise tasked with marketing farmers' commodities, point to substantial departures from standard budgetary procedures. Annual budgets rarely underwent regular reviews, and control procedures were not followed in practice. This was possible largely because the ability of the government oversight agency to fulfill its mandate to monitor the operation and performance of state-owned enterprises was starkly diminished by the fact that the agricultural state enterprise's board members were politically connected at the highest levels, and thus the oversight agency's formal authority faded compared to the state enterprise's informal political power.

The myriad reasons why budget allocations do not follow the textbook budget process extend, of course, beyond features particular to agriculture. McKie and van de Walle (2010) contrast constitutional, legal, and formal bureaucratic stipulations on how the budget process is supposed to work in various African countries with how it actually does work. Institutions do exist that are designed to realize horizontal accountability mechanisms in the budget process, such as parliamentary budget committees and external auditors, and those to create vertical accountability down to the citizens, such as civil society groups with budget oversight responsibilities and, most directly, elections. However, these institutions are plagued with legal constraints (for example, unduly tight legal limitations on the scope and discretion of external auditors), capacity constraints (for example, the nonexistence of parliamentary budget offices with the wherewithal to understand technical budget reports), and political constraints (for example, the political constraints on contested elections in authoritarian environments). These legal, capacity, and political constraints can conspire to render the accountability mechanisms for budget processes ineffective or de facto absent, which in turn allows bureaucrats and politicians to strongly diverge from formal procedures with little penalty.

Therefore, although it is useful to be cognizant of formal budgeting processes, it is at best precarious to try to derive from them an understanding of how resource allocations to and within the agricultural sector are determined. This is true whether developed- or developing-country systems are examined, as will be apparent from various studies reviewed in this paper that consider how expenditure and budget policies are formed in both types of systems.

## The Budget Process as Independent from Systematic Influence

Before examining in greater detail the theories that analyze the bearing of politics and institutions on the resource allocation process, we take a look at a body of work that, although clearly rejecting the notion of a textbook budget process in empirical reality, seems to also reject the notion that there are systematic politico-economic or other influences on how public expenditures are apportioned across competing needs.

We begin with the *garbage can budgeting model*, which comes from the organizational sciences literature. The unusual name of this model is matched by its somewhat unusual content: Put simply, it proposes that budget decisions are the random outcome of a large set of independent events. Here, budgets emerge from an organized anarchy with four streams—various participants or actors, problems these actors perceive, solutions they identify, and actions they take in the form of initiatives (Cohen, March, and Olsen 1972). According to this framework, the public resource allocation process is essentially a simple random walk process in which public spending in one year is equal to the previous year's spending plus a randomly drawn (negative or positive) amount. The theory implies, then, that given a problem, a set of policymakers with limited time and resources, and a choice among different policies, the result is an equal chance of any of the alternative expenditure policies being chosen. Consequently, the budget choice that the policymakers select is not influenced in a systematic way by actors in or outside the formal budget system. This theory has not been widely applied to developing-country contexts, but one such case is a study of the Chinese policymaking process relating to the construction of the Three Gorges Dam (Bragg 2003). In a way, the garbage can budgeting model is the other extreme of the explanation of resource allocation decisionmaking that points to the formal budget process. And the plausibility of either is rather limited. Although the garbage can theory has been extended and refined (March and Olsen 1976; Weissinger-Baylon 1986), studies comparing its applicability to alternative models find little support for the garbage can theory (Reddick 2002, 2003).

Most budget theories have moved away from the arguably unsatisfactory randomness of this theory, but some still model budget allocation as being above systematic influences. This includes the budgetary model of incrementalism proposed in the political science literature. Davis, Dempster, and Wildavsky (1966) first developed and empirically applied this theory, which models budget makers as backward looking and changes in budget allocation as incremental and, in its strictest form, increasing or decreasing by the same proportion each year. With the current budget allocation tightly tied to the previous year's budget, the model leaves little room for actors to have an effect by lobbying for changes in budget allocation or policies. The incremental budget model has been applied to the budget-making process of a variety of countries and organizations (Davis 1971; Cowart, Hansen, and Brofoss 1975; Edwards and Sharkansky 1975; Hoole 1976; Ostrom 1977; Sharkansky and Turnbull 1969).

The logic and applicability of the incremental model has been challenged almost from the time it was first proposed, including through questions regarding the definition of what amount of budgetary change would be considered incremental, but more importantly through doubts about the assertion that neither policymakers' objectives nor politics and pressure groups feature in the equation (Natchez and Bupp 1973; Wanat 1974; Bailey and O'Connor 1975; Rubin 1989; Anderson and Harbridge 2010). While incrementalist models have *some* intuitive appeal, it appears theoretically more interesting to seek to understand under what conditions budgetary compositions are slow moving, and under what circumstances they are more prone to greater shifts.

One such direction comes from an application of the veto-players theory. Veto-players are actors and institutions that can effectively block budgets, such as political parties within government, presidents, and so on. Tsebelis and Chang (2004) model and empirically test (in the context of industrialized countries) the extent to which the budget composition is able to change as a function of

ideological diversity within government and between governments over time. Greater ideological distance of veto-players within governments results in a more slowly changing budget (for example, when parties in parliament and/or parties controlling the different legislative and executive bodies are strongly heterogeneous ideologically) because consensus for change in the allocation of resources across different sectors—whatever the direction of this change, for example, whether it is away from or toward agriculture—is harder to achieve. In contrast, greater ideological distance between alternating governments spurs budget composition change, since an incoming government with a strongly different political outlook from that of the preceding government is more likely to want to significantly change budget portfolios from what they were before.

## Budgetary Trade-Offs

A general and intuitive notion is that there is a point when budgetary trade-offs are necessary, and governments, including the legislative and executive branches as well as the ministries, are faced with tough decisions. Budgetary trade-offs are an important topic to examine given that policy- and budget makers face an array of choices while restricted by the income of the country and the knowledge that each increase, such as in agricultural investment, must be accompanied by a decrease in another area, maybe defense, health, or education, or a combination of sectors, if spending increases are not enabled by an overall expansion of public spending financed through additional revenue generation or borrowing.

The body of literature on budgetary trade-offs—predominantly embedded in the political science discipline—does not negate the existence of such trade-offs as do (directly or indirectly) the garbage can and incremental budgeting theories, but neither does it take trade-offs as a given. It does suggest that the explicit and conscious trading off of different sectoral or programmatic investments against each other is unusual (see, for example, Domke, Eichenberg, and Kelleher 1983). This is not to say that there is no budget constraint in contexts where no explicit trading off occurs. Rather than the absence of trade-offs being a reflection of nonbinding budget constraints, it is an outcome of features of the budget-making process. With budgetary and prioritization processes highly fragmented across government agencies and departments, and in the absence of coherent and long-term planning, investment decisions are made too much in isolation of each other to be an outcome of concrete trade-offs across programs. From this view of the budget process, and based on this narrower definition of the notion of trade-off rather than one that suggests that trade-offs are inherent in the finiteness of public resources, it is incumbent upon the empirical analyst to in fact show that budgetary trade-offs occur.

The literature on budget trade-offs to date has mainly focused on the *guns versus butter* decision of how countries should allocate their budgets between spending on defense, including the army, weaponry, and associated departments, and spending on *butter*, which is interpreted variously as expenditures on social welfare programs and social safety nets, on social sectors such as health or education, or on all nondefense spending. A multitude of articles have assessed the budget trade-offs that occur between defense spending and spending on social welfare programs, a topic that has been mostly explored by the political science community (Russett 1969; Caputo 1975; Peroff and Podolak-Warren 1979; Domke, Eichenberg, and Kelleher 1983). Other literature has also examined the motivation and influencing elements of these budgetary trade-offs. For example, for much of the the second half of the 20<sup>th</sup> century, foreign policy factors most greatly influenced the allocation of the budget between defense and other public spending avenues in the United States (Berry and Lowery 1990). Analysis of 14 Latin American countries between 1974 and 1995 demonstrates that increased democratization leads to increases in civilian spending over military spending (Lebovic 2001). These and other empirical findings identifying explicit budgetary trade-offs were in some sense a response to the earlier literature suggesting that countries allocate public resources either randomly or in a strictly incremental fashion.

A promising avenue for further research is the application of existing theoretical and empirical frameworks for analyzing budgetary trade-offs to the case of public investments in

agriculture versus other expenditure categories, and to the developing-country context. To our knowledge, this has not yet been undertaken. Such extension would, among other things, take into account the budget processes—discussed elsewhere in this review—prevalent in developing countries, as well as the actors in these processes and their political power to enforce their budget preferences against those of others. In this context, it would be useful to develop a greater understanding of the political position of ministries of agriculture vis-à-vis other ministries (such as education, industry, and so on). Anecdotal evidence suggests that agriculture ministries tend to have relatively limited political clout in many developing countries and are not always highly regarded by ministries of finance; however, little to no research has been undertaken on this topic.

## Budget Implementation

The passage of the final budget—however it is arrived at—is not the end of the budget process, as there remains the implementation and execution of that budget, which may or may not go as planned (see Box 5 in Figure 2.1).<sup>2</sup> Discrepancies between the approved budget and the executed budget can come in the form of leakages, as shown in Figure 2.1. The discrepancies can also occur because of a lack of capacity to execute, or because of a mid-fiscal year change in priorities. Such shifts, and a continued climate of fiscal uncertainty, can present problems for ministries and politicians and can lead to difficult work circumstances for public agencies and officials and to failure to achieve policy objectives.

So where do countries fall short in fully executing the budget that was approved? To answer this question, we must look at what should constitute proper budget implementation and where the lapses can occur. Budget execution is generally comprised of five tasks: assignment of expenditure authority to the appropriate agencies and units, adjustment of work plans to fit the new budget allocations and objectives, scheduling of procurement, monitoring of the new work plan implementation and performance, and monitoring the disbursement of funds (Peterson 1994). If these steps are not carefully followed, budget execution can fall short of allocated budgets, and when the failure to fully execute does not occur proportionally across sectors, resource allocation can be significantly affected by execution problems.

Multiple reasons exist for differences between the budget passed and the one executed, including misjudged allocations, readjustments in budget allocation, revenue shortfalls that lead to the prohibition of the release of approved funds, and the use of funds for other, contingent uses. There are numerous examples of breakdowns in the tight link between approved budgets and executed budgets in developing countries. Even a well-planned budget that is approved by the legislative branch of a country is not necessarily guaranteed proper execution (World Bank 2010). A review of Nigerian agricultural expenditures finds that over the 2001–2005 period, 21 percent of the approved budget at the national level was never spent (Mogues et al. 2012b). In Zambia, the World Bank cites unpredictability of budget release, weak enforcement of regulations, lack of fiscal control, and poor public procurement systems as the reasons for feeble budget execution (World Bank 2004). In the case of agriculture, the release of funds usually corresponds to the fiscal year and not to the agricultural seasons, with a possible result being a lack of funds to provide seeds during the planting season or irrigation services during the dry season. Leakages can occur, as modeled in Figure 2.1. In Nigeria, leakages result from capacity constraints, lack of accountability, and nontransparent relationships between state and local governments on fiscal matters; and in Laos fund shortages, poor record keeping, and unauthorized spending are sources of leakages (Mogues et al. 2012b; Cammack, Fowler, and Phomdouangsy 2008).

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<sup>2</sup> There exists a broader literature that examines policy implementation, coined “implementation research” (for example, see Fixsen et al. (2005)). Much of what falls under this rubric is concerned with health policy implementation in developed countries, although some of the lessons from this literature could be relevant to agriculture and other sectors and to the developing-country context.

Measuring these leakages and identifying at what stage they occur is also essential, especially if countries seek to plug the leaks. A public expenditure tracking survey (PETS) can assist with this. A PETS is a quantitative survey that focuses on the supply side of public services, with data collected from frontline providers (for example, extension agents or teachers), service facilities (for example, farmer training centers, schools), government officials such as local or national bureaucrats in the ministry of agriculture or education, and central (nonline) ministries such as the ministry of finance. Analysis of this data helps identify how much of the budget assigned at the central level actually reaches the lowest units of service provision; thus, the PETS approach is used as a means to track the flow of expenditures from allocation to final distribution (see Reinikka and Svensson [2006] for a review of this analytical tool).

As there are hardly any PETS on the agricultural sector, we illustrate the value of this tool using a study on education. A PETS in Uganda revealed that Ugandan schools were receiving an average of only 13 percent of the government spending intended to reach them during the period studied, with a striking median percentage of zero (Reinikka and Svensson 2004). The survey also showed that the majority of these leakages went to local officials and local politicians. PETS have also been used for specific programs, including a child food transfer program in Peru (Stifel and Alderman 2006). These examples illustrate the benefit of conducting a PETS, as countries can measure the extent to which resources assigned for a particular purpose are in fact expended on this purpose, and can identify (general) points of leakage, which can then be directly addressed through policy or policy implementation changes. Upon publication of the findings in the Ugandan study, the Ugandan government chose greater transparency, which included publishing the amounts allocated to schools, and schools publishing their public finance inflows in local newspapers, as a means to tackle the problem of budget leakages and hold various actors in the public expenditure–service delivery chain accountable.

### 3. THE ROLE OF VARIOUS ACTORS IN RESOURCE ALLOCATION DECISIONS

As discussed earlier, there are theoretical, empirical, and plainly intuitive reasons to doubt that a description of the formal budget process fully captures how resource allocation decisions are made. Public administration and organizational models that, at one extreme, suggest that allocation takes place more or less randomly and, at the other extreme, posit that budgets grow in a mostly uniform way over time also to some extent defy both evidence—as will be seen in the review of further theories in this and subsequent sections—and plausibility. This does not mean that they do not contain elements of truth, or at least offer usable insights. However, the garbage can theory of budgeting seems to overcorrect for the naive assumption of the neat formal budget process, and the incrementalist understanding of budget processes implies a great deal of passivity on the part of politicians, bureaucrats, interest groups, and other actors.

The objective of this section is to discuss the role of various actors in informing how public investment decisions are made (refer to Box A in Figure 2.1). We first consider the model of the policymaker as benevolent social planner, and then other models that introduce greater complexity by exploring the interface between politicians—who must attend to voters’ preferences—and bureaucrats interested in large budgets for their bureaus. The large and longstanding literature on interest groups, and what features affect their ability to advocate on behalf of public expenditures serving their interests, is reviewed in the subsequent subsection. Finally, the body of work that concentrates on the ways in which donors exert—and fail to exert—influence on developing countries’ budgetary portfolios is discussed.

#### **The Policymaker as a Benevolent Social Planner**

Out of the criticism of incremental resource allocation theories emerged the rational choice budgeting model, also from the political science literature (Reddick 2002) but drawing on key economic concepts. Thus, instead of policymakers and their budget decisions being perceived as random, or backward looking, they are instead forward looking, and decisionmakers are driven by rational expectations. One conception of the budget allocation process prevalent in the economics literature borrows from economic theory on consumer demand and offers an economic view of public resource allocation undertaken by a benevolent and autocratic social planner. Here, *autocratic* is not meant in its usual negative connotation but simply signifies a policymaker who is in a position to make decisions unencumbered by constraints imposed by other actors. The *benevolent* dimension describes the planner as seeking to maximize aggregate welfare, possibly with weights differing across different types of individuals; for example, greater weights may be attached to those with lower private resources. The social planner allocating resources across competing sectors and needs is subject to the constraints imposed by a fixed overall budget. This model was applied by Deacon (1978) to local government expenditures and subsequently to various countries by Dunne and Smith (1984) and Tridimas (1999). Tridimas (2001) offers a more complete review of studies developing or applying the model of the policymaker’s decisionmaking process driven by a social welfare function.

#### **The Interface between Politicians and Bureaucrats**

Other distinct branches have developed within this rational choice literature, including those that depart from the notion of an unencumbered policymaker. One such branch emerging from the public choice literature proposes that certain actors in the public sector are rational, budget-maximizing individuals, and other (or the same) actors are vote-seeking. Tridimas (2001) presents a blended model of the benevolent social planner maximizing a social welfare function but also maximizing electoral support by factoring in voters’ preferences over different types of public spending. Niskanen (1971) brings out the interaction between bureaucrats and policymakers. Policymakers are agents with a demand for public goods, derived from their interest in maximizing votes, and public goods are produced and delivered by bureaus, departments, or ministries run by bureaucrats who seek to maximize budgets for their own organizations.



Bureaucrats have a monopoly on the information regarding their activities, including the costs of these activities. This asymmetric distribution of information between bureaucrats and policymakers can result in the former winning the budgeting showdown as they present policymakers with a take-it-or-leave-it situation, which they are able to do given the prohibitive costliness of the information needed for policymakers to make fully informed decisions. The theoretical result of the respective objective functions and information sets of these two types of actors is an oversupply of public goods and services.

Although some empirical evidence seems to bear out the model's feature of bureaucrats seeking to increase their budgets and benefitting from increased budgets, the implied limited leverage of policymakers against the bureaucracy in the model has been questioned (Blais and Dion 1990). This approach has also been criticized for imprecisely defining the utility functions of bureaucrats and for failing to properly account for variations in their motivations (Dunleavy 1985). More comprehensive and stronger critiques have also emerged, dismissing many of the assumptions and in consequence also the core conclusion of an overprovision of public goods (Goodin 1982).

### **Interest Groups and Collective Action**

The literature has consistently observed agricultural protection policies in developed nations, while developing countries have pursued policies of agricultural taxation (Bale and Lutz 1981; Krueger, Schiff, and Valdes 1988; Lindert 1991; de Gorter and Swinnen 2002), a phenomenon that has been termed the *development paradox* (Anderson and Hayami 1986; Bates 1987). A rich body of evidence has also pointed to the ways in which agricultural policies in developing countries have favored larger-scale farmers, few in number, even when these policies were intended to specifically target the masses of smallholders (see Birner and Resnick [2010] for a brief overview). There are similarly many instances in developing countries in which public investments, pricing policies, and other measures have benefitted the urban class at the expense of rural dwellers and in particular agricultural households (Lipton [1977] initiated a rich literature on urban bias in developing countries).

These phenomena have been explained as an outcome of the way in which the characteristics of interest groups—by this we mean individuals or producers sharing similar livelihoods or economic interests—affect their ability to press for public policies, including investments, subsidies, and other public interventions, that are favorable to them (Becker 1983). The political economy literature has long explicitly considered the influence of such actors in public investment decisionmaking. In particular, it considers the clustering of individuals into groups to press for their preferred expenditures or other public policies, and the interface of these interest groups with political agents. The latter have as one of their objective functions the retention of their political offices, either by being re-elected in contested systems or, in nondemocratic systems in which elections do not take place or are not genuinely contested, by avoiding too much dissatisfaction, which may lead to being removed from office by nonelectoral processes.

The effectiveness with which different interest groups can influence politicians is determined by several factors, and the extent to which these factors are present will vary between rural and urban citizens, between large and small farmers, and between farmers in advanced countries with small agricultural sectors and farmers in poor countries with large agricultural sectors. Interest groups can supply an adequate quantity of the local (or group-specific) public good of advocating on behalf of the public resource decisions preferred by their members if they can avoid the collective action problems well known in public goods provision.

One factor facilitating collective action is the spatial concentration of group members, which facilitates coordination and mutual monitoring of actions (Olson 1985). Agriculture is strongly characterized by spatial dispersion of farmers, in contrast to the relative physical proximity of urban citizens to each other. Second, and similarly, access to transportation and communication infrastructure facilitates intragroup coordination and organization, which is inferior in rural as compared to urban areas in developing regions. Third, a critical element in collective action is group

size. For any level of spatial concentration and access to transport and communication infrastructure, it is harder to coordinate among larger than among smaller groups (Olson 1965). In most developing countries, the agricultural and rural populations are substantially larger than urban populations, resulting in another inherent disadvantage among the former in organizing to appeal for pro-agriculture policies.

Group size also matters in a second respect, relating to the advantage to be gained by any given member from a certain expenditure diversion toward agriculture-supportive investments. Consider two alternative uses of a given expenditure amount to create an impure public good, for example, one that is somewhat rivalrous. The same resources allocated to a purpose preferred by a large-sized group versus that preferred by a small group will invariably result in greater member-level gains for the small group than for the large group, resulting in greater incentives for members of a smaller group to engage in (and incur the costs of) lobbying for their preferred spending policies. The political outcome of these group features that either facilitate or restrain collective action is further reinforced by the incentives faced by politicians, from whom groups seek to extract favorable policies. Politicians' incentives encourage them to enact policies that concentrate the gains from these benefits and disperse their costs.

Aside from factors that facilitate collective action among group members, additional factors related to members' financial endowments affect different groups' abilities to exert influence on behalf of policies benefitting them. Policy influence through conditional political support for public officials is, among other things, exercised through the provision of financial resources for political agents. Agents can employ these resources to improve their chances of remaining in office, for example, through expending more resources for campaigning, for directly or indirectly trading money for votes (political clientelism), and so forth. Thus, the average income of different groups matters, giving smallholder agricultural populations yet another relative disadvantage.

However, holding the effectiveness of collective action as well as per capita characteristics constant, such as in an examination of the per person income of the group, larger groups may in fact be able to wield more political clout, for example, through their greater *aggregate* income resources (which can translate into greater aggregate political contributions), their greater combined voting power, and so forth (see also the later discussion of Acemoglu and Robinson [2001]). Furthermore, politico-economic explanations of the patterns of public investment in countries such as Malaysia, South Korea, and Taiwan lean on another potential advantage held by mass groups at the lower economic levels. These Asian countries undertook expansive public investments in smallholder agriculture and other rural services benefitting small farmers, as well as noninvestment policies such as land reform, because of the looming threat of rural unrest and Communist revolution fuelled by economic neglect, which had brought down regimes in neighboring countries (Doner, Ritchie, and Slater 2005). Implicit in the earlier notions, then, is the argument that collective action failures in very large groups often more than offset other potential benefits of strength in numbers.

The role of information is a central element in politico-economic theories that seek to explain which policies are enacted. A group with greater educational endowments and access to information is able to more accurately assess the consequences and relative merits of different policies, for example, provision of fertilizer subsidies versus investments in rural roads, and thus is better equipped to push for those policies that make its members better off (Binswanger and Deininger 1997). Krueger (1996) refers to the example of Colombian coffee growers who showed themselves determined—and successful—in vocally expressing their interest with regard to direct pricing policies affecting their coffee as well as the prices of inputs they use. However, they never lobbied for or against trade protection and exchange rate policies, which arguably had a stronger effect on their economic activities than the input and output price policies. While direct empirical evidence of the role of information—here, the ability and skills to understand the implications of macroeconomic policies—is not given in this case, lack of information due to a lack of the technical skills needed to

evaluate policies well may be the reason for the coffee growers' failure to lobby on behalf of the issues that would have mattered most to them.

The ability to discern the outcomes of alternative public investments and other policies may be used not only by an interest group to inform itself, but also to provide knowledge to policymakers themselves, who often operate in an environment of imperfect information about the welfare and distributional outcomes of their policies, as well as about the citizens' preferences and views regarding these policies. Austen-Smith (1997) develops a model that takes into account the cost to a group of generating and disseminating information, the perceived credibility of this information, and the effects of the existence of one versus multiple groups seeking to inform policymakers.

An interesting phenomenon in policy processes is the seeming existence of a status quo bias among policymakers, such that policies that have outlived their usefulness appear to often fail to be discontinued. Dynamics of policy persistence are very familiar in agriculture, for example, when agricultural input subsidies are not removed even after they have already served and have begun to outlive the initial efficiency-enhancing objectives in the name of which they were instituted, or after they have served—or in fact have been observed to have failed to serve—equity and poverty reduction goals.<sup>3</sup> Fernandez and Rodrik (1991) present a framework that explains how governments favor the status quo, especially when the winners and losers from that policy cannot be identified *ex ante*. Those who benefit from the current state are usually the ones with the requisite power to have ensured policy enactment in the first place. Thus, the constituency for the maintenance of the existing policy is likely to be more powerful and influential than the constituency that prefers an alternative (not yet enacted) policy. This framework is expanded upon by Coate and Morris (1999), who explain the persistence of policy through the way in which the policy beneficiaries' lobbying power or effectiveness increases after the policy is instituted. The aggregate willingness to advocate for the continuation of an existing policy is greater than the willingness to pressure politicians to institute the policy prior to its enactment, because once a policy is in existence, agents undertake actions and activities that position them to benefit from these policies, so that the total constituency (or overall intensity of preference) for an existing policy is larger than that for the same policy prior to its enactment.

An analytical tool that seeks to summarize how the workings of various interest groups and other influential actors result in a set of policies, and in a particular distribution of public resources, is the political preference function (PPF) (Bullock 1994). The PPF has some similarities to the well-established social welfare function in welfare economics, in that it expresses a policymaker's utility function over different entities' welfare—with different weights placed on different types of agents, and with the policymaker choosing policies so as to maximize the function. However, unlike in the individualistic social welfare function, the elements of which are individuals, the PPF contains as elements different groups within society, such as smallholders, large farmers, urban consumers, taxpayers, and so on. The PPF is used, for example, to explain the marginal effects of specific agricultural policies on these different groups, and the PPF approach assumes that extant policies reflect an equilibrium of economic and political forces (Johnson 1995).

The PPF has been applied mostly to developed-country governments in order to model and understand the biases they sometimes exhibit toward agricultural interest groups. In such cases, the political preference is commonly presented as an indifference curve between producer and consumer surplus. Empirical applications of this model have identified and qualified certain policy actions that have favored agricultural interest groups over consumers, resulting in a greater surplus for the agricultural producers, including policies affecting the cotton sector in Greece (Lianos and Rizopoulos 1988) and the beef industry in the United States (Rausser and Freebairn 1974). A study in

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<sup>3</sup> See Mogues et al. (2012a) for a review of the efficiency- and equity-related rationales for input subsidies, as well as for public expenditures in agriculture more generally.

the developing-country context examines the determinants of wheat and rice policies in India and estimates the magnitude of the weights in the PPF that are associated with the various pressure groups (Abler and Sukhatme 1998). The results suggest that agricultural policies are designed in such a way as to significantly favor Indian consumers of wheat and rice in urban areas over taxpayers; rural wheat and rice consumers also benefit more from policies than taxpayers, though here the gap is narrower. Policy preferences also indicate that wheat producers enjoy more power than rice producers.

## **Providers of International Development Aid**

Beyond the domestic interest groups of a developing country, there is also a strong influence that lies outside a country's borders: the external partners of the government that provide aid to enable public expenditures for development. These external partners can include developed-country governments' aid-disbursing agencies, multilateral organizations such as the World Bank and the International Monetary Fund (IMF), and increasingly also governments of emerging economies and natural-resource-rich countries. The importance of donor aid in developing countries' economies varies widely. It can be overwhelmingly large in some developing countries, especially in very small economies or in countries in or emerging from conflict. For example, in 2008/09, net development assistance as a percentage of gross national income reached as high as 78 percent in Liberia, 46 percent in Afghanistan, and 41 percent in Burundi (World Bank 2011). In large, fast-growing, and/or mineral- or oil-rich developing countries, the share of development aid in income can be dwindlingly low, constituting, for example, less than one-third of 1 percent in China, Mexico, Brazil, Iran, and Venezuela.

### *Pathways of Aid Influence on the Composition of Public Spending*

How might aid flows influence the composition of public spending in a developing country? The most obvious way is through the establishment of requirements with regard to how the aid resources are to be spent. Donors have focused on different sectors with the evolution of development paradigms over the past several decades, for example, on large-scale infrastructure in the 1960s and 1970s, on the social sectors in the 1990s and 2000s, and on agriculture in recent years due to the food price crises. A second way in which donors influence the composition of public spending, and one that became more prominent with the advent of both budget support and structural adjustment loans, is to underwrite plans on how to allocate overall government budgets—plans that usually emerge through some process of negotiation between governments, donors, and to a lesser extent other stakeholders. Third, and even more generally, donors may use both their financial leverage and the political leverage of the governments under which the (bilateral) agencies operate to seek to ensure that a government does not deviate too far from using both aid and domestic public resources in a way that promotes development, especially in instances where this is a concern or likely possibility.

Implicit in these hypothetical mechanisms is the suggestion that donors may be able to alter or affect public resource allocation through the ways in which they can hold developing countries accountable for their public investments. The sway that donors have over developing countries, and the quality of this influence, has been empirically explored in various ways. One set of studies is embedded in a broader look at the accountability mechanisms that affect the quality of foreign aid. The broader picture considers the accountability structures (who holds whom accountable, in what way, and with what rate of success) between donors, taxpayers in developed countries, aid-receiving governments, implementing agencies (for example, nongovernmental organizations, donor agency bureaucrats, and so on), and not least the citizens in developing countries who are intended as the ultimate beneficiaries of aid (Winters 2010).

An element in this framework is the strand of literature that examines the effect of aid on the responsiveness of aid-receiving governments to its citizens. Bräutigam and Knack (2004) assess the impact of aid levels on governance in 32 countries and find a negative and significant correlation between

high aid levels and the quality of governance. This can result from a lack of accountability—the less a government needs to rely on revenues extracted from its citizens, the less incentive the government has to be accountable to them. An increase in aid flows to a country increases, all else equal, the ratio of aid to domestic revenue not only directly, but also indirectly, as aid increases discourage effort to generate domestic revenues (Remmer 2004). Several other studies raise concerns about the detrimental accountability and governance implications of foreign development aid (Alesina and Weder 1999; Svensson 2000; Knack 2001).

During the 1980s and 1990s, the time of economic crises and structural adjustment, examples of World Bank and IMF influence on budget tightening are well documented. In their review of the IMF's role in structural adjustment, Collier and Gunning (1999) outline the various ways in which the policies could have affected social services for the poor. One path is through reductions in the public expenditures from which the poor benefit most. This can happen if reforms induce portfolio changes—the evidence on this is discussed below—through policy impositions on the size of aggregate public spending, which may affect the pro-poor sectors along with others, and through the effects of gross domestic product (GDP), which in turn affects government revenues. But in addition, the price effects of adjustment reforms, for example, reductions in salaries, and the increase in imports (for example, of medicine for health services) after devaluation, also have an effect on public services for the poor that may not be adequately captured by merely considering the public expenditure size and composition consequences of structural adjustment.

A large number of studies focus on the impact of the structural adjustment reforms on the size of government—commonly proxied by total public expenditure—and occasionally on public expenditure volumes in individual sectors, most commonly either health or education, spending on which are in many cases found to have declined. It is, however, impossible to conclude from the latter type of finding, on its own, that structural adjustment programs have influenced governments' budgetary portfolios, as the health and education spending declines may simply reflect the overall contraction in government spending, as discussed above.

Evidence regarding the policies' effects on the composition of public spending is rather sparse. Among the very few studies, in cross-country panel analysis Ghafoor, Weiss, and Jalilian (2000) provide evidence that health and education spending shares declined as a consequence of adjustment policies, while the shares of social safety net spending, expenditures on *economic affairs* (an aggregate of several sectors, including agriculture), and other spending categories increased. In contrast, Gyimah-Brempong (1998), in a cross-country study of African economies during the 1970s and 1980s, finds that expenditures on defense, education, economic affairs, and culture were either protected or increased, while health, housing, and social security expenditure categories were cut disproportionately. Fan, Yu, and Saurkar (2008) undertake similar analysis, but with greater disaggregation of sectors. Here, there is evidence that the conditionalities of structural adjustment programs came at a price for the agricultural sector. During periods of structural adjustment, governments in all developing regions (Africa, Asia, and Latin America) reduced the share of spending allocated to agriculture. The only other sector whose spending share was negatively affected by structural adjustment in all developing regions was defense.

Generally, the old conditionality of aid has been transforming into a more consensus-building conditionality that enables flexibility from both donor and recipient countries. *New conditionality* involves donors allowing short-term divergences from the mutually agreed upon or recipient-defined targets as a method of increasing trust before applying more pressure on recipient countries to meet targets (Mosley, Hudson, and Verschoor 2004). Though this new conditionality gives recipient nations greater flexibility and ownership, they are still subject to the influence of aid suppliers.

There have been several cases in recent history in which predatory developing-country governments—already unaccountable to their citizens—broke with the external development community in order to avoid the scrutiny and accountability of public resource allocation. But there

are also a few interesting and prominent examples of poor countries that extricated themselves from aid dependence. For example, when the grain harvests of 1966 and 1967 failed in India and the government was forced to rely on food aid from the United States to avoid famine, a turning point was reached. Thanks to research and innovation on agricultural development undertaken in the public and private sectors during this time, high-yield varieties of rice and wheat were introduced in the 1970s (Rangarajan 2009). These varieties, coupled with irrigation systems and fertilizer use, enabled India to dramatically increase its output of cereals over the subsequent decades. And with this increase in productivity India was able to reduce the influence not only of food aid but of external development aid more generally.

Another example of a country that was in fact never dependent on donor funds for its public spending is the case of China and its economic rise outside the usual development pathway. Following the economically and socially devastating Cultural Revolution, which took place from around 1966 to 1976, the Chinese government began the steady process of economic development in 1978. China decided—and continues to the present day—to tap into the domestic economy for investment and to follow up with a gradual embrace of globalization (Bijian 2005). Thus, China offered an alternative development model of an initially poor country that excluded the heavy participation and influence of external donors throughout its development.<sup>4</sup>

### *Aid Fungibility, Displacement, and Additionality*

When it comes to the impact of external development aid on public expenditures in developing countries, another long-standing concern in the development community has been not that it directs expenditure policy too much toward donor preferences but that it has in fact too little impact. The concerns about aid fungibility were articulated as early as the 1960s (see, for example, Hicks 1963; Singer 1965; Carlin 1967). Simply put, the argument that aid is fungible proposes that governments can bypass donors' wishes that their aid increase investments in specific sectors, as donors are not able to tell whether a given amount of investment in a sector, program, or project would have been made (or partially made) in the absence of the aid.

The empirical evidence on the extent to which development aid, including aid geared toward the agricultural sector, displaces other public spending in the same sector is not encouraging. Analysis on the Dominican Republic, for example, identifies agriculture as among the sectors in which pronounced aid fungibility is present (Pack and Pack 1993). Based on estimates of the influence of sector-specific aid flows on public spending in the various sectors, the study finds that although on average one-third of sector-specific development assistance to the country is intended for agriculture, the increase in agricultural spending resulting from this agricultural aid is only 1.5 percent. Pack and Pack (1990) employ a similar methodology for Indonesia but do not find aid fungibility in this context, including not in the "agriculture and irrigation" category. The cross-country panel analysis by Feyzioglu, Swaroop, and Zhu (1998) estimates a fungibility parameter that can identify the fiscal response of different sectoral expenditures to sectoral aid as being characterized by full, partial, or no fungibility. The results show that agriculture is the only examined sector that is characterized by full fungibility—when considering both total agricultural spending and just agricultural capital spending separately.

Strong fungibility in aid is also found in a country contrasting starkly with the Dominican Republic in size, namely India. Swaroop, Jha, and Rajkumar (2000) examine central government spending behavior as a consequence of aid flows, in the context of India's federal structure. When government spending is categorized into development uses (for example, health, education, agriculture, and so on) and nondevelopment uses (for example, general administration, defense, interest and principal payments of debt, and so on), an estimation of the impact of development

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<sup>4</sup> Although China has been one of the largest official development assistance (ODA) recipients in absolute terms, during the 1990s the share of ODA in gross national income never exceeded 1 percent (World Bank 2011), in stark contrast to shares of 40 percent and above in some developing countries today, as discussed earlier.

assistance on both finds that it increases nondevelopment spending by a statistically significant amount while not affecting aggregate development-related government expenditures. The rise in the former is primarily due to shifts of public resources into general administration uses. Development aid's lack of impact on development-related spending holds also when disaggregating this category: Aid does not lead to an increase in public spending on agriculture, irrigation, energy, or other sectors, with the only exception being public spending on social sector expenditures, which respond positively and in a statistically significant manner to increases in aid.

Starting from the premise that donors are likely to want to see a substantial share of their funds go toward capital formation (whether this be in social, infrastructure, or other sectors), Feeny and McGillivray (2010) explore, in Papua New Guinea, the extent to which aid instead triggers increases in consumption expenditure. They find that very high shares of aid (directly or indirectly) finance government consumption. For example 90 percent of increases in aid loans, three-quarters of increases in aid in the form of grants, and 70 percent of additional budget support finance recurrent spending. The general qualitative features of these findings are in fact consistent with cross-country evidence. In the analysis by Feyzioglu, Swaroop, and Zhu (1998) based on panel data of 14 developing countries, a US\$1 increase in overall official development assistance (ODA) and in concessionary loans (a component of ODA) results in an increase of recurrent spending by \$0.72 and \$1.22, respectively. In contrast, the equivalent increase in capital spending is only \$0.29 and \$0.27, respectively. The impact of concessionary loans on recurrent expenditures suggests, in fact, that this form of aid may be leveraging additional recurrent spending from other external or domestic revenue sources.

External debt burden is another factor influencing spending composition, and the literature on the effects of external debt burdens on expenditure composition produces consistent findings. For example, Mahdavi (2004) examines the consequences of developing countries' high external indebtedness for changes in the composition of public expenditures. This study finds that although recurrent expenditures in the form of wages and salaries for public employees are well sheltered from the spending cuts that follow attempts to reduce high indebtedness, the share of capital spending, which builds a country's long-term productive capacity, sees a decline, and nonsalary recurrent expenditures are similarly negatively affected by increases in external debt burdens.

## **4. CHARACTERISTICS OF PUBLIC EXPENDITURES AND OF THE PRIVATE AND PUBLIC GOODS THEY CREATE**

Even for a given configuration of actors and their characteristics, particular attributes of different types of public expenditures—and of the public and private goods and assets that they create—can influence how much weight these expenditure types are given in resource allocation decisions, and how they are substituted with and complemented with other expenditures. This is the focus of this section (see Box B in Figure 2.1). One of the salient attributes considered is attributability, that is, the level of ease or difficulty with which citizens are able to assess to what extent a policymaker was responsible for a subsidy or investment and its outcomes. Another defining feature of expenditures is the temporal lag between the time when an outlay is incurred and the time when intermediate outputs or final outcomes are realized. A third feature concerns the benefit incidence, or distributional properties, of public expenditures. We discuss how these features affect the incentives of policymakers to embark on a given investment, subsidy, or transfer.

### **Attributability of Policies and Investments**

In Section 3, we elaborated on the value of access to information and of the ability to undertake the necessary analysis to understand how different policies translate into outcomes. This discussion suggested that interest groups without the requisite skills and education to undertake such assessment will be less equipped to lobby on behalf of policies that increase their welfare. The informational challenge, however, may exist further up the policy chain. Even if citizens know which policies and investments would be best for their welfare, it is often difficult to attribute to policymakers' actions the creation or improvement of certain services. Various factors may result in improved services, only one of which may be the efforts or expenditures undertaken by politicians. For example, if a farmer observes that the quality of information provided to her by a new agricultural extension officer has improved, it may be difficult for her to ascertain whether that is because the new extensionist is simply more motivated by nature, or whether the agricultural ministry has done a better job in selecting, training, or incentivizing extension officers.

Incorrect or imperfect attribution, in turn, dampens policymakers' incentives to undertake effort in improving services and infrastructure, and influences which investments are prioritized. This stems from the basic phenomenon that public officials, all else equal, will want to maximize credit for improvements and increases in investments (especially those popular with residents), minimize attribution for inappropriate or deteriorating services, and give less weight to services for which they are unable to effectively signal their contribution toward providing these services.

The attribution challenge is affected by various characteristics of public investments and services (Keefer and Khemani 2005). Visible infrastructure investments such as the building of a school, and direct cash or in-kind transfers such as fertilizer vouchers, are relatively more easily connected to the efforts and spending decisions of public officials—and in fact can also be conveniently advertised as such, for example, through a sign at the newly built school or labels on the fertilizer voucher ticket indicating who is responsible for subsidizing the fertilizer. In contrast, in the example given above, the quality improvement in agricultural extension is harder to claim in this way.

For any given public service, there are also differences among different types of residents in their ability to correctly attribute improvements (or deteriorations in a service) to policymakers. Less literate or educated citizens, and those with poorer access to information provided by mediating entities such as civil society organizations, may be less able to undertake correct attribution.



## Temporal and Distributional Features of Investments

In addition to the visibility of the type of provision, another characteristic that affects the ease of correct attribution is the extent to which there is a lag between the time when resources are allocated to provide a good or service and the time when the good or service is created. The longer this temporal gap, the harder it is to trace the service back to decisions made by politicians.

Investments in agricultural research are known for at least two characteristics. A wide range of studies have pointed to the substantial agricultural productivity and broader welfare benefits derived from investment in agricultural research in developing countries (see Mogues et al. [2012a] for a synthesis of meta-analyses on agricultural research). But another well-known attribute of agricultural research is that there is a long temporal lag between these public investments and welfare outcomes, or even intermediate outcomes such as development and adoption of new agricultural technology. We will thus address the issues arising from lag times by using agricultural research as an example.

A long lag makes it less attractive for public officials to undertake an investment than if the time span between investment and outcomes were shorter. This is so for three reasons. First, a long lag further breaks the perceptible link between politicians' decisions and public officials' resource allocations, as mentioned above in the discussion of attribution of services to politicians' efforts.<sup>5</sup> Second, even if the attribution problem did not obtain, in systems in which political decisionmakers do not have reason to believe that they will stay in power for a prolonged period of time, they perceive the probability that they will be able to gain politically from beneficial investments in agricultural research and development (R&D) to be small, and thus have lowered incentives to undertake these investments, especially since they will come at the expense of other public provisions that may have a shorter turnaround time in terms of welfare effects for the population.

Third, a long span of time from the initiation of an investment until the gains materialize also opens up opportunities for things to go wrong. For example, relevant agricultural technologies may be developed through others' investments—such as international research organizations or those of other countries—rendering the incurred costs less valuable, to the extent that technologies developed by others can be copied or adapted. Or, prices for crops for which the R&D investments are undertaken may see a medium- or long-term drop that was not anticipated when the research activities were embarked upon.

The temporal element of the policy process—in particular, the effects of the limited longevity of politicians in office—also comes into play in a somewhat different way to determine which types of policies are chosen for implementation. Groups may have a clear preference for certain types of public financial support over others. For example, agricultural interests in developed countries may prefer government spending to subsidize them through price and output controls rather than through forms of direct income transfer of equivalent size, although the former may be a more inefficient form of subsidy. Acemoğlu and Robinson (2001) develop a model explaining inefficient forms of redistributive public subsidies as arising from two key phenomena: the relationship between group size and political power, and the above-mentioned temporal element of the policy process related to politicians' duration in office.

First, a positive relationship may exist between group size and political power, at least over some limited range and under particular circumstances. This may at first seem surprising in light of the long-standing political economy literature, discussed above, establishing an inverse relationship between political power and the size of an interest group. Acemoğlu and Robinson (2001), however,

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<sup>5</sup> The attribution meant here is that agents such as farmers, other rural residents, organized rural groups, and so on may rightly or wrongly make a connection between improvements they experience and investments or policies the government undertook. That is, this discussion of attribution is not referring to analytical attribution problems by the empirical researcher. However, for readers interested in the challenges that long lag times impose on analytical attribution of agricultural research and development investments, see Alston and Pardey (2001).

consider size as an asset, holding constant the extent to which the collective action problem is solved by a group; the earlier discussed interest group model suggests that this problem is larger for larger groups.

The second phenomenon driving the finding that more inefficient instead of less inefficient public subsidies will be used in agricultural policy is the limited commitment problem in policymaking. In countries in which the duration of policymakers' tenure is not assured to be long—this pertains to functioning democracies, but also to nondemocracies in which political leaders do not have a secure long-term hold on power—they cannot commit credibly to retaining public policies in the long term, as they may not be in power for the long term.

These two phenomena combine to explain how more distortive subsidies may be chosen instead of less distortive ones. More distortive subsidies such as price guarantees or protective tariffs reward and attract new entrants, whereas less distortive income transfers to farmers mainly reward only current farmers. It is the distortive subsidies that guarantee that farmers as a group retain and possibly expand their size and thus political weight. The retention or expansion of size and therefore political power is critical to ensure that newly incoming politicians continue the policy of subsidizing farmers. To sum up, then, the combination of political weight achieved through size, the turnover of politicians in many systems, and the fact that price and output subsidies attract new entrants more than direct income subsidies do creates a situation in which inefficient subsidization instruments prevail.

Other work has also engaged the question of why inefficient subsidies may prevail when less inefficient transfers would have been available. Drazen and Limão (2008) arrive at a result similar to that of Acemoglu and Robinson (2001) but derived from a different theoretical framework. Drazen and Limão argue that the government's bargaining position vis-à-vis the interest groups receiving the subsidies or transfers is stronger when the form of provision is subsidies rather than transfers: It can demand more *lobby goods* (provisions the interest groups make to the government in return for receiving subsidies or transfers) for the same amount of public spending for the groups' benefit when these resources are in the form of the inefficient subsidies rather than in the form of the more efficient transfers. Inefficient subsidies are more distortive and impose a greater tax burden on the rest of society to finance them. With both the interest groups and the policymakers understanding this, the interest groups appreciate that the government will need to be compensated more highly for incurring the (political) cost of making a more inefficient form of subsidy. Thus, in a first stage, and prior to engaging the interest groups, the policymaking entity imposes constraints (for example, legislative restrictions) on its ability to undertake transfers using the less inefficient instrument. Then in the second stage, with mostly or only inefficient options available, it has gained a stronger bargaining position vis-à-vis the interest groups than if it had not imposed the restriction in the first stage.

Implicit in the discussion above is the fact that different types of subsidies are substitutes to each other. However, particular features of public and private goods may also explain why expenditures on one bring about more expenditures on the other, rendering them complementary. Swinnen et al. (2000) and de Gorter and Swinnen (1998) examine the political interaction effect of public investments in agricultural research on the one hand, and agricultural subsidies on the other, in a unified framework. The linchpin in this framework is the distributional effects of both subsidies and research investments. These result in expenditures in one increasing expenditures in the other: Agricultural research benefits agriculture as well as nonagriculture, but the benefits for one sector may be larger than those accruing to the other, resulting in increased inequality between societal groups. This induces greater subsidy spending by governments seeking to maximize political support, as this spending counteracts the distributional effect of agricultural research investments and thus mitigates potential political opposition to the research investments. This means then that, at least

in the framework of these studies, agricultural subsidies and public investments in agricultural research are politically complementary.

## 5. ECONOMIC AND POLITICAL GOVERNANCE

Section 3 focused on the way in which various actors—domestic interest groups, politicians, bureaucrats, donors—shape the resource allocation process, and Section 4 honed in on how salient attributes of different types of public expenditures, and the assets and public and private goods they create, determine the allocation of these expenditures. This section, in contrast, discusses the influence that the governance environment exercises on resource allocation decisions (Box C in Figure 2.1). We first consider a particular aspect of economic and political governance, namely corruption. Interestingly, there seems to be relatively broad consensus in the literature that the prevalence of corruption *increases* the share of investment spending in overall expenditures. The second governance consideration, the wider political governance environment, shows much less uniformity in its effects.

### Corruption and Public Investments

The large literature on rent-seeking has pointed to the ways in which some forms of public outlays are more susceptible to corruptive practices than others. Specifically, areas of public spending in which large infrastructural or other capital investments are undertaken lend themselves to rent-seeking activities by public officials. As these commonly involve large, discrete contracts, they create opportunities for public officials to improve the chances of a private agent winning contracts, or to loosen regulatory burdens on the agent, in return for private payments to the official. In contrast, public expenditures on activities that involve mostly salary payments to service providers, and contain a relatively small share of outlays on capital creation or procurement, provide fewer openings for rent-seeking.<sup>6</sup>

However, fewer studies have further examined to what extent these characteristics of different types of public expenditures affect their very allocation. De la Croix and Delavallade (2009) develop a theoretical model of the channels through which corruption affects the composition of public spending: Sectors in which public outlays are capital-intensive, and therefore offer greater opportunities to solicit and give bribes, such as infrastructure spending, are said to have relatively more efficient *corruption technologies*. Political institutions and systems can further vary in the power that they allow rent-seekers to exercise. Considering different regimes, depending on how prone public investments are to corruption and on the influence rent-seekers have on public decisionmakers, corruption can exercise different—in fact opposite—effects on the composition of public spending.

De la Croix and Delavallade (2009) find this corroborated in cross-country analysis. In poor countries, greater susceptibility to corruption increases the share of spending on capital-intensive public investments and reduces the share of social sector spending. That is, with a greater concentration of power for rent-seeking elements in poorer countries, an increase in overall corruption technologies leads policymakers to undertake those investments that indeed lend themselves better to actual corruptive practices. The reverse is the case in higher-income countries: An increase in corruption possibilities leads policymakers, concerned with the public good, to narrow the scope for actual corruption by investing relatively more in those sectors, such as health and education, that do not benefit rent-seekers as much as capital investments do.

Other more empirically driven cross-country panel analyses point to expenditure-composition implications that are consistent with this model of expenditure decisions in the face of corruption or corruption possibilities. Keefer and Knack (2007) determine that measures of poorer political governance—proxied by governance indexes drawn from the International Country Risk Guide (ICRG) and the Database of Political Institutions—increase aggregate public investments. Other studies focus on one type of sectoral spending, but one that is highly capital intensive, and come to

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<sup>6</sup> Harstad and Svensson (2011) uniquely study lobbying activities (discussed above) and corruptive activities in a joint framework. They distinguish these two in that corruptive behavior seeks to bend the rules, while lobbying behavior seeks to change the rules. Both types of activities are subsumed under rent-seeking activities.

similar conclusions. For example, Gupta, de Mello, and Sharan (2001) find that lower governance quality and higher corruption potential, measured by the ICRG index and an index by Transparency International, lead to higher military spending. Mauro (1998), in contrast, focuses on social sector expenditures as a form of spending with low infrastructure and capital content and finds that greater probabilities of corruption (captured by the ICRG index here as well) reduce expenditures in the health and education sectors. Delavallade (2006) focuses more explicitly on a range of expenditures, analyzed in a joint empirical framework. This study finds that higher levels of corruption, as represented by a World Bank corruption indicator, reduce public spending on health, education, and social protection and increase it on categories such as fuel and energy, housing, defense, and other economic activities.<sup>7</sup>

This phenomenon also has implications for agricultural investments. Of course, the fact that capital (including agriculture-related) investment is favored over other forms of public expenditures in country settings with greater opportunities for corruption does not necessarily imply that these countries at least get to enjoy the benefits from relatively high public investments. This is because the very reason for the bias toward public investments in countries infused with greater corruption is why public investments are likely to be less productive in such settings than in countries with better governance. In agriculture, the underperformance of irrigation infrastructures in countries beset with corruption is notorious. In a detailed study of irrigation corruption in India, Wade (1982) suggests that the demand-side effects of irrigation corruption—that is, distortion in farmers’ production decisions due to the presence of corruption—is relatively minor. Evidence from Pakistan also suggests that both rich and small farmers engage in corruption on the demand side of irrigation (Rinaudo 2002). However, the supply-side effects are substantial. For example, incentives for technical staff to properly maintain structures are severely weakened, given the profitable rents that can be extracted in a context of insecurity about access to functioning irrigation systems (see also Walter and Wolff [2002]).<sup>8</sup>

In irrigation, conditions often exist in which corruption can thrive, due to the elements, discussed earlier, of infrastructure in general as well as the excludability characteristics of irrigation (access to this form of capital can be managed). However, other types of agricultural investments are not immune from corruptive transactions. Agricultural R&D investments are less prone to rent-seeking and other corruptive practices, given that outputs from R&D investments are effectively nonexcludable in developing countries; therefore, access to the benefits from research cannot be managed, rationed, and provided against bribe payments, as is possible with irrigation. However, here too there are recorded instances of corruption affecting R&D investments, for example, in the syphoning off by commodity boards of mandatory levies on farmers, so that these levies did not go to public agricultural research institutes as intended (Omuru and Kingwell 2006).

## Political Institutions and the Composition of Public Spending

The level or extent of corruption is but one aspect of the broader political governance climate of a country. Considering this wider political environment, studies have examined how political governance may influence the composition of public spending. For example, Mulligan, Gil, and Sala-i-Martin (2004) use the POLITY IV project index of democracy for 142 countries from 1960 to 1990 to identify whether the level of democracy impacts government consumption and education, pension, and nonpension social

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<sup>7</sup> All these studies normalize spending, either by considering spending categories as a share of total spending or as a ratio to GDP. Details on how the effect of interest is identified, including how potential simultaneity and other biases are addressed, are not discussed here but can be found by consulting the respective studies.

<sup>8</sup> The larger effects of corruption on development outcomes, including on agricultural growth, have been widely researched, and this question goes beyond the scope of the discussion in this review. Clearly, countries such as India and Indonesia have been able to record impressive and sustained agricultural growth while also suffering from the ubiquitous presence of corruption in the agricultural and wider economy. Correlation, however, obviously does not imply causality, and in fact the question of whether the size, composition, and distribution of growth would have been better had corruption been lower in these and other countries is an empirical matter.

spending, measured as a percentage of GDP. The study concludes that a country's rank on the democracy index does not significantly impact any of the spending allocation decisions tested, though it points to the possibility (not empirically examined) that the level of democracy may have a bearing on allocation within those sectors.<sup>9</sup> At the local government level, a study on China has pointed more unambiguously to evidence that power contestation, through the presence of electoral mechanisms to choose village leaders, does affect spending composition. In particular, the share of public investment in total public expenditures of village governments is higher when the village leader is elected rather than appointed (Zhang et al. 2004). This assessment should be distinguished from studies that examine the effects of the ideology of ruling political parties. For example, Bräutigam (2004) concludes, from a qualitative review of selected developed and developing countries' spending patterns, that pro-poor spending is greatly enhanced in the presence of democratic systems ruled by political parties with a strong commitment to the poor.

In the context of agriculture, different features of political institutions may exercise different levels of influence on the extent to which governments enact policies that favor the agricultural sector through subsidies, investments, and nonfiscal policies. One feature is the degree of political accountability to which politicians are exposed. The relationship between political governance and government support for agricultural producers can be complex and nonlinear, however. In a highly autocratic system with political control centralized in one individual or a very narrow elite, there may be no scope for agricultural producer groups to press for subsidies or investments that would benefit the sector. Thus, a moderate political change from a strongly autocratic to a milder form of authoritarianism somewhat opens up the political space for agricultural groups to exert influence on public policy. However, when considering a further, more dramatic change toward a democratic system with effective governance institutions, the options for seeking protection through subsidies geared to one sector are checked both by systems of accountability and by the existence of a wider range of interest groups with diverse policy priorities.

The empirical findings of one of the first studies to econometrically investigate this relationship can in fact be interpreted in this light. Using a civil liberties (CL) indicator that ranks regimes from most free (CL1) to least free (CL6), Beghin and Kherallah (1994) find that being in a CL5 regime rather than a CL6 regime increases protective policies for the agricultural sector. In contrast, agricultural protection in the most free settings is lower than in the least free setting. In other words, while a minor improvement in political governance from a low base increases protection, a very large improvement reduces it.

Beghin and Kherallah (1994) also explore this relationship using an alternative indicator of political governance that relies primarily on the extent of pluralism in the political party landscape. Moving from a highly restricted system with no political parties to one with a dominant party increases agricultural protection by a statistically significant margin. A change from a no-party system to a pluralistic system with multiple parties has a similar effect. This reflects a form of nonlinearity in that if the relationship were instead monotonic, we would expect to see a greater positive effect on protection in the pluralistic-party scenario compared to the effect in the dominant-party scenario. However, the nonlinearity in the relationship is milder than that which emerges from analyzing the effect of civil liberties on agricultural protection, since here we do not see a reversal in the relationship as we move from some political governance improvement (dominant party) to even further improvements (pluralism).

Perhaps reflecting the complexity of the relationship between agricultural investment and subsidy support and political institutions, other studies' results have not necessarily been consistent with the key finding of Beghin and Kherallah (1994). To summarize, the key finding of the latter study was that with some political opening agricultural protection increases, only to decrease again or

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<sup>9</sup> This study, covering the 1960–1990 period, does not include the post–Cold War period. A reanalysis including time periods after the critical structural break in world politics after 1990 might yield interesting and different results.

be unaffected when further democratization occurs, due to the initial availability of maneuvering room for agricultural pressure groups and the subsequent constraint that democratic governance imposes on them. In contrast, the results by Swinnen et al. (2000) are something of a mirror image of this proposition. Here a distinction is made between subsidy policies (protection) and public goods spending on agricultural research. The researchers find that with an increase in a measure of political rights from low to medium, both protection and agricultural research spending actually decrease. A further improvement in political rights to even higher levels, however, has no additional effect on agricultural protection through subsidies, and effects an increase in agricultural public goods spending back to the levels existent at the lowest-political-rights regime.<sup>10</sup>

One may, in a refinement, also distinguish between the quality of the political climate in general and the quality of specific institutions that would be expected to affect the ability of agricultural and other interest groups to lobby for public spending and investments to benefit their sector. As discussed before, the extent to which interest groups are able to participate in the political process, but also the extent to which their power to influence public policy is checked through governance systems, will differ between authoritarian and democratic systems. But other elements may be just as pertinent to the ability of agricultural producers (and other economic groups) to lobby for investments and subsidies to benefit their sector. These elements include the extent to which property rights are protected, contractual rights honored, and public goods delivered in a relatively efficient manner, which depends on a reasonably well-functioning bureaucracy. While measures of political rights and pluralism may affect the ability of agricultural producers to participate in the political process and influence policy, property rights and bureaucratic functioning may affect the transaction costs of doing so. And these governance attributes may mildly correlate with, but are not very well defined by, indexes that proxy for political freedom.

Olper (2001) makes this distinction, measuring the quality of bureaucracy and protection of property rights through the ICRG index, and analyzes the impact of these institutions as well as political rights on agricultural protection. The results suggest that the nonlinear relationship as described earlier with regard to political openness also holds for property rights institutions, after controlling for political openness. That is, as bureaucratic quality and rule of law improve from a low base, protection increases as agricultural producers face reduced transaction costs to undertaking activities to influence policy in favor of the agricultural sector. With even greater improvements in these institutions, however, constraints on agricultural producer groups set in, through checks on their influence and increased competition from a multiplicity of interest groups.

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<sup>10</sup> The analysis includes a dummy for medium political rights and high political rights, with the nonincluded dummy being that of low political rights. The medium rights coefficient is statistically significant and negative in the model of agricultural research spending, and the high rights coefficient is not statistically significant.

## 6. TENTATIVE CONCLUSIONS ON POLICY AND AREAS FOR FUTURE RESEARCH

Much of the design of policy and investment advice undertaken by technocratic agencies, policy dialogue and advocacy by development experts, and communications outreach by researchers and academics is premised on the assumption that those making decisions about how to allocate public resources across competing needs generally act like agents solely seeking to maximize welfare and reduce poverty, subject to resource and information constraints. This premise ignores rich theoretical and empirical evidence that this is not necessarily so—whether the decisionmakers are donor agencies, government officials, or other entities. This paper reviewed theories and empirical inquiries into the forces, actors and their incentives, and governance conditions that determine how public resources are in fact expended across different needs, and draws implications for how these factors may affect resource allocation to agricultural public investments. The schools of thought on this topic vary widely—from economistic accounts of an unencumbered and benevolent social planner, to models that account for policymakers who do not merely maximize a social welfare function but a political preference function, to theories that describe the budget-making process as so diffuse and characterized by organized anarchy that there is a great deal of randomness in budget outcomes.

Despite the diversity of conceptual approaches to analyzing the factors that drive public expenditure allocations, including to and for agriculture, some tentative conclusions can be drawn for development interventions, policymaking, and policy dialogue. The review also identifies some areas for future research. We next discuss both, although only in a selective manner: there is room for more extensive consideration of both policy and research implications.

Many development interventions in agriculture have gone beyond providing agricultural inputs and infrastructure to building the capacity of small farmers' groups, cooperatives, and agricultural umbrella groups. One of the important findings to emerge from the political economy literature discussed in this review is that the characteristics of interest groups can have a significant influence on public investments and other public policies that affect them directly. While interventions to strengthen cooperatives' and farmers' groups' capacity are usually undertaken with technical benefits in mind, such as an improvement in their ability to reduce transaction costs in marketing their commodities or purchasing inputs, such support may also have important indirect benefits for smallholders, by increasing their power and collective action capacity to press politicians on agricultural policies. The same holds for other interventions, such as information and communication technology and rural transport infrastructure investments.

Certainly, one should be cautious not to oversell the potential politico-economic benefits of these kinds of interventions. To properly understand how far such indirect benefits may reach, a better grasp is required of the magnitude of change in political power that may result from an additional, incremental improvement in coordination capacity. Much of the canonical literature on agricultural interest groups derives the relationship between lobbying power and group characteristics from the observation of strongly varying groups: smallholders in poor agriculture-dominated countries versus farmers in industrialized economies, agricultural versus urban populations, or family farms versus large commercial farms in developing countries. This discussion suggests scope both for deeper research bringing interest group models to the “marginal change” level and for consideration of policy entry points to exploit the insights of these models.

The policy implications of the findings on the effect of the governance environment may be less immediate. It is arguably very difficult to affect broader political governance environments, and perhaps not fully plausible to call for policy efforts to do so with the objective of enabling greater space for agricultural investments—given that broader governance changes have many different consequences and cannot serve only one goal, even if it is an important one. Furthermore, there is no clear consensus, and there are nonlinearities, identified in the body of work on how political freedoms, the rule of law, and other features of political governance affect public policy attention to



agriculture. However, these inquiries at the least serve as a reminder that the effect that wider institutions have on the political space created for agricultural investments and other forms of support should be taken into account by stakeholders concerned with the sector. In so doing, care should be taken to explore the (potentially) differential effects of different institutions, such as democratic rule, political liberty, security of property rights, and so on, which may correlate positively in their levels across countries but which nevertheless mean different things and thus have potentially distinct implications for agricultural support.

The evidence on the interface between corruption and the propensity to undertake investment spending, in contrast, is less ambiguous. If indeed political and economic governance systems with significant corruption induce greater public investment (capital) spending, then it can be expected that the public investments in these settings are more prone to leakages than public investments in low-corruption environments. This may well apply mostly to investments in tangible capital assets such as infrastructure, irrigation structures, and so on. This fact should be carefully taken into account when greater agricultural public investments are promoted. More attention should be paid to the way in which leakages and corruption corrode the productivity of public investments, and avenues to stem this effect, as well as ways to enhance the efficiency—rather than only the amount—of public capital investments in and for agriculture should be considered.

For intangible investments such as in agricultural technology and scientific knowledge, a possibly serious challenge is the political and economic factors leading to its underinvestment: the long lag time between investments and knowledge creation combined with the (often) shorter political cycles, the relative political invisibility of this form of investment, and the other phenomena discussed in this review paper. We would argue that further research, especially multidisciplinary work including careful case studies, should be devoted to more deeply investigating the ways in which agricultural research investments may be sidelined due to how the characteristics of such investments relate to and contrast with political imperatives and realities. Such work would help bring to the fore relevant and feasible strategies to overcome the impediments and disincentives to increasing investments in research, by enabling decisionmakers to learn from empirical cases in which these disincentives are very much in place as well as from developing countries that have managed to sustain a relatively high commitment to agricultural technology development over a prolonged period of time.

Although the descriptions and models of the budget process presented at the outset of this review paper may inadequately represent how public investment decisions are actually made, useful insights can still be gleaned from them for development activities and policy dialogue. Elements of incrementalist behavior in public administration may militate against dramatic portfolio shifts, even if evidence on the impacts of different types of public investments on agricultural productivity and other important development outcomes may recommend such shifts. A certain degree of chaos may also be present in the budget-making process, so that dialogue with what appear to be one or a few important decisionmakers may be less effective than what would be expected if the actual process followed a neat formal structure. Thus, the efficiency of policy dialogue can be enhanced if the participants are cognizant of the extent to which *noise*, or path dependency, in spending patterns helps shape the process through which public resource allocation decisions are made.

Finally, some of the frameworks discussed in this paper can be fruitfully used to seek to understand how specific new and major initiatives in agriculture in developing countries affect agricultural investments and their magnitude, characteristics, and distribution. An interesting case in this respect would be the Comprehensive Africa Agriculture Development Programme (CAADP). CAADP was launched in 2003 as one of the seven initiatives of the New Partnership for Africa's Development (NEPAD), a program established in 2001. The objective underlying the creation of CAADP was to spur broad-based economic growth through agricultural development in Africa and to support governments in identifying and implementing the requisite public expenditure and other

public policies in and for the sector. From the perspective of the effort to apply these politico-economic frameworks to CAADP, the particular process through which CAADP aims to achieve improved agricultural investments is critical. For example, one of the principles of NEPAD, which are intended to be applicable to all its initiatives, including CAADP, is the fostering of the participation of a wider range of stakeholders in the agricultural policymaking process. Although the analysis is not always couched in the language of participation, many of the models discussed in this review paper are centrally concerned with the extent to which various groups and agents have the ability to participate in the policy process and are able to influence the direction of policies and the type and magnitude of investments.

In an extensive qualitative study of CAADP and the African Peer Review Mechanism (the latter also a NEPAD initiative), Zimmermann et al. (2009) analyze ways in which CAADP has or has not affected the agricultural policy process, based on case studies in Ghana and Kenya. Among other things, the study explores how the participation of different stakeholders has been affected by the presence of CAADP. The researchers find that participation in CAADP processes has in fact been weaker than is usually the case in the case countries' agricultural policy processes, and prior to the near-final, roundtable stage of CAADP, only a few experts and technical staff have substantive involvement, with nontechnical and nongovernmental actors only beginning to feature during the roundtable.<sup>11</sup> This study, while extensive and detailed, does not explicitly employ politico-economic or public choice theoretical frameworks in the analysis, but there would indeed be scope to do so in future research, as the theories examine how different characteristics of groups and individuals, and the characteristics of politico-economic institutions and systems in which groups, individuals, and politicians operate, affect the distribution of influence on policies and investments.

Another example is the use of appropriate analytical tools to understand how resource allocation may be distorted between the point of establishment of a budget and the stage at which public resources reach the ground. The public expenditure tracking survey (PETS) methodology has so far been employed almost exclusively to analyze public expenditure allocations in the education and health sectors. To the best of our knowledge, there exists no academically published study using PETS in the agricultural sector, and only one such work in general (World Bank 2010). This is despite the fact that PETS could be an invaluable analytical tool for the agricultural sector. For example, it can be used for tracking the allocation of expenditures for agricultural R&D—as the earlier-mentioned study on Papua New Guinea shows, corruption in agencies managing public funds for R&D can lead to leakages, and these leakages would not be identifiable in conventional public expenditure analysis using government accounts, nor in R&D spending analysis drawing only on data at the agricultural research institute level. Irrigation may be an investment activity requiring even greater analytical attention through expenditure tracking, due to the pervasive problems with resources being syphoned off, as alluded to in this paper.

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<sup>11</sup> The CAADP process can be broken down into eight more or less sequential stages, from the launch of the process, to stocktaking analyses, to the roundtable stage, in which stakeholders endorse the CAADP “compact,” to the fundraising and implementation stage. The process is detailed in Zimmermann (2009, 56–59).

## REFERENCES

- Abler, D. G., and V. Sukhatme. 1998. "The Determinants of Wheat and Rice Policies: A Political Economy Model for India." *Journal of Economic Development* 23 (1): 195–215.
- Acemoglu, D., and J. Robinson. 2001. "Inefficient Redistribution." *American Political Science Review* 95 (3): 649–661.
- Alesina, A., and B. Weder. 1999. *Do Corrupt Governments Receive Less Foreign Aid?* Working Paper 7108. Cambridge, MA, US: National Bureau of Economic Research.
- Alston, J. M., and P. G. Pardey. 2001. "Attribution and Other Problems in Assessing the Returns to Agricultural R&D." *Agricultural Economics* 25 (2–3): 141–152.
- Anderson, K., and Y. Hayami, eds. 1986. *The Political Economy of Agricultural Protection: East Asia in International Perspective*. Sydney, Australia: Allen and Unwin.
- Anderson, S., and L. Harbridge. 2010. "Incrementalism in Appropriations: Small Aggregation, Big Changes." *Public Administration Review* 7 (3): 464–474.
- Austen-Smith, D. 1997. "Interest Groups: Money, Information and Influence." In *Perspectives on Public Choice: A Handbook*, edited by D. C. Mueller, 296–321. Cambridge, UK: University of Cambridge Press.
- Bailey, J., and R. O'Connor. 1975. "Operationalizing Incrementalism: Measuring the Muddles." *Public Administration Review* 35 (1): 60–66.
- Bale, M. D., and E. Lutz. 1981. "Price Distortions in Agriculture and Their Effects: An International Comparison." *American Journal of Agricultural Economics* 63 (1): 8–22.
- Bates, R. H. 1987. *Essays on the Political Economy of Rural Africa*. Berkeley, CA, US: University of California Press.
- Becker, G. 1983. "A Theory of Competition among Pressure Groups for Political Influence." *Quarterly Journal of Economics* 98 (3): 371–400.
- Beghin, J. C., and M. Kherallah. 1994. "Political Institutions and International Patterns of Agricultural Protection." *Review of Economics and Statistics* 76 (3): 482–489.
- Berry, W., and D. Lowery. 1990. "An Alternative Approach to Understanding Budgetary Tradeoffs." *American Journal of Political Science* 34 (3): 671–705.
- Bijian, Z. 2005. "China's 'Peaceful Rise' to Great-Power Status." *Foreign Affairs* Sep./Oct.
- Binswanger, H., and K. Deininger. 1997. "Explaining Agricultural and Agrarian Policies in Developing Countries." *Journal of Economic Literature* 35 (4): 1958–2005.
- Birner, R., and D. Resnick. 2010. "The Political Economy of Policies for Smallholder Agriculture." *World Development* 38 (10): 1442–1452.
- Blais, A., and S. Dion. 1990. "Are Bureaucrats Budget Maximizers? The Niskanen Model and Its Critics." *Polity* 22 (4): 655–674.
- Bragg, C. K. 2003. "'Crossing a River by Groping for Stones': Factors Reshaping the Policy Innovation Process for Chinese Water Policies." *Public Administration Quarterly* 27 (3–4): 243–273.
- Bräutigam, D. 2004. "The People's Budget? Politics, Participation, and Pro-Poor Policy." *Development Policy Review* 22 (6): 653–668.
- Bräutigam, D., and S. Knack. 2004. "Foreign Aid, Institutions and Governance in Sub-Saharan Africa." *Economic Development and Cultural Change* 52 (2): 255–285.
- Bullock, D. S. 1994. "In Search of Rational Government: What Political Preference Function Studies Measure and Assume." *American Journal of Agricultural Economics* 76 (3): 347–361.

- Cammack, T., M. Fowler, and C. D. Phomdouangsy. 2008. "Lao PDR Public Expenditure Study: Public Expenditures for Pro-Poor Agricultural Growth." Draft Paper, DFID/World Bank Partnership on Public Expenditure in Agriculture, Washington, DC.
- Caputo, D. 1975. "New Perspectives on the Public Policy Implications of Defense and Welfare Expenditures in Four Modern Democracies." *Political Sciences* 6 (4): 423–446.
- Carlin, A. 1967. "Project versus Program Aid: From the Donor's Viewpoint." *Economic Journal* 77 (305): 48–58.
- Coate, S., and S. Morris. 1999. "Policy Persistence." *American Economic Review* 89 (5): 1327–1336.
- Cohen, M., J. March, and J. Olsen. 1972. "A Garbage Can Model of Organizational Choice." *Administrative Science Quarterly* 17 (1): 1–25.
- Collier, C., and J. W. Gunning. 1999. "The IMF's Role in Structural Adjustment." *Economic Journal* 109 (459): 634–651.
- Cowart, A. T., T. Hansen, and D. Brofoss. 1975. "Budgetary Strategies and Success at Multiple Decision Levels in the Norwegian Urban Setting." *American Political Science Review* 69 (2): 543–558.
- Davis, O. 1971. "On the Process of Budgeting 2: An Empirical Study of Congressional Appropriations." In *Studies in Budgeting*, edited by R. F. Byrne and A. Charnes. Amsterdam: North-Holland.
- Davis, O. A., M. A. H. Dempster, and A. Wildavsky. 1966. "A Theory of the Budgetary Process." *American Political Science Review* 60 (3): 529–547.
- Deacon, R. T. 1978. "A Demand Model for the Local Public Sector." *Review of Economics and Statistics* 60 (2): 180–202.
- de Gorter, H., and J. F. M. Swinnen. 1998. "Impact of Economic Development on Commodity and Public Research Policies in Agriculture." *Review of Development Economics* 2 (1): 41–60.
- . 2002. "Political Economy of Agricultural Policy." In *Handbook of Agricultural Economics*, Vol. 2, edited by B. Gardner and G. Rausser, 1893–1943. Amsterdam: Elsevier.
- de la Croix, D., and C. Delavallade. 2009. "Growth, Public Investment and Corruption with Failing Institutions." *Economics of Governance* 10 (3): 187–219.
- Delavallade, C. 2006. "Corruption and Distribution of Public Spending in Developing Countries." *Journal of Economics and Finance* 30 (2): 222–239.
- Domke, W., R. Eichenberg, and C. Kelleher. 1983. "The Illusion of Choice: Defense and Welfare in Advanced Industrial Democracies." *American Political Science Review* 77 (1): 19–35.
- Doner, R. F., B. K. Ritchie, and D. Slater. 2005. "Systemic Vulnerability and the Origins of Developmental States: Northeast and Southeast Asia in Comparative Perspective." *International Organization* 59 (2): 327–361.
- Drazen, A., and N. Limão. 2008. "A Bargaining Theory of Inefficient Redistribution Policies." *International Economic Review* 49 (2): 621–657.
- Dunleavy, P. 1985. "Bureaucrats, Budgets and the Growth of the State: Reconstructing an Instrumental Model." *British Journal of Political Science* 15 (3): 299–328.
- Dunne, J. P., and R. P. Smith. 1984. "The Allocative Efficiency of Government Expenditure: Some Comparative Tests." *European Economic Review* 20 (1–3): 381–394.
- Edwards, G. C., III, and I. Sharkansky. 1975. "Executive and Legislative Budgeting: Decision Rules for Agency Totals and Individual Programs in Two States." In *Perspectives on Public Policy-Making*, edited by W. B. Gwyn and G. Edwards. New Orleans, LA, US: Tulane University.
- Fan, S., B. Yu, and A. Saurkar. 2008. "Public Spending in Developing Countries: Trends, Determination and Impact." In *Public Expenditures, Growth, and Poverty*, edited by S. Fan, 20–55. Baltimore: Johns Hopkins University Press.
- Feeny, S., and M. McGillivray. 2010. "Aid and Public Sector Fiscal Behaviour in Failing States." *Economic Modelling* 27 (5): 1006–1016.

- Fernandez, R., and D. Rodrik. 1991. "Resistance to Reform: Status Quo Bias in the Presence of Individual-Specific Uncertainty." *American Economic Review* 81 (5): 1146–1155.
- Feyzioglu, T., V. Swaroop, and M. Zhu. 1998. "A Panel Data Analysis of the Fungibility of Foreign Aid." *World Bank Economic Review* 12 (1): 29–58.
- Fixsen, D. L., S. F. Naaom, K. A. Blase, R. M. Friedman, and F. Wallace. 2005. *Implementation Research: A Synthesis of the Literature*. FMHI Publication No. 231. Tampa, FL, US: University of South Florida.
- Ghafoor, A., J. Weiss, and H. Jalilian. 2000. "The Impact of Structural Adjustment Reforms on Public Sector Expenditures: Evidence from Developing Countries." *METU Studies in Development* 27 (1–2): 119–132.
- Goodin, R. E. 1982. "Rational Politicians and Rational Bureaucrats in Washington and Whitehall." *Public Administration* 60 (1): 23–41.
- Gupta, S., L. de Mello, and R. Sharan. 2001. "Corruption and Military Spending." *European Journal of Political Economy* 17 (4): 749–777.
- Gyimah-Brempong, K. 1998. "The Political Economy of Budgeting in Africa 1971–1991." *Journal of Public Budgeting, Accounting and Financial Management* 9 (4): 590–616.
- Harstad, B., and J. Svensson. 2011. "Bribes, Lobbying and Development." *American Political Science Review* 105 (1): 46–63.
- Hicks, W. W. 1963. "Estimating the Foreign Exchange Costs of United Aid." *Southern Economic Journal* 30 (2): 168–174.
- Hoole, F. W. 1976. *Politics and Budgeting in the World Health Organization*. Bloomington, IN, US: Indiana University Press.
- Houderou, P., and R. Taliercio. 2002. *Medium Term Expenditure Frameworks: From Concept to Practice—Preliminary Lessons from Africa*. Africa Region Working Paper Series No. 28. Washington, DC: World Bank.
- Johnson, R. W. M. 1995. "Modelling Government Processes and Policies in Agriculture: A Review." *Review of Marketing and Agricultural Economics* 63 (3): 383–393.
- Keefer, P., and S. Khemani. 2005. "Democracy, Public Expenditures and the Poor: Understanding Political Incentives for Providing Public Services." *World Bank Research Observer* 20 (1): 1–27.
- Keefer, P., and S. Knack. 2007. "Boondoggles, Rent-Seeking and Political Checks and Balances: Public Investment under Unaccountable Governments." *Review of Economics and Statistics* 89 (3): 566–572.
- Knack, S. 2001. "Aid Dependence and the Quality of Governance: Cross-Country Empirical Tests." *Southern Economic Journal* 68 (2): 310–329.
- Krueger, A. 1996. "Political Economy of Agricultural Policy." *Public Choice* 87 (1–2): 173–175.
- Krueger, A., M. Schiff, and A. Valdes. 1988. "Agricultural Incentives in Developing Countries: Measuring the Effects of Sectoral and Economywide Policies." *World Bank Economic Review* 2 (3): 255–272.
- Lawrence, S., and A. Wynne. 2009. "Accounting for Government in the Global South: Do Global Solutions Match Local Problems?" *Australasian Accounting Business and Finance Journal* 3 (2): 1–25.
- Lebovic, J. H. 2001. "Spending Priorities and Democratic Rule in Latin America." *Journal of Conflict Resolution* 45 (4): 427–452.
- Lianos, T. P., and G. Rizopoulos. 1988. "Estimation of Social Welfare Weights in Agricultural Policy: The Case of Greek Cotton." *Journal of Agricultural Economics* 39 (1): 1–30.
- Lindert, P. H. 1991. "Historical Patterns of Agricultural Policy." In *Agriculture and the State: Growth, Employment and Poverty in Developing Countries*, edited by C. Timmer. Food Systems and Agrarian Change Series. Ithaca, NY, US: Cornell University Press.
- Lipton, M. 1977. *Why Poor People Stay Poor: Urban Bias in World Development*. Cambridge, MA, US: Harvard University Press.

- Mahdavi, S. 2004. "Shifts in the Composition of Government Spending in Response to External Debt Burden." *World Development* 32 (7): 1139–1157.
- March, J. G., and J. P. Olsen. 1976. *Ambiguity and Choice in Organizations*. Bergen, Norway: Universitetsforlaget.
- Mauro, P. 1998. "Corruption and the Consumption of Government Expenditure." *Journal of Public Economics* 69 (2): 263–279.
- McKie, K., and N. van de Walle. 2010. "Toward an Accountable Budget Process in Sub-Saharan Africa: Problems and Prospects." *Social Research* 77 (4): 1281–1310.
- Mogues, T., B. Yu, S. Fan, and L. McBride. 2012a. *The Impacts of Public Investments in and for Agriculture: Synthesis of the Existing Evidence and New Empirical Analysis*. IFPRI Discussion Paper. Washington, DC: International Food Policy Research Institute, forthcoming. FAO ESA Working Paper. Rome: Food and Agriculture Organization of the United Nations, forthcoming.
- Mogues, T., M. Morris, L. Freinkman, A. Adubi, and S. Ehui. 2012b. "Agricultural Public Spending in Nigeria." In *Public Expenditures for Agricultural and Rural Development in Africa*, edited by T. Mogues and S. Benin. London and New York: Routledge, Taylor and Francis Group.
- Mosley, P., J. Hudson, and A. Verschoor. 2004. "Aid, Poverty Reduction and the New Conditionality." *Economic Journal* 114 (496): 217–243.
- Mulligan, C., R. Gil, and X. Sala-i-Martin. 2004. "Do Democracies Have Different Public Policies than Nondemocracies?" *Journal of Economic Perspectives* 18 (1): 51–74.
- Natchez, P., and I. C. Bupp. 1973. "Policy and Priority in the Budgetary Process." *American Political Science Review* 67 (3): 951–963.
- Niskanen, W. 1971. *Bureaucracy and Representative Government*. Piscataway, NJ, US: Transaction Publishers.
- Olper, A. 2001. "Determinants of Agricultural Protection: The Role of Democracy and Institutional Setting." *Journal of Agricultural Economics* 52 (2): 75–92.
- Olson, M. 1965. *The Logic of Collective Action*. New Haven, CT, US: Yale University Press.
- . 1985. "Space, Agriculture and Organization." *American Journal of Agricultural Economics* 67 (5): 928–937.
- Omuru, E., and R. Kingwell. 2006. "Funding and Managing Agricultural Research in a Developing Country: A Papua New Guinea Case Study." *International Journal of Social Economics* 33 (4): 316–330.
- Ostrom, C. W. 1977. "Evaluating Alternative Foreign Policy Decision-Making Models: An Empirical Test between an Arms Race Model and an Organizational Politics Model." *Journal of Conflict Resolution* 21 (2): 235–266.
- Pack, H., and J. R. Pack. 1990. "Is Foreign Aid Fungible? The Case of Indonesia." *Economic Journal* 100 (399): 188–194.
- . 1993. "Foreign Aid and the Question of Fungibility." *Review of Economics and Statistics* 75 (2): 258–265.
- Peroff, K., and M. Podolak-Warren. 1979. "Does Spending on Defence Cut Spending on Health? A Time-Series Analysis of the U.S. Economy 1929–74." *British Journal of Political Science* 9 (1): 21–39.
- Peterson, S. 1994. "Budgeting in Kenya: Practice and Prescription." *Public Budgeting and Finance* 14 (3): 55–76.
- Rangarajan, M. 2009. "Striving for a Balance: Nature, Power, Science and India's Indira Gandhi 1917–1984." *Conservation and Society* 7 (4): 299–312.
- Rausser, G., and J. W. Freebairn. 1974. "Estimation of Policy Preference Functions: An Application to U.S. Beef Import Quotas." *Review of Economics and Statistics* 56 (4): 437–449.
- Reddick, C. G. 2002. "Testing Rival Decision-Making Theories on Budget Outputs: Theories and Comparative Evidence." *Public Budgeting and Finance* 22 (3): 1–25.

- \_\_\_\_\_. 2003. "Budgetary Decision Making in the Twentieth Century: Theories and Evidence." *Journal of Public Budgeting, Accounting and Financial Management* 15 (2): 1096–3367.
- Reinikka, R., and J. Svensson. 2004. "Local Capture: Evidence from a Central Government Transfer Programme in Uganda." *Quarterly Journal of Economics* 119 (2): 679–705.
- \_\_\_\_\_. 2006. "Using Micro-Surveys to Measure and Explain Corruption." *World Development* 34 (2): 359–370.
- Remmer, K. 2004. "Does Foreign Aid Promote the Expansion of Government?" *American Journal of Political Science* 48 (1): 77–92.
- Rinaudo, J.-D. 2002. "Corruption and Allocation of Water: The Case of Public Irrigation in Pakistan." *Water Policy* 4 (5): 405–422.
- Rubin, I. S. 1989. "Aaron Wildavsky and the Demise of Incrementalism." *Public Administration Review* 49 (1): 78–81.
- Russett, B. 1969. "Who Pays for Defense?" *American Political Science Review* 63 (2): 412–426.
- Schiavo-Campo, S. 2009. "Potemkin Villages: 'The' Medium-Term Expenditure Framework in Developing Countries." *Public Budgeting and Finance* 29 (2): 1–26.
- Sharkansky, I., and A. B. Turnbull III. 1969. "Budget-making in Georgia and Wisconsin: A Test of a Model." *Midwest Journal of Political Science* 13 (4): 631–645.
- Singer, H. W. 1965. "External Aid: For Plans or Projects?" *Economic Journal* 75 (299) 539–545.
- Stifel, D., and H. Alderman. 2006. "The 'Glass of Milk' Subsidy Program and Malnutrition in Peru." *World Bank Economic Review* 20 (3): 421–448.
- Svensson, J. 2000. "Foreign Aid and Rent-Seeking." *Journal of International Economics* 51 (2): 437–461.
- Swaroop, V., S. Jha, and A. S. Rajkumar. 2000. "Fiscal Effects of Foreign Aid in a Federal System of Governance: The Case of India." *Journal of Public Economics* 77 (3): 307–330.
- Swinnen, J. F. M., H. de Gorter, G. C. Raussier, and A. N. Banerjee. 2000. "The Political Economy of Public Research Investment and Commodity Policies in Agriculture: An Empirical Study." *Agricultural Economics* 22 (2): 111–122.
- Tsebelis, G., and E. C. C. Chang. 2004. "Veto Players and the Structure of Budgets in Advanced Industrialised Countries." *European Journal of Political Research* 43 (3): 449–476.
- Tridimas, G. 1999. "A Demand-Theoretic Analysis of Public Consumption Priorities in the UK." *Public Finance Review* 27 (6): 599–623.
- \_\_\_\_\_. 2001. "The Economics and Politics of the Structure of Public Expenditure." *Public Choice* 106 (3–4): 299–316.
- Uddin, S., and M. Tsamenyi. 2005. "Public Sector Reforms and the Public Interest." *Auditing and Accountability Journal* 18 (5): 648–674.
- Wade, R. 1982. "The System of Administrative and Political Corruption: Canal Irrigation in South India." *Journal of Development Studies* 18 (3): 287–328.
- Walter, H., and B. Wolff. 2002. "Principal-Agent Problems in Irrigation: Inviting Rentseeking and Corruption." *Quarterly Journal of International Agriculture* 41 (1–2): 99–118.
- Wanat, J. 1974. "Bases of Budgetary Incrementalism." *American Political Science Review* 68 (3): 1224–1228.
- Weissinger-Baylon, R. 1986. "Garbage Can Decision Processes in Naval Warfare." In *Ambiguity and Command*, edited by J. G. March and R. Weissinger-Baylon. Marshfield, MA, US: Pitman.
- Winters, M. S. 2010. "Accountability, Participation and Foreign Aid Effectiveness." *International Studies Review* 12 (2): 218–243.
- World Bank. 2004. *Zambia: Public Expenditure Management and Financial Accountability Review*. World Bank Country Study. Washington, DC: World Bank.

- \_\_\_\_\_. 2007. *World Development Report 2008: Agriculture for Development*. Washington, DC: World Bank.
- \_\_\_\_\_. *Uganda Agriculture Public Expenditure Review*. Report No. 53704-UG. Washington, DC: World Bank.
- \_\_\_\_\_. 2011. World Development Indicators. Washington, DC: World Bank. Accessed July 5, 2011.  
<http://data.worldbank.org/data-catalog/world-development-indicators>.
- Zhang, X., S. Fan, L. Zhang, and J. Huang. 2004. "Local Governance and Public Goods Provision in Rural China." *Journal of Public Economics* 88 (12): 2857–2851.
- Zimmermann, R., M. Bruntrup, S. Kolavalli, and K. Flaherty. 2009. *Agricultural Policies in Sub-Saharan Africa: Understanding CAADP and APRM Policy Processes*. Bonn, Germany: Deutsches Institut für Entwicklungspolitik.



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