

Political Institutions and Human Development

John Gerring

*Boston University
Department of Political Science
232 Bay State Road
Boston MA 02215
617-353-2756
jgerring@bu.edu*

Strom C. Thacker

*Boston University
Department of International Relations
152 Bay State Road
Boston MA 02215
617-353-7160
sthacker@bu.edu*

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Since the pioneering work of Seebohm Rowntree (1901), the intertwined subjects of health, mortality, and wellbeing have usually been approached through an epidemiological lens. Academic work has addressed issues of conceptualization and measurement, the tracking of historical and contemporary trends, and debates over proximate causes. These are vital questions but they are primarily descriptive, or proximal, in nature. *Structural-level* causes, by contrast, have been ignored or downplayed.

The one exception to this dictum concerns economics. Economic growth is probably the most powerful causal factor accounting for variation in human development across space and through time and has been explored in several recent studies. Yet, it is clearly not the only factor. Indeed, countries with similar levels of economic development sometimes experience radically different levels of human development. Thus, it is vital that we extend the purview of work on this subject to include other structural-level factors that might impact the life-conditions of the world's poor.

Our focus in this paper is on the role of political institutions.¹ Specifically, we investigate whether democracy, constitutional structures, or state capacity have consistent, independent effects on human development. This topic is investigated within a crossnational database including rich and poor nations — a total of 188 country-cases. The chosen dependent variable is infant mortality (IMR) — arguably, the surest and most valid indicator of human development achievement on a global scale. Our findings suggest that human development is *enhanced* by democracy, proportional electoral systems, and capable state administrations, and *impaired* by federal constitutional arrangements. (The effect of parliamentarism is positive, but not statistically significant.)

We begin with a review of hypotheses, outlining the arguments for each (pro and con). We proceed to a discussion of how human development is best operationalized (i.e., various indicators that might be employed as measures of outcome). We then lay out the method of analysis (OLS regression). The more complicated issue lies in identifying relevant control variables (the 'core' equation in which various political-institutional variables are tested). This leads to an extended discussion and investigation of various specification problems. Finally, the results of the main analyses are presented. The conclusion discusses the ramifications of these findings in a broader philosophical and methodological context.

Hypotheses

Do political institutions matter to human development? The issue has been the subject of great speculation, but little empirical study (and particularly little *crossnational* empirical study). Consequently, it seems wise to cast a wide theoretical net when constructing hypotheses. Our net encompasses work focused on human development as well as work focused on adjacent topics such as redistributive public policy, social inequality, and good governance.

¹ Political institutions are understood as enduring practices or organizations with an explicitly political orientation. They encompass the 'constitutional' elements of a polity (in the English sense of that term), and may be distinguished from public policies and political events, both of which are generally more evanescent. A companion study (Gerring and Thacker 2001d) addresses policy variables in human development.

Which political institutions might matter to human development? Prima facie, any number of institutions might be relevant to health, mortality, and other dimensions of human wellbeing. Our focus here is on institutions closely identified with the state — i.e., the formal apparatus of government — rather than the quasi-independent institutions of civil society (e.g., the media, political parties, and interest groups). Thus, our argument does not intend to address the complex question of social capital and its effects on human development (Kawachi et al. 1999). We focus, instead, on three institutional arenas of government: *democracy*, *constitutional structure*, and *state capacity*. What follows is a brief review of the various implications of these institutions for human development outcomes.

Throughout the following discussion it should be kept in mind that there are two rather different pathways by which political institutions might influence aggregate levels of human development. First, an institution might enhance the ‘pro-poor’ slant of public policy in a country, thus directly aiding the least advantaged citizens whose fate is largely responsible for a country’s aggregate performance on human development indicators. Second, a political institution might contribute to a set of policies that foster the general interest, with no special concern for the poor (but without excluding them from such benefits). We shall refer to the first as a *redistributive* pathway and the second as a *public-interest* (aka public good or good government) pathway.²

Democracy

The general assumption of most writers is that democracy plays a positive role in human development. A popularly elected government, accountable to the people, should be more concerned with the welfare of the poor than an authoritarian government, *ceteris paribus*.

Democracy can mean many things, of course. However, in the context of governance debates it is usually understood to mean representative democracy, as operationalized by regular elections, broad suffrage, equally-weighted ballots (the one-person/one-vote principle), multi-party competition, and the enjoyment of basic civil liberties. The list might be extended or contracted, and there is some difference of opinion among various writers who have sought to measure democracy crossnationally. However, most indicators are highly correlated (Bollen 1980, 1993; Bollen and Paxton 2000; Munck and Verkuilen 2000). If there is a core principle behind representative democracy it is that there ought to be competition among elites for the support of the great mass of the citizenry such that the current in-group stands a realistic chance of becoming an out-group at the next election (Przeworski et al. 2000).

Examples of the logic of competition are not hard to find. As various social groups achieved suffrage rights in American history, politicians became responsive to their needs and concerns. The character and content of American politics altered dramatically as the white working class (early 19th century), women (1920), and African-Americans (1960s) gained the vote (Bensel and Sanders 1979; Keyssar 2000; for other country-cases see Frankel et al. 2000; Meltzer and Richard 1978; Stack 1979). With the ballot, came social improvements in the quality of life enjoyed by each of these groups. Arguably, enfranchisement has been one of the great moving forces of politics in all polities, for precisely the reasons that Schumpeter (1942/1950) theorized.

² For empirical work on the variable effects of these two pathways see Gerring and Thacker (2001d).

There is no reason to suppose that this dynamic is any different in the political context of the contemporary developing countries. As groups gain the vote, and as elites begin to compete for those votes, we can expect that social provision, as well as the general acceptance accorded to those groups, will increase. By the same token, where political competition is inhibited, as in the South prior to the civil rights movement, there are correspondingly few incentives for elites to cater to the needs and desires of out-groups (Key 1949). Under such constrained circumstances we can anticipate that human development will *not* advance.

The point is well illustrated by a stylized comparison of democratic and authoritarian regimes. Elites in both regimes may be relatively insecure, but they are insecure in different ways. Strategies of regime maintenance in an authoritarian setting usually hinge on paying off, or actively repressing, rival elites — rather than spreading the benefits of progress among the poor. Indeed, authoritarian governments may have an interest in *preventing* human development in the impoverished regions, since education and economic advance is likely to create a less predictable, more highly mobilized, rural politics. Van de Walle (2001: 54) finds that most contemporary African elites are responsive to the needs and interests of only a tiny minority of the general population, which he (following Callaghy 1984) labels a political aristocracy.

Political power in a thoroughgoing democratic setting, by contrast, involves maintaining the support of a majority of the electorate. Electorates, as a rule, are unusually sensitive to their own life-conditions. Thus, for reasons of ideology as well as self-interest, political elites are likely to work harder to improve human development in a democratic political setting (Dasgupta and Weale 1992; Dreze and Sen 1989; Lake and Baum 2001; McGuire 2001a; Moon 1991; Moon and Dixon 1985; O'Donnell and Schmitter 1986: ch 6; Przeworski et al. 2000: 235-41; Shain and Linz 1995a: 76-78; Weyland 1996; Zweifel and Navia 2000).

Constitutional structures

With respect to constitutional (democratic) structures, three institutions have garnered great attention from writers over the years: the relationship of national of subnational units (federal or unitary), the nature of the executive (parliamentary or presidential), and the nature of the electoral system (where the main distinction is between proportional and majoritarian systems). We begin with a review of the plausible repercussions of each of these institutions for human development, and conclude with a more general theoretical discussion (pertaining to all three institutions).

Federalism. It seems fairly clear that a geographically fragmented constitutional structure will lead to a weaker central state. This much about federalism is axiomatic. What remains to be seen is whether such fragmentation harms the life-chances and living conditions of the poor. Critics of federalism suggest that federal structures leave local government open to corruption and elite manipulation (Bardhan and Mookherjee 1999: 2). Federalism also complicates the formulation and administration of public policy, introducing complex coordination problems among semi-autonomous political units (Bardach 1977; Jasper 1990; Kagan and Axelrad 1997; Mainwaring 1999; Mainwaring and Samuels 2000; Peterson 1980; Pressman and Wildavsky 1971; Ray 1987; Robertson 1989; Steinberg 1996;

Weyland 1996). Inefficient government services presumably hurt those members of the population who are most in need. Federalism, finally, may lead to non-redistributive policy outcomes (a secondary effect). Constituents in a regionally fragmented political system have less incentive to redistribute wealth to other regions, and are more apt to identify their interests in a localistic fashion. Leaders in a decentralized political system, likewise, will be more responsive to local than to national interests. Economic incentives also militate towards dedistributive outcomes, for it is in the interest of sub-national governments to minimize taxes (so as to preclude capital flight) and welfare benefits (to preclude the immigration of the indigent) (Brown and Oates 1987; Linz and Stepan 2000; Peterson 1980, 1981; Peterson and Rom 1990; Robertson 1989). With respect to education policy, Birdsall et al. (1996: 27) note that “high variance in the quality of basic schooling in Brazil . . . is the result of three factors . . . : the schooling delivery system is very decentralized; there are large variations in income per capita across regions, and between rural and urban areas within regions; and the system of educational financing is insufficiently redistributive.”

Decentralists suggest, by contrast, that federal institutions put government in closer proximity to constituents, and thus lead to higher levels of local accountability. Such accountability should translate into more effective governance, as well as greater concern for the needs of the poor. At the same time, competition among local units of government should provide higher standards of governmental performance, along the lines of market competition. Decentralized structures may also foster greater policymaking innovation in the provision of public goods. Scattered evidence suggests that the decentralization of education policy may have led to improved school performance (Burki et al. 1999: 68) and health outcomes (Habibi et al. 2001; Robalino et al. 2001). Similarly, where national governments are inefficacious and/or predatory — such as in much of the developing world — decentralization of authority may be expected to improve governmental performance (Mawhood 2000). While affecting governmental decisions at the center is beyond the capacity of most poor people, as well as most organizations representing the poor (who are chronically underfunded and understaffed), it will be easier to weigh in on decisions taken at local and regional levels. Insofar as federalism leads to stronger local government, therefore (a debatable proposition, but one with many protagonists), we might expect a more ‘pro-poor’ orientation to federal regimes (for discussion of various theoretical arguments, see Bennett 1990; Buchanan 1995; Campbell et al. 1991; Fox and Aranda 1996; Habibi et al. 2001; Oates 1972; Robalino et al. 2001; Tandler 1997; Tiebout 1956).³

The Executive. With respect to the nature of the executive, there appears to be general agreement that parliamentarism encourages greater wealth-redistribution. The existence of a divided executive makes possible a large number of veto points through which opponents of progressive legislation may exert their influence (Huber et al. 1993; Immergut 1992; Steinmo and Watts 1995). A separate-powers regime usually results in weak party organizations, a strong personal vote at the constituency level, and

³ It is important to note that much of the literature cited here deals with the question of fiscal federalism, rather than (or in addition to) constitutional federalism. However, in most cases it seems clear that the authors intend their work to refer broadly — to the latter, as well as the former. We exclude work focused narrowly on the federalism:growth

weak voting cohesion on the floor of the legislature (Bowler et al. 1999: 12; Cox 1987; Diermeier and Feddersen 1998; Epstein 1964; Hintze 1975: 219; Janda 1992; Mezey 1979: 77-81, 102-3; Olson 1980: 255-65; Rose 1986; Shugart and Carey 1992: 178; Shugart and Haggard 2001). This is fertile ground for interest groups and lobbyists who may be opposed to legislation targeted on the needs of the poor or on public goods that will benefit the poor. Moreover, party control of the two directly elected branches of government may be in different hands, further lowering chances of social reform. The effects of this fragmentation of power at the top are generally diffused through society — in the organization of interest groups (generally less consolidated), in the influence and behavior of media outlets (generally nonpartisan), and in the political identities and activities of individual citizens. All may exhibit an individualistic orientation hostile — at least in its effects — to the needs of the poor (McConnell 1966).

It is important to keep in mind that the role of parliamentarism in establishing redistributive programs is only plausible in light of a ‘ratchet’ effect connected with those policies. Without such a ratchet effect we can expect that conservative parties, when in power, would employ the centralized power of the state to overturn such legislation. The ratchet argument presumes that redistributive policies, once in place, define classes of beneficiaries who then serve as devoted supporters of the policies in question. Redistributive legislation thus becomes impregnable, once enacted and fully implemented. It is the unitary structure of the executive that allows left parties to impose their agenda, temporarily, and thereby change the nature of the political landscape, more or less permanently — a prime example of policy driving politics (Esping-Andersen 1985a; Steinmo and Watts 1995). By the same token, where executive structures are fragmented, welfare policies may never get off the ground. In these circumstances we can expect that powerful constituencies develop whose interests are directly *opposed* to the appropriation of greater state control. A prime example is offered by the US health care and health insurance industries, which have successfully lobbied against national health insurance proposals over the past several decades. Thus, the structure of the executive may have important long-run implications for the structure of social policy.

Although most writers agree that parliamentary systems have a redistributive slant (compared with presidential systems), they may not necessarily be superior along other dimensions. As we have said, there are two probable pathways of influence from political institutions to human development — redistribution and the public interest. Advocates of separate powers cite the fact that fragmented systems generally require something close to a consensus on the part of relevant (organized) political groups. This being the case, policymakers may be obliged to bring more groups to the negotiating table, resulting in a more broadly pitched statute with greater chances of long-term success, as well as a more deliberative policymaking procedure. The two branches, being independent, may force greater openness in decisionmaking, greater information about governmental activities, and better oversight procedures. Big mistakes may be avoided when the hurdle for legislation is high. In short, there are plenty of reasons to suppose that separate-powers executives might produce better public policies, even if such policies do not serve an explicitly redistributive purpose.

nexus (e.g., Davoodi and Zou 1998; Rodden and Rose-Ackerman 1997; Weingast 1995), since our outcome of interest

Proponents of parliamentarism also have strong public-interest arguments at their disposal. They point to the ‘special-interest’ quality of public debate within separate-powers systems. Where interests are fragmented, they may be *less* inclined to consider the public interest, to take a truly deliberative approach to public policy. Where politicians enjoy little insulation from constituents, they may have less room for compromise. Where super-majority requirements set high thresholds for the passage of legislation, groups may choose *not* to come together over a common plan of action (Goodin 1996).

The Electoral System. The term ‘electoral system’ may refer to virtually any attribute, or set of attributes, characterizing a system for electing public officials. Yet, amidst a voluminous literature one dimension has received most of attention — the distinction between majoritarian and proportional electoral systems. Majoritarian (or Westminster) electoral systems are designed to manufacture single-party (majority) governments. Proportional (‘PR’) electoral systems are designed to represent a range of political views and groupings, and generally result in coalition governments. We shall have more to say about how to operationalize this conceptual distinction; for the moment, we dwell on its possible implications for human development.

Admirers of the Westminster system have associated it with a defense of public goods against private interests. The dynamic of two-party competition apparently forces each party to address public interests on the hustings and to deliver them effectively once in office. Because power is centralized in the hands of a single party (we leave aside the occasional occurrence of divided rule within separate-powers systems), lines of accountability are clear; electors can easily judge who is responsible for failures and successes. Highly centralized systems have the greatest capacity to overcome inertia, and get things done. From this perspective, Westminster electoral systems are most likely to respond to broad public interests and resist particularist demands (Downs 1957; Olson 1982, 1986; McConnell 1966; Ranney 1962; Schattschneider 1942). Insofar as the interest of the least advantaged is identified with the public interest, we might identify FPP electoral systems as the institutional midwives of human development.

Critics of the Westminster system note that majorities are ‘manufactured’ (rarely does a single party win a majority of votes cast); parties often respond to vocal constituencies within their own party; and small groups in the center or strategically located in swing districts wield disproportionate influence over public policies. Proponents of PR electoral systems point out that although they usually preclude single-party governments, this does not preclude a general-interest style of deliberation and legislating. For, the operative decisionmaking body in most multi-party systems is the cabinet, or perhaps the legislature as a whole (through its committees and informal sites of negotiation), not the individual political party. Parliamentary coalitions in PR systems tend to be over-sized (not minimum-winning), and thus represent a super-majority of the electorate. Even minority governments must build tacit coalitions and consequently adopt a consensual policymaking style that embraces a super-majority among the parliamentary parties (Strom 1990b). Thus, PR may lead to *greater* ‘encompassing-ness’ than is to be found in majoritarian electoral systems (Birchfield and Crepaz 1998, 2000; Crepaz 1996a, 1996b,

is human development (controlling for the direct effects of economic growth).

1998; Crepaz et al. 2000; Lijphart 1994a, 1994b, 1994c, 1999; Lijphart and Crepaz 1991). Olson's argument (1982, 1986) is turned on its head.

Thus, on grounds of good governance there are ample arguments on both sides of the majoritarian/PR divide. With respect to redistributive pathways to human development, the issue is equally ambiguous. Empirically, it would appear that there is a strong correlation between PR electoral systems and welfare state development. But the matter has not been extensively researched, and a clear theoretical explanation of this fact is not apparent. It could be that multi-party systems lead to a universalist style of legislating, in which all organized political constituencies are appeased — and in which, therefore, the role of the state is likely to grow. It could also be that PR electoral systems foster corporatist government/civil society linkages, and that these linkages play an important role in the development and maintenance of welfare state policies (Lijphart and Crepaz 1991; Wilensky 1976). PR electoral systems tend to enhance turnout (Blais and Carty 1990), and high turnout is thought to exert a redistributionist effect on the direction of government policy (Boix 2001; Pacek and Radcliff 1995). PR systems may also enhance system legitimacy, thereby reducing the force of anti-state, anti-welfare sentiment (Anderson and Guillory 1997). Thus, there is some reason to suppose that PR has a stronger claim to at least one pathway of influence between constitutional structures and human development outcomes.

General constitutional models. Most of the foregoing arguments about the merits and demerits of federalism, parliamentarism, and PR can be understood as variants of two broad, and directly opposed, models of governance — *decentralism* and *centralism*. The terms and the constituent arguments will be familiar to most readers. What is perhaps insufficiently acknowledged are the deep intellectual roots of these traditions, the interconnections between various writers, and the influence of these shared perspectives on current governance debates.

The decentralist paradigm builds on semi-official 'schools' of British pluralism (Cole 1921; Hirst 1989; Hsiao 1927; Laski 1917, 1919, 1921) and American pluralism (Bentley 1908/1967; Dahl 1956, 1961, 1967; Herring 1940; Truman 1951), and includes most work in the public choice tradition (Buchanan 1995; Buchanan and Tullock 1962; Galeotti 1992; Henisz 2000a, 2000b; Oates 1972; Persson et al. 1997a; Rasmusen and Ramseyer 1992; Shleifer and Vishny 1998; Tiebout 1956; Weingast 1995), as well as the 'consensus' model of democracy developed by Arend Lijphart and associates (Crepaz et al. 2000; Lijphart 1984, 1999; Powell 2000). Its origins may be traced to seventeenth- and eighteenth-century writings centered on, or inspired by, the English constitution (e.g., Blackstone's *Commentaries* and Montesquieu's *Spirit of the Laws*), and to the American founding (particularly the writings of James Madison). According to this set of writers, stretching from the English Revolution to the present, good governance can be expected from institutions that successfully divide political authority.⁴

The logic of this core argument is complex and varied, with different writers stressing different elements (and no doubt disagreeing on a few). But the most frequently cited arguments may be briefly reviewed. Fragmentation sets barriers against the abuse of power by minorities, against the overweening

⁴ The twin doctrines of separation of powers (Vile 1967/1998) and federalism (Davis 1978) are obviously crucial here.

ambitions of individual leaders, against democratic tyrannies instituted by the majority, and against hasty and ill-considered public policies. Each institution acts as a check against the others, establishing a high level of inter-branch accountability and a healthy competition among individuals and organizations within this fragmented structure. Bad laws have little chance of enactment in a system biased heavily against change, where multiple groups possess an effective veto power over public policy. Because policy changes in such a system are necessarily incremental, governmental behavior is regular and predictable. Once enacted, therefore, policies enjoy credible commitment. The best government, decentralists argue, is that government that requires a virtual consensus on the part of social groups in order to effect significant policy change. Decentralism thus implies strong limitations on central state authority and — probably — greater popular control of, and participation in, decisionmaking.

A directly opposing vision of good governance — the centralist model — was formulated in the late-nineteenth century by Walter Bagehot (1867/1963), and later elaborated by critics of (as they saw it) interest group liberalism, policymaking sclerosis (deadlock), porkbarrel politics, and irresponsible government (American Political Science Association 1950; Burns 1963; Downs 1957; Fiorina 1980; Katzenstein 1978; Krasner 1978; Moe and Caldwell 1994; Lowi 1969; Olson 1982; 1986; McConnell 1966; Ranney 1962; Schattschneider 1942). For this camp, goodness in government stems primarily from the degree of centralization achieved by a polity's institutions (operating within a democratic framework). Elites, not the mass public or leaders of various groupings of the public, are the proper vehicles for policymaking. Thus, institutions that offer political leaders sufficient insulation from grassroots pressure can be expected to function better than those that are open to popular impulses. For centralists, accountability operates during elections only; in between, elected officials are granted authority to act as trustees for the electorate. The primary vehicle of electoral accountability is the political party, not the individual candidate. Choice is generally seen as choice between two groups, the ins and the outs, each of which constitute coherent and highly efficient governmental teams. Because each party must court a near-majority of the effective electorate it will champion issues of concern to the general public, while ignoring issues with narrow appeal. Public goods will be prized over private goods. Because political control is centralized in the hands of the ruling party, there is no excuse for poor performance. Consequently, party leaders will work diligently to keep the electorate's trust.

There can be no doubt about the profound influence of these two models of governance over current academic debate. Granted, there is some disagreement over how to score certain institutional features. Federalism exerts a decentralizing influence, and parliamentarism a centralizing influence, over a polity. But there must be doubts about the role of PR. Usually, proportionality is looked upon as an element of political decentralism, since it encourages large party systems and virtually precludes single-party majority governments — the hallmark of Westminster-style centralism. Yet, proportional electoral systems may also have off-setting effects insofar as PR serves to centralize power *within* parties and in the voting choices of electors. Control over nominations is usually the prerogative of party elites in proportional electoral systems (most of which employ 'list' nominations without effective preferential-voting options). Nominations in majoritarian electoral systems (FPTP), by contrast, are usually

conducted at the district level, involve the selection of only a single MP (by definition), and consequently are more likely to be controlled by local activists and/or local party notables. Moreover, single member districts are thought to discourage partisan voting decisions by electors, introducing an additional fragmenting dynamic. In short, there is no obvious way to classify the proportionality of an electoral system within the decentralist-centralist typology.

Even so, the decentralist/centralist distinction successfully organizes much of the academic debate about the role of constitutional features in human development. One camp sees the cause of better health, lower mortality, and overall wellbeing as the product of fragmented governmental authority. The opposing camp sees these desiderata flowing from centralized authority. To articulate these positions as equivalent to 'weak' and 'strong' government is perhaps too simple, since fragmented structures can lead to 'strong' policies. But this crude distinction correctly captures much of the flavor of current debate.

State capacity

With respect to state capacity, the academic literature is more uniformly favorable. By state capacity we refer to the technical and administrative capacity ('reach') of the state — whether it can achieve that which it sets out to achieve (for further discussion of this concept, see Gerring and Thacker 2001e). There are quite a number of reasons to suppose an empirical connection between measures of state capacity and human development outcomes. Government policies intended to better the welfare of citizens can only be achieved on a national scale through effective state-managed bureaucracies. Even sub-contracted or fully privatized functions will require effective regulatory oversight by government officials (Vogel 1996). Africa, the region with the worst overall human development performance in the contemporary era, is also the region with the lowest state capacity, facts which may not be entirely coincidental. "Almost all observers point to Africa's weak administrative capabilities and the 'thinness' of the technocratic element within the state," van de Walle (2001: 55) notes. This basic weakness "threatens almost all development efforts as well as basic public administration" (Dia 1993: 5; quoted in van de Walle 2001: 55).

Work on human development rarely finds a strong connection between public sector expenditures and public health outcomes (Barlow and Vissandjee 1999; Filmer and Pritchett 1999; Filmer et al. 2000; Kim and Moody 1992; McKeown 1967; Moon 1991; Musgrove 1996; Poikolainen and Eskola 1988; Pritchett and Summers 1996; Rogers and Wofford 1989). This constitutes one of the enduring puzzles of the development enterprise, and has led to an increasingly negative view of government among those who study the developing world. Yet, perhaps the easiest explanation for this fact is that governments in the developing world frequently "find it difficult to translate public spending into effective services," as Filmer et al. (2000: 219) observe. In short, the failure of government is an implementation problem, not a fiscal problem. All of this supports the hypothesis that effective governments should produce better health outcomes.

Insofar as governments matter to the lives of citizens, we can expect that efficacious governments will achieve better human development outcomes. The World Development Report (World Bank 2001: 9) argues that "the poor bear the greatest burden of [government] institutional failure." The authors note

that “demands for bribes and unofficial fees for services hit poor people hardest. In far too many cases legal systems and the judiciary fail to serve poor people. . . The failure of the state to protect property also hurts the poorest disproportionately, because they cannot afford to protect themselves from crime. And badly designed regulatory institutions reduce the provision of infrastructure to the poorest in society” (see also Gupta 2001).

More complexly, it has been argued that the spheres of policy formation and policy implementation are intimately conjoined. According to this ‘technocratic’ vision of governance, experts employed by the state are involved in defining social problems, identifying solutions, and (of course) implementing those solutions (Evans et al. 1985; Furner and Supple 1990; Hecló 1974; Rueschemeyer and Skocpol 1996; Wade 1992; Wilensky 1997). Since there is a distinct selection bias among those who join the public services of governments around the world — they are generally in favor of more extensive social policies — we can expect that strong state capacity will result in more policies designed to improve the lot of the least advantaged (as well as the design and implementation of those policies).

Nonetheless, it may be doubted whether a significant causal connection exists between state capacity and human development outcomes (leaving aside the specific nature of public policies pursued by a state). Technocratic capacity, by itself, may not aid the poor. Indeed, we can easily conceive of situations in which the reach of the state harms the life-chances of the most vulnerable members of society. This is the gist of much work conducted in the interconnected genres of the New Left, anarchism, and libertarianism (Foucault 1995; Newman 1984; Nozick 1974; Schumacher 1989; Scott 1998; Wolff 1970; Wolin 1989; see discussion in Bardhan 1999). Germany during the Third Reich offers an extreme case in point; but virtually all authoritarian governments before and since might also be cited. If government is essentially malignant, then the capacity and reach of the state must be considered a detriment to human development.

Thus, we arrive at three major hypotheses and three sub-hypotheses, as follows:

H1: Democratic rule enhances human development.

H2: Constitutional structures affect human development insofar as they are centralized/decentralized.

H2a: Federalism enhances/diminishes human development

H2b: Parliamentary systems enhance/diminish human development

H2c: Proportional electoral systems enhance/diminish human development

H3: State capacity enhances human development

Outcomes and Indicators

Testing these hypotheses is no easy matter. The first methodological issue to resolve is the nature of the dependent variable — ‘human development.’ Three types of indicators predominate in recent work on the subject: income measures, combinatorial indices, and measures of mortality. We argue that mortality, and infant mortality in particular, offers the most useful outcome indicator of human development when considered on a global scale.

Income-based measures (e.g., ‘poverty’) are clearly indispensable for analyzing human development within the advanced-industrial world (e.g., Atkinson et al. 1995). However, income is

limited in scope and notoriously difficult to interpret in pre-industrial or semi-industrial settings. In subsistence economies, or in economies with large informal sectors (where wages are irregular and unreported and market exchanges often in-kind), currency loses much of its significance. Insofar as we are interested in the status of poor countries, and in the status of poor individuals within those countries, income-based measures are therefore of slight utility. To be sure, we can attempt to measure the income of the poor (by some necessarily arbitrary definition of poverty). But this is tricky business, and has never been extended to more than several dozen cases.⁵ Outside the OECD, it is exceedingly difficult to say who, within a given society, has how much. (This is true at the low end of the class spectrum as well as at the high end — where assets, rather than income, become the operative measure.) Finally, income is problematic as a gauge of wellbeing for the simple reason that it is secondary in substantive importance to matters of life and death. Thus, wherever income and mortality statistics diverge (as they do, markedly, in some countries), we must grant precedence to the latter as a measure of human development.⁶

A second approach to the measurement of human development is to *combine* indices of mortality and income — perhaps accompanied by a measure of educational attainment — into a single, aggregate statistic. The most well known of these, the UNDP's Human Development Index (HDI), includes life expectancy, knowledge (adult literacy rate and combined enrollment ratio) and adjusted per capita income (equally weighted). A related approach, the Physical Quality of Life Index, combines infant mortality, life expectancy, and literacy (Morris 1979; see also Moon 1991; Moon and Dixon 1985; Nissan 1993).

Aggregate statistics are often useful for descriptive purposes when a single summary statistic is required (e.g., to rank-order countries and gauge their progress from year to year). They are less useful for analytic purposes, however. When imperfectly correlated features comprise a single dependent variable we cannot examine possible causal interrelationships *among* these factors (the endogeneity problem), nor can we properly interpret causal relationships that are exogenous to the index. (If a particular causal variable tests positive or negative in an equation it is difficult to say *why* this might be so, and whether the relationship is causal or merely correlative.) Finally, the inclusion of income as a factor in an aggregate indicator (e.g., the HDI) means that a community's score will be less sensitive to the wellbeing of the least advantaged members of that community (since income is apt to be unequally distributed).⁷

A third general approach is to focus on mortality statistics — most commonly, infant (0-1), child (0-5), or life expectancy rates (incorporating the latter). We find the first of these options most useful, for

⁵ The UNDP's Human Poverty Index 1 (HPI - 1), for example, covers 77 cases in the developing world. Another index, intended to measure poverty in the developed world (HPI - 2), covers 17 cases. (It is indicative of the difficulties of measuring poverty that UNDP researchers found it necessary to construct two, independent, indices.) The renowned Luxembourg income study examines only a handful of countries, all within the developed world (see Atkinson et al. 1995).

⁶ Critical discussions of income as a measure of human development can be found in Dreze and Sen (1989), Moon (1991), Moon and Dixon (1985), Morris (1979), Nissan 1993), and Sahn and Stifel (2000).

⁷ For critical commentary on aggregate indices, see Hicks and Streeten (1979), Sagar and Najam (1998), Silber (1983).

the following reasons. Child mortality is less widely available, and hence a serious limitation on sample-size. It is probably also less reliable, due to difficulties in data collection. (It is, in any case, almost perfectly correlated with infant mortality ($R=0.98$); little effect would be found on the conclusions reached in this study if one was substituted for the other.)

Life expectancy, by contrast, is notoriously unreliable. This statistic, note Filmer and Pritchett (1999: 1312), is often based on data that is actually a series of “extrapolations using child mortality and assumptions about countries’ characteristic life tables (e.g., ‘North’ or ‘South’ models).” We also find that for purposes of crossnational analysis IMR forms a more useful outcome variable since its variance is considerably greater than life expectancy. This, of course, is a product of the greater vulnerability of human beings during the first year of life, where subtle differences in environment (health care, nutrition, shelter, and so forth) are likely to translate into larger differences in mortality. Therefore, for purposes of measuring variations in life-chances for those at the bottom of the income ladder, IMR is a more sensitive indicator. (Even so, the two indices are very highly correlated ($R=0.95$).

For a variety of reasons, we find that IMR forms a better indicator of global differences in human development than measures based on income, education, life expectancy, or various composites thereof.⁸ Appendix A lists cases and outcomes for the base year, 1995. In the regressions, the dependent variable is transformed by natural logarithm (following Filmer and Pritchett 1999) to normalize the data and ameliorate potential heteroskedasticity problems. A logged dependent variable also manages the lower-bound problem; if it is more difficult to improve infant mortality statistics at the low end (as one generally assumes), we must model a non-linear relationship between cause and effect.

Method of Analysis

In this study we analyze the relationship between a distal cause, political institutions, and human development outcomes, as measured by infant mortality rates. This departs from the method of analysis applied to these questions, which conceptualizes a two-stage analysis, the first running from institutions to policies and the second extending from policies to human development outcomes. Work on the welfare state, for example, views political institutions as causal factors structuring the shape and size of social policies (e.g., Huber et al. 1993), while a separate genre of study examines the relationship between these policies and their intended effects on the population (e.g., Heidenheimer et al. 1990). For studies focused on OECD cases, this two-stage approach is sensible. We assume that the effects of political institutions on human welfare are the product of more or less explicit policies adopted by those states, and are traceable through various statistical indicators gathered by vigilant public servants in conformance with general OECD guidelines.

For studies focused on the connections between institutions and human welfare *outside* the pristine OECD environment, however, this research design and its attendant causal assumptions is problematic. To begin with, we lack reliable statistical indicators of policy effort (broken down by policy

⁸ For further discussion of sources, methodology, and general accuracy of infant mortality statistics, see Adetunji (1995), Bos, Vu, and Stephens 1992; Hill (1991), Hill et al. 1999; United Nations 1992; United Nations 1999.

type) and policy effects. Governments generally do not keep accurate and detailed accounts of their activities across a range of policy areas, and the effects of these efforts are even harder to gauge. Needless to say, we generally do not have reliable historical data that would allow us to trace cause and effect relationships over time within a given country or in a pooled time-series format. Second, we cannot assume that a government's primary effect on the welfare of its citizens is achieved through explicit policies adopted by that government. Many policies exist only on paper; others are openly flouted, or so poorly administered that they fail to achieve their stated goals. In the extreme case, malevolent governments are the citizen's worst enemy. We cannot assume, therefore, that governmental policies constructed to relieve human deprivation around the world are in fact achieving this goal. Thus, while the causal role of political institutions within the OECD is usually investigated with a view to explain policy effort (measured, e.g., by expenditures in different budget categories), we focus instead on basic-level institutions, on the one hand, and welfare outcomes, on the other.

In contrast to studies focused on the OECD, on various regions of the world, or on 'developing' countries generally, this study takes the world of nation-states as its population. The sample encompasses most of the sovereign and sizeable (non-micro) nation-states in the world — up to 188 cases (see Appendix A). Country sample-size is of particular significance in a study focused on the causal role of political institutions. Since basic-level political institutions are generally stable through time, the variation that is available for study is primarily cross-sectional. The more cross-sectional cases we have, the more degrees of freedom we have at our disposal.

This is *not* to say that cross-sectional analysis should replace within-case analysis or small-N comparative analysis. The point, rather, is that these traditional approaches should be supplemented by a comprehensive, integrated approach. It should be noted that pooled time-series or single-country case study methods are most useful wherever one can safely posit a direct temporal relationship between independent and dependent variables — such that a change in one is accompanied by, or followed at regular intervals by, a change in the other. This is not likely to be case with respect to most structural-level political institutions. In other words, change in a country's democratic/authoritarian status by itself — i.e., without domestic insurrections, foreign wars, or other upsetting phenomena — is unlikely to lead to immediate changes in that country's human development performance. This is even more true, we suspect, for constitutional structures and measures of state capacity. Since the causal effects of these structural factors are likely to be transmitted through a variety of indirect and relatively obscure (and hence unobservable) causal pathways, a process-tracing style of research on this question may be less uninformative than a cross-sectional research design.

Often, large-N crossnational research segregates the analysis of a problem by level of economic development, producing two datasets, one focused on developed countries and the other on developing countries. We see no reason to follow this convention here. Such a division of cases reduces the sample-size as well as the variance available for key independent and dependent variables. On statistical grounds, such a truncation is clearly undesirable. On theoretical grounds, as well, we see no compelling rationale. There is no reason to suppose that the political institutions of concern in this study operate in

different ways in different socioeconomic settings, or — if different — that these differences cannot be controlled for statistically. Granted, with respect to constitutional structures it seems important to investigate only those countries that are, in some minimal sense, democratic (where multi-party competition is allowed to occur). Thus, any regressions with these variables must be limited in scope according to that criterion. With this exception, the unification of all country-cases in a single analysis seems warranted, both theoretically and methodologically.

Another advantage to the single-shot, cross-sectional approach is that we are able to test a large number of rival hypotheses, each with a variety of operationalizations. The contemporary focus of this study — centered on the mid-1990s — means that we can exploit the recent explosion of global data resources. Indeed, most of the variables employed in this analysis, and in various supplementary analysis (not displayed) are simply unavailable for previous decades, or are available only for a restricted set of cases. Over two hundred independent variables have been tested as primary or control variables in the course of this analysis.

We should also note that alterations to independent and dependent variables allow us to test temporal relationships and non-linear relationships, while retaining the cross-sectional research design. For factors whose probable influence on the outcome is exerted over many years — and whose value is likely to change over that period — we employ multi-year composite indicators (e.g., “years democratic since 1900”). Where a non-linear relationship is suspected (e.g., GDP/capita), variables are transformed accordingly.

Specification Issues

As with any nonexperimental analysis, the results of this study hinge on an adequate resolution of the specification problem. Appropriate control variables must be identified in order to draw conclusions about the causal role of political institutions. The issue is particularly acute in this case because of endogeneity and collinearity problems among the relevant variables.

Moreover, the general dearth of study with respect to structural-level (noneconomic) causes of human development means that there is no benchmark equation that might form the basis for further research. We draw extensively on Moon (1991) and Moon and Dixon (1985). However, because these studies are focused on a composite indicator (the Physical Quality of Life Index), and are now rather dated (drawing on data from the early 1970s), it was necessary to comb the field for additional background factors. Our survey spanned all relevant subject-areas including geography, demography, economics, cultural/historical legacy, and ethnic heterogeneity. The aim was to identify background causal factors that are exogenous, theoretically plausible (in light of existing research), and empirically robust ($p < 0.05$, in a 2-tailed test) within the core equation (equation 1 in Table 1).

Ultimately, five control variables seemed to warrant inclusion: GDP per capita (and logged, and averaged over the previous three decades to reduce endogeneity problems), agricultural labor force (a standard measure of industrialization), socialism (current or former), and two dummies intended to capture regional effects (Africa and Latin America). Results of this core equation are presented in equation 1, Table 1.

The last two variables are open to challenge, since the causal linkages between these geographic regions and infant mortality are not immediately apparent. (Both predict higher infant mortality, but a variety of causal paths may be conjectured.) Reassuringly, the inclusion or exclusion of these variables (either singly or in combination) does not affect the causal relationships of interest in this study. It seemed safer to include them. (Africa is a particularly important control variable since this was the only area in the mid-1990s where infant mortality rates might have been significantly affected by the AIDS epidemic.)

A cultural variable, Islam, was also considered. This variable, measured as percent Muslim (by birth) in a country, appears to have a significant positive effect on IMR in the core equation (t statistic = 3.6). However, the theoretical justification for this factor is ambiguous. Of the many sources reviewed for this study, only one (Caldwell 1986) credits Islamic culture with a significant role in IMR. Since it is not an objective of the present study to settle this knotty question, it is sufficient to note that the inclusion of this control would not significantly impact the performance of any of the political-institutional factors reported in Table 1.

Proximal causes — e.g., public policies, the availability of medical care, and so forth — are excluded from the tests reported in Table 1. We assume that proximal factors are endogenous relative to the political-institutional factors we are investigating. To include them as controls might weaken true causal effects or strengthen spurious causal effects. However, two variables raise proximity questions that are not easily settled. Both fertility and female literacy have been identified by myriad studies as strong influences on infant mortality (Caldwell 1979; Cleland and van Ginneken 1988; Desai and Alva 1998; Liu et al. 1992; Mosley and Chen 1984; Muhuri 1995; Murthi et al. 1995; Ren 1996; Sharma 1998; Shen and Williamson 1997; Smith and Haddad 2001; Subbarao and Raney 1995; United Nations 1991). We suspect that the status of these two variables is also at least partly endogenous relative to political institutions. Thus, it seemed appropriate to exclude them from the core equation. Yet, it might also be argued that these variables are somewhat independent of state policies. In this scenario, they belong in the core equation, for their causal effects are strong and their causal-theoretical status beyond question. To preclude this objection, we ran the various regressions reported in Table 1 with these two additional variables (calculated for the base year, 1995), and found no appreciable impact on the status of political institutional variables discussed below.

Several additional control variables — economic growth, intra-country inequality, and ethnic heterogeneity — deserve more extensive discussion, to which we now turn.

Growth. A number of recent studies have focused on the impact of societal wealth (usually measured by per capita GDP) or industrialization (usually measured by per capita GDP and/or the size of the nonagricultural labor force) on human development.⁹ Both these factors are potent causal

⁹ Most empirical work focused on economic causes employs the standard GDP/capita measure (e.g., Barlow and Vissandjee 1999; Crenshaw and Ameen 1993; Dollar and Kraay 2000; Filmer and Pritchett 1999; Firebaugh and Beck 1994; Kim and Moody 1992; Moon 1991; Pritchett and Summers 1996; Ranis et al. 2000; Shen and Williamson 1997; Wennemo 1993). Socio-economic pathways to child mortality (the mechanisms of causality) are investigated in Feachem et al. (1992), Hobcraft et al. (1984), Kawachi et al. (1999), Liu et al. (1992), Russett (1978), Tulasidhar and Sarma (1993), United Nations (1991). A few studies have also found independent impacts stemming from changes in

ingredients in IMR, as demonstrated in our core equation. Per capita GDP *by itself* may be said to explain over four-fifths of the variance in IMR rates across the world (when both variables are logged, Pearson's $R=0.87$).

Even so, a good deal of unexplained variation remains. Among the over-achievers (relative to per capita income) are Azerbaijan, Cuba, Croatia, Finland, Georgia, Slovenia, Sri Lanka, and Tajikistan. Among the under-achievers are Angola, Botswana, Brunei, Gabon, Iraq, Namibia, and Qatar.

The more important point is that bivariate (or poorly specified multivariate) correlations are apt to overstate the true causal effect of aggregate societal wealth on infant mortality. It could be, for example, that infant mortality correlates with GDP per capita because richer countries often take ameliorative measures to aid the poor (e.g., social services, infrastructure improvement, public health programs) or because economic growth coincides with the spread of medical technology and changing public health practices (Easterlin 1998: ch 6; Jamison et al. 2001). Granted, we might view such advances as developmental correlates of industrialization, as modernization theory suggests (Kerr et al. 1964; Wilensky 1975). But this is a very grand assumption, and one that is difficult to test. Unless we include other possible sources of governmental and societal behavior (e.g., political institutions) we risk attributing more causal power to economics than is warranted. Many other confounding factors might be hypothesized, as discussed in this paper. When these additional factors are included in a multivariate analysis the correlative strength of economics is considerably attenuated. As a direct (unmediated) cause of infant mortality, aggregate (country-level) economic performance is strong, but not overwhelming.

Another reason why we might hold the strong correlative relationship between economics and IMR in suspicion is the high level of endogeneity between the two. Recent work has shown that while strong economic performance raises human development, human development also enhances economic performance (Bloom et al. 2000; Birdsall et al. 1995; Ranis et al. 2000; Sachs 2001). For all these reasons, it seems appropriate to conclude that aggregate societal wealth can explain only a portion of the variance in infant mortality around the world (Anand and Ravallion 1993; Dreze and Sen 1989; Easterlin 1998: ch 6; Jamison et al. 2001; Kakwani 1993; Moon and Dixon 1992; Morris 1979; Murthi et al. 1995; Russett 1978: 920; Sachs 2001; Sharda et al. 1998; Streeten 1979). For the rest of the story, we rightly turn to other variables.

We attempt to constrain the endogeneity problem by calculating per capita GDP as a multi-decade average (1970-95). Nonetheless, our regressions probably over-state the causal significance of economic growth. For our explanatory purposes, however, this is appropriate. Our interest is in controlling for the impact of economic variables while judging the causal effects of political-institutional variables. By over-stating the effects of economic factors we reduce the possibility of Type A errors in our analysis.

Intra-country Equality. A great deal of work has been conducted on the question of intra-country wealth/income distribution, a question that lies at the heart of the disciplines of economics and

labor force composition (Crenshaw and Ameen 1993; Moon 1991), energy consumption per capita (Shen and Williamson 1997), or urbanization (Murthi et al. 1995; Rogers and Wofford 1989; Subbarao and Raney 1995; United Nations 1991: 3).

sociology.¹⁰ It should be pointed out that human development — whether measured by income, health, education, or (as we prefer) mortality rates — is quite a different outcome from intra-country income distribution. (The Gini index, averaged over recent decades, and current IMR correlate at only $R=0.37$.) It is no surprise therefore to discover that different causal factors apply, as a comparison of this study with the cited studies makes clear. We might also point out that whether people live or die is probably a more important issue, substantively, than whether they live and die in equitable circumstances. It is somewhat surprising, in light of this, that so much scholarly attention has been devoted to the latter issue, and so little to the former.

More recently, scholars have begun to address the influence of varying distributional patterns on human development outcomes. Here, two causal arguments must be carefully distinguished. According to the first, income inequality is a cause of low human development for the straightforward reason that the poor have less money (Bidani and Ravallion 1997; Birdsall and Londono 1997; Filmer and Pritchett 1999; Flegg 1982; Wennemo 1993). This is a strong argument, to say the least. Indeed, it is virtually tautological. Insofar as income and wealth improve life opportunities (a matter that no one contests), the equal distribution of income and wealth will tend to raise *aggregate* levels of life opportunity (at a given level of total societal wealth, as measured, let us say, by per capita GDP). This would be true in virtually all circumstances except the most desperate — where ‘lifeboat’ dynamics operate (a case where, at least hypothetically, sharing resources may lead to *lower* overall utility [Hardin 1974/1977]).

The second inequality thesis is considerably more subtle. According to this view, inequality has an additional *non*-material effect on human development. Imagine two individuals with identical — and modest — material resources at their disposal living in two disparate societies. In one society, call it Equality, resources are equitably distributed. In the other society, Inequality, they are not. According to this second thesis, the resident of Equality will, on average, experience higher human development (as measured by health and mortality outcomes) than the resident of Inequality. “Life expectancy in different countries is dramatically improved where income differences are smaller and societies are more socially cohesive,” writes Richard Wilkinson (1996: 1), a leading voice in this school. “Social, rather than material, factors are now the limiting component in the quality of life in developed societies” (*ibid.*; see also Evans et al. 2001; Kawachi et al. 1999; Marmot and Wilkinson 1999).

The thesis is plausible. The difficulty is in specifying the causal pathways that might explain such a correlation. A number of explanations have been proffered by scholars. Unequal societies — where differentials between rich and poor are extreme — are oppressive. The poor are made to feel badly about their fate; they suffer low self-esteem; they may, as a consequence, engage in self-defeating practices in their own lives and in the care of their young. Unequal societies are also societies with high crime rates, low trust, and low civic engagement. Insofar as social capital boosts human development (Putnam 1993), we can understand the pattern of resource distribution in a society as a root cause of

¹⁰ Usually it is income that is studied, simply because the data is more reliable and more readily available. Yet, the question of land and wealth holdings is of equal theoretical and substantive importance. For crossnational studies, see Anand and Kanbur (1993), Bollen and Jackman (1985), Burkhart (1997), Chan (1989), Crenshaw (1992), Cutright

human development. Unequal societies may also be less inclined to provide public goods and to institute redistributive public policies. Clearly, the failure to solve collective action dilemmas and to provide a safety net for the weakest members of society will have deleterious effects on aggregate societal human development. In short, there are a multitude of *non-material* mechanisms by which patterns of resource distribution might impact infant mortality.

The first inequality thesis is fairly easy to test. We include the Gini coefficient measurement of income inequality in equation 2, a statistic that averages existing income studies of each country-case over the past three decades (Deininger and Squire 1996). (Since the distribution of income changes slowly in a given society, temporal lags between different observations and observations from different countries need not concern us.) The results are fairly strong but not overwhelming. (Granted, the strength of Gini increases somewhat if the Latin America dummy is removed from the equation, a choice that might be justified.) There is ample evidence to support the first inequality thesis, and no reason to doubt its causal significance.

The second inequality thesis is tested in equation 3, where we include a variable measuring the real per capita GDP of the poorest quintile. Here the Gini coefficient actually switches signs, while the income measure is strongly significant (in the predicted direction). It appears that once we control for income poverty, the effect of income distribution is neutralized. Inequality at the top appears to *enhance* human development, though we can think of no reason why this might be so. Similar results are achieved when other measures of income poverty are used, such as the percent population living on \$1/day or the percent population living below the official national poverty line, and when other measures of income inequality are used, such as the ratio of the top quintile's share of income to the bottom quintile's share (Deininger and Squire 1996). In all cases, variables measuring income poverty swamp the effects of variables measuring income inequality (top and bottom).

From a crossnational perspective the conclusion is clear: whatever causal effects inequality has on human development are mostly, if not entirely, a product of material resources, not some other secondary effects of social inequality. The manner in which a nation's income is distributed appears to play no independent role in determining infant mortality rates once income poverty (and other economic factors) are accounted for. It is the income of poor people, not the aggregate distribution of income within a society, that matters.

It remains to be seen whether income distribution deserves to be maintained as a control (regardless of its causal pathways). We choose not to do so for the following reasons. First, data quality is poor, and is available only for a fraction of our sample. To include Gini in all equations would artificially depress sample-size and introduce troubling problems of case-selection (since data availability for countries is not a random function). Second, the causal impact of Gini is slight. The adjusted R squares for equations 1 and 2 vary only minimally — from 0.850 to 0.878 — indicating that income distribution is not a major causal factor in IMR. (We suspect that most of this effect is picked up by Agricultural labor and Latin America.) Third, the inclusion of Gini does not produce significant

(1967), Deininger and Squire (1996), Fiala (1987), Hewitt (1977), Korzeniewicz and Moran (1997), Mahler et al (1999),

alterations in the performance of the political-institutional variables that form the primary focus of this analysis. (The one exception is *PR*, whose effect is blunted. However, this may be the product of the drastic truncation of the dataset that occurs whenever Gini is introduced to an equation.) Finally, if it is absolute — rather than relative — poverty levels that really matters to crossnational variation in IMR, as our analysis shows, then we would prefer to include the former, rather than the latter, as controls in further analyses. Yet, to include poverty rates as a control in a study focused on political institutions raises troubling issues of endogeneity. Usually, we think of poverty (the relative income possessed by the least advantaged members of a society) as the product of governmental policies, rather than as a long-run independent feature of a society. In sum, there is no compelling reason to include either Gini index or some measure of income poverty in the core equation.

Ethnic heterogeneity. Writers have sometimes argued that ethnically homogeneous societies like Sweden and Japan achieve more impressive levels of human development because they are free from racial, ethnic, and linguistic divisions (Filmer and Pritchett 1999). Unified by a common language and culture, citizens of such societies may be more inclined to share resources, to offer equal opportunity to all, and to help those in need. Social mobility may be higher wherever class cleavages are not reinforced by cultural cleavages. Moreover, there is presumably less risk of violent conflict in a homogeneous society. Indeed, studies of the developing world have found that infant mortality is often highest among minority populations (United Nations 1991: 3).

To test this hypothesis in a systematic fashion requires a variety of measures of ethnic fragmentation, since the core concept — ethnicity — is notoriously ambiguous (Fearon and Laitin 2000). We tested a) ethnolinguistic fractionalization (Source: *Atlas Narodov Mira*, as reported in Mauro 1995: appendix 3), b) ethnic homogeneity (the largest ethnic group as % of total population, calculated from Vanhanen 1990), c) linguistic heterogeneity (percent of population not speaking the official language; from Gunnemark 1991), d) ethnolinguistic fractionalization (the average value of five different indices of fractionalization, from Easterly and Levine 1997 [AVELF]), and e) ethnic heterogeneity (based on information on ethnic groups contained in *CIA World Factbook 1998* and calculated with the fractionalization index developed by Rae and Taylor 1970: 32). Results for the latter (e) are displayed in equation 3. None of these indicators demonstrated a statistically significant relationship in the core equation. Thus, the exclusion of ethnic heterogeneity seems warranted.¹¹

Independent Variables

We have previously identified several hypotheses of interest relating to five key concepts: democracy, federalism, parliamentarism, proportional representation, and state capacity. Thus far, we discussed these concepts in a schematic fashion with regard to their theoretical import and expected relationship to human development. We now attempt to operationalize these concepts in ways suitable for employment in a global setting.

Muller (1988), Nielson (1994), Simpson (1990), and Smith (1991).

¹¹ It is, of course, possible that ethnic fragmentation exerts an indirect effect on infant mortality through its influence on other factors in the core equation. The question of prior causes, and the infinite causal regress, does not concern us here.

Democracy is understood here as a representative (not direct) form of popular government, characterized by elective offices enjoying sovereign power and filled through competitive multiparty elections where broad suffrage rights obtain.¹² Because it is anticipated that the effects of democracy on human development will be felt over a period of years (if at all), we operationalize this variable as the cumulative number of years a country is democratic over the course of the twentieth century (1900-95). A case is coded as democratic where at least two consecutive years are scored from 5 to 10 in the Polity III database (“Democracy” variable), or — if not covered by Polity III — where at least two consecutive years are scored 1 to 4 in the Freedom House database. (Since the Freedom House database begins in the 1970s, earlier years for cases not covered in the Polity III database are based loosely on the secondary literature [e.g., Derbyshire and Derbyshire 1996; CIA Factbook].)

Federalism refers generically to a division of sovereignty between national and regional governmental units. Strong federalism means strong *regional* political units, not strong local units (unless the nation-state in question is so small that localities constitute the functional equivalent of regions). A division of sovereignty means three things: a) relative independence from the center, b) a wide range of policymaking authority, and c) a relatively permanent, *institutionalized* relationship. All elements are necessary in order for a constitutional arrangement to be deemed federal in the full sense of that term. Thus, federalism must be considered weak, even if constitutionally mandated, if decisions made at the sub-national level are heavily influenced by actors at the center (e.g., by threats of funding cuts). This challenges the definitional attribute of independence (a). Similarly, administrative decentralization is not federalism if such power is delegated from the center, if sub-national units are accountable to the center, or if delegated authority can easily be withdrawn. In this case we speak of authority as resting at the center, while decisionmaking has been ‘deconcentrated.’ Crook and Manor (1998: 6) correctly point out that deconcentration tends to “*extend* the scope or reach of central government and to *strengthen* its authority” (emphasis added). By contrast, “devolution has the opposite effect, since it cedes control of such agencies and resources to political actors and institutions at lower levels” (Ibid.). Devolution thus constitutes a weak version of a fully federal political system. It is reassuring to note that scholars of federalism generally agree upon how to classify cases (even if their definitions sometimes diverge).¹³ Our tripartite schema — 1) unitary, 2) semi-federal, 3) federal — allows us to handle borderline cases in a suitably flexible fashion.

Parliamentarism refers to the location of power within an elective national government. Specifically, it captures the extent to which the legislature is sovereign. There are therefore two dimensions to parliamentarism: a) the degree of separation existing between the executive and parliament, and, if there exists any separation at all, b) the degree of effective policymaking power held by the chief executive. In parliamentary systems, the executive (‘government’) is directly responsible to

¹² For broad theoretical statements, see Mill 1865/1958; Schumpeter 1942/1950. Our definition of democracy is consonant with Alvarez et al. (1996) and Dahl (1971). For further discussion focused on crossnational conceptualization and measurement, see Bollen (1980, 1993), Bollen and Paxton (2000), Coppedge and Reinicke (1990), Munck and Verkuilen (2000).

¹³ Primary sources include Derbyshire and Derbyshire (1996), Elazar (1991), and Watts (1996). For definitional discussions, see Bird and Vaillancourt (1998), Elazar (1991), Riker (1964), and Watts (1996).

parliament, creating a centralized system of national-level government. In presidential systems, the executive is both separate and powerful. ‘Presidential’ therefore refers to political systems where a directly elected chief executive has primary control over the cabinet (loss of parliamentary confidence does not result in cabinet reshuffles or new elections) and/or significant powers of decree (rendering the issue of responsibility moot). Semipresidential systems lie in between and are of two primary types: a) a directly elected executive with important policymaking powers shares control over the cabinet with parliament and does not enjoy substantial powers of decree (e.g., France); b) the executive is usually chosen by parliament but has a fixed term (in principle cannot be removed except through impeachment proceedings) and appoints the prime minister or cabinet (e.g., Bolivia, Indonesia). We code cases as 1) presidential, 2) semipresidential, or 3) parliamentary.¹⁴

The concept *proportional representation* indicates nothing more than that an electoral system exhibits some degree of proportionality between votes and seats. So there is quite a bit of semantic wiggle-room. We understand *PR* as a discrete type of electoral system organization, not a scalar variable. This is to say, we expect that the causal effects of *PR* on governance are not a linear function of the degree of proportionality exhibited by that electoral system, as operationalized by various indices of proportionality (e.g., Rose 2000). Rather, we expect that different types of electoral systems (judged largely by district magnitude, *M*) will have different governance repercussions (regardless of the precise seats/votes ratio). Thus, we categorize electoral system types as 1) all other systems, or 2) *PR*. The latter category includes all cases where *M* (mean) > 2 and where modestly proportional seat allocation principles are employed (i.e., no block vote systems).

Coding for all political system variables — federalism, parliamentarism, and *PR* — represents the predominant constitutional arrangement over the previous two decades (1975-95), which may be different than the current constitutional arrangement, if recently reformed.)

State capacity, we have said, refers to the technical and administrative capacity (‘reach’) of the state — i.e., whether it can achieve internally-defined objectives. Capacity, like its close-cousin power, is a nonobservable concept. We can observe what the state does, and we can observe its internal composition, but we are at pains to directly measure its ‘capacity’ to do things. Nonetheless, it stands to reason that some states are more capable than others. The term has face-validity, and a great deal of currency in contemporary political science (see previous discussion). Our approach to this matter of interpretation is to enlist a variety of closely-related indicators, each pertaining to a slightly different dimension of state capacity. They are *corruption*, *bureaucratic quality*, *government statistics*, *government effectiveness*, and *government revenue (% of GDP)*. (Bivariate intercorrelations range from $R=0.52$ to $R=0.93$.)

For corruption, we employ an indicator compiled from a wide variety of international polls by Kaufmann, Kraay, and Zoido-Lobaton (1999a; 1999b). The advantage of the KKZ measure over other

¹⁴ Primary sources include Delury (1999), Derbyshire and Derbyshire (1996), Diamond (1999), Elgie (1999), International Year Book and Statesmen’s Who’s Who (2001), and Jones (1995).

measures (such as the Transparency International index) is its enormous breadth of coverage and the variety of sources employed in the index — rendering it less susceptible to poll-specific or question-specific idiosyncrasies. Principal sources include polls conducted by Standard and Poor’s DRI (in conjunction with McGraw-Hill), The Economist Intelligence Unit, Political Risk Services (International Country Risk Guide), and the World Bank (in conjunction with the University of Basel). Polls asked respondents to rate the general level of corruption among public officials, the effectiveness of anticorruption initiatives, the frequency of additional payments necessary to “get things done,” and corruption as an obstacle to foreign investment and domestic business enterprise. Naturally, questions varied from poll to poll. Respondents were about evenly divided between two groups: a) businesspeople and/or residents of a country, and b) experts (who were asked to rank countries on various dimensions). Polls differed as well in the number of countries included. The sources listed above had the largest samples and therefore carry greater weight in the index; other polls (not listed) focused on smaller groups of countries (e.g., single continents). The composite index was constructed by the authors using an unobserved components model.¹⁵

For bureaucratic quality, we adopt an indicator developed by the PRS consulting group as part of its International Country Risk Guide (ICRG). Of various surveys attempting to measure bureaucratic quality, the PRS measure is by far the broadest in coverage. The ICRG indicator measures the professional quality and independence of the civil service, the public sector, and parastatal institutions and enterprises. Coding categories are as follows (half-point increments possible): 0) poorly paid, overstaffed, largely corrupt civil service dependent to a large degree on political favors; .5) poorly trained, inadequately manned, overstretched civil service; 1) well-trained civil service, but overmanned and bureaucratic, used as a means of rewarding political favors and/or mopping up excess unemployment; 2) well—paid, largely professional civil service, but deeply politicized, 3) well-paid, largely independent, largely professional civil service, but with political appointees, or 4) well-paid, independent, professional civil service, largely free from political influence.¹⁶

The ‘reach’ of a state — its ability to accomplish tasks that it sets for itself — is largely a product of its administrative capacity. This, in turn, is largely a product of how extensively, and how accurately, a state administration is able to monitor the various activities of its citizens. Powerful states are knowledge-gathering machines. This was true at the earliest stage of state formation (Brewer 1989), and it is true today (Scott 1998). States without a census, or without an effective census, for example, cannot properly implement public policies. Thus, one way of measuring state capacity is to examine the success of states as collectors of statistics on their respective populations. We do so with the aid of the World Bank’s *World Development Indicators*, generally regarded as the most comprehensive international data source for economic, political, and demographic subjects. The variable ‘Government statistics’ measures

¹⁵ The KKZ index is highly correlated with the better known Transparency International index ($R=0.93$). For further discussion and case-by-case coding, see Gerring and Thacker (2001b).

¹⁶ This variable has become a standard feature of crossnational empirical work (e.g., Johnson et al. 1998; Kaufmann et al. 1999a: 50; Keefer and Knack 1997), as have other indicators collected by ICRG.

the total number of statistics available for each country for all variables in the WDI (total possible: 526). Figures are averaged from 1993-1995.

‘Government effectiveness’ is another composite indicator constructed by Kaufmann, Kraay, and Zoido-Lobaton (1999a; 1999b). It measures perceptions of the quality of public service provision — including the bureaucracy, the competence of civil servants, the independence of the civil service from political pressures, and the credibility of the government’s policy commitments. Like their measure of corruption, this indicator is drawn from a variety of cross-country polls developed by consulting firms and non-profit organizations.

As a final indicator of state capacity, we include central government revenue (calculated as % of GDP). Tax revenue has been understood as ‘extractive capacity’ (Cheibub 1998), and extraction is one measure of a government’s overall reach. A government that can convince or compel citizens to part with their earnings is presumably a government that can get things accomplished in other arenas. By the same token, the most visible sign (and perhaps, cause) of a failed state is fiscal bankruptcy. Moreover, the collection of taxes appears to be closely linked to the development of an effective bureaucracy (Tanzi 1995b). Thus, strong revenue returns appears to be another plausible indicator of the general effectiveness of a state’s machinery.

Results

Results for the primary variables of interest — the political institutional variables discussed above — are contained in various columns of Table 1, which present a variety of different specifications intended to test these hypotheses under different causal assumptions. Summary results are presented in Table 2.

Table 2: Results Summarized

Political Institutions	IMR
1. Democracy	--
2. Constitutional structures	
a) Federalism	++
b) Parliamentarism	<i>n.s.</i>
c) PR electoral system	--
3. State Capacity	
a) Corruption	++
b) Bureaucratic quality	--
c) Govt statistics	--
d) Govt effectiveness	--
e) Revenue/GDP	--

n.s.: not significant at 0.05 level, 2-tailed test.

++/-- -: A statistically significant relationship (at 0.05 level, 2-tailed tests), positive or negative.

Democracy has an extremely strong negative (depressing) effect on IMR. Its magnitude, as judged by t statistics and standardized coefficients, is rivaled only by per capita GDP. This finding holds regardless of which indicator of democracy we employ. We tested indicators developed by Freedom House, the Polity III database, and Kaufmann et al. (1999a, 1999b). All performed strongly ($p < 0.01$ in 2-tailed tests — results not shown). However, the strongest and most robust relationship was obtained with our time-dependent variable. Evidently, whatever positive human development ramifications flow from a democratic political structure do not materialize immediately. They are, instead, the product of a long iterated process of (we assume) democratic competition and electoral accountability, as Mill and Schumpeter supposed.

Granted, there are probably bi-directional causal influences between democracy and infant mortality. Countries with higher levels of human development are likely to have an easier time reaching and sustaining a democratic framework. Moreover, there may be underlying tertiary causes that influence both variables — whose absence from the equation artificially enhances the apparent causal relationship. Yet, we should remember that per capita GDP is maintained as a control in all equations; presumably, whatever additional factors might be boosting democratic and IMR performance is also boosting economic performance. The per capita GDP variable thus serves as a useful control variable since it has the effect of soaking up the effects of exogenous causal factors that we cannot easily identify or measure.

In equation 2, where the Gini coefficient is added to the core equation, we note a weakening of the democracy variable, which might indicate the existence of an underlying variable (social equality) of some significance. However, we interpret this weakened relationship as the product of a drastic truncation in the dataset — in which the majority of nondemocratic and high-IMR cases are excluded (because of data limitations for the Gini variable). With such foreshortening of variance on the dependent variable and the independent variable of interest, it is no surprise to find a corresponding decline in the strength of a statistical relationship.

Three political institutions pertain solely, or at least primarily, to democracies — federalism, parliamentarism, and PR. These are presented together in equation 5, limited to democratic and quasi-democratic cases. (In order to qualify, a country's mean Political Rights score from 1978-1995 must fall from 1 to 6, on a scale of 1 to 7 [7 being the least democratic].). There is minimal intercorrelation among these variables, so we need not fear collinearity problems.

Both *federalism* and *PR* have strong, and roughly equal, effects in this equation, though in opposite directions. Federal arrangements appear to enhance infant mortality, while PR electoral arrangements diminish infant deaths. It is worth noting that the effects of federalism are not appreciably influenced by the inclusion of ethnic heterogeneity in the equation, demonstrating that the federalism variable is not simply a reflection of underlying sociological facts. (Indeed, bivariate analyses reveal that federalism is not highly correlated with *any* global indicators of ethnic heterogeneity.) *Parliamentarism*, by

contrast, demonstrates a much weaker relationship. It approaches, but does not achieve, levels of statistical significance. It is possible, nonetheless, that parliamentarism provides a modest boost to human development, as measured by IMR.

The various measures of *state capacity* tested in equations 6-10 yield strong results. All five indicators support the contention that the professional and managerial strength of governments has a positive impact on human development. These variables are entered separately into the core equation because of the high degree of collinearity among them. (They are, of course, intended to measure the same general concept, so there is no theoretical reason to test them simultaneously.) The fact that these relationships are stronger, on the whole, than our political system variables should be no surprise, since they lie closer (in causal distance) to the outcome. We may think of state capacity as intermediary between structural-level political institutions (e.g., democracy, federalism, parliamentarism, and the electoral system) and human development outcomes. Nonetheless, it is somewhat surprising to discover that the impact of three survey-based measures of state capacity — corruption, bureaucratic quality, and government effectiveness — surpass the statistical strength of *all* other variables (including economic variables), as judged by standardized coefficients. The organization of the state apparatus appears to matter more to distal outcomes than even the most strident Weberian might have thought.

Caution is warranted before we accept this dramatic conclusion. First, there is some possibility of circularity — survey responses dealing ostensibly with the quality of the state apparatus may also take into account social outcomes such as IMR. Granted, most people are not familiar with this particular statistic; but they are likely to know whether people are dying in large numbers in the country they inhabit, study, or invest in. Thus, a degree of circularity is built in to this relationship. Nonetheless, we suspect that the greater circularity encountered with this set of variables relates to economic performance, not IMR performance. Since long-term economic performance is already accounted for (GDP/capita, 1970-95), we are comfortable in asserting that endogeneity problems are neutralized. As an added precaution, we included a short-run measure of economic performance (GDP growth rate, 1990-95) in the equation. There was little effect on the variables of interest, and the additional variable did not prove statistically significant.

It could also be that measures of state capacity are strongly affected by levels of unrest in the societies under study, a matter that could be directly responsible for varying rates of infant mortality. In this scenario, our five state capacity variables are merely proxies for varying levels of lawfulness and social order crossnationally. In order to test for this possibility we re-calculated each of the models (equations 6-10) with two additional controls (entered separately). The first, 'regime instability,' measures perceptions of the likelihood that the government in power will be destabilized or overthrown by unconstitutional or violent means. Includes risks due to major urban riots, major insurgency or rebellion, military coup, unconstitutional government changes, political terrorism, political assassination, civil war, armed conflict (of any sort), social unrest, other sorts of internal conflicts (Kaufmann et al. 1999a, 1999b). The second, 'rule of law' — also a product of the Kaufman group (Ibid.) — measures confidence in the rules of society and law-abidingness including perceptions of the incidence of crime,

effectiveness and predictability of the judiciary, and the enforceability of contracts. It includes such features as crime, kidnapping of foreigners, enforceability of private contracts and government contracts, corruption in banking, black market, property rights, tradition of law and order. Some attenuation of the state capacity variables is observed when one or the other of these controls is entered into equations 6-10. But all state capacity variables retain their statistical significance ($p > 0.05$, in a two-tailed test), and none are affected in a dramatic fashion. (Indeed, we suspect that the attenuation that does occur is due to the high collinearity introduced among the key variables. There is the additional question of whether the controls, or the state capacity variables, are more exogenous, since both regime instability and social disorder may be the product, rather than the cause, of low state capacity.)

The final measure of state capacity, central government revenue (calculated as percent of GDP), demonstrates a weaker statistical relationship (t statistic = -2.5). Yet, the weak performance of this indicator relative to the others is partly a factor of the inclusion of a highly correlated, and theoretically overlapping, concept — socialism. If this dummy variable is removed from the equation, the strength of revenue as a predictor of IMR is greatly enhanced, thus confirming the general results of this section of the analysis.

Discussion

Although human development is a venerable object of study, the structural-level causes of human development have not received close attention. Investigations into morbidity and mortality tend to be cast in an epidemiological mold; preference is given to descriptive analysis and the analysis of proximate causes. This study has investigated the role of political institutions in human development performance. It has been found that democracy, constitutional structures, and state capacity all have significant effects on crossnational infant mortality rates, when considered in a cross-sectional research design. Several points may be underlined from this analysis.

With respect to democracy, we have argued that the effect is stronger when the concept is operationalized over secular time, rather than contemporaneously. It stands to reason that IMR rates would not respond immediately to changes in the democratic status of a country. What is striking is that other temporal blocs, such as a three-decade average (1978-95) in democratic performance, were also outperformed by our century-long measure of democracy. However, it should be reiterated that *all* measures of democracy, and all temporally-delimited units, showed statistically positive results. The conclusion seems clear. Immediate gains or losses in IMR performance can be expected from short-term regime changes; but even greater gains and losses can be expected from the endurance of democracy or authoritarianism over long periods of time.

Three constitutional structures were investigated. Federalism showed a negative effect on IMR performance (IMR rates were higher, *ceteris paribus*, in federal systems), while PR electoral systems demonstrated a positive effect. Both effects were strong and robust in the face of alternate specifications. Parliamentarism, by contrast, did not attain standard levels of statistical significance in the core equation.

It is not immediately obvious what general conclusions one might draw from these mixed empirical results. Clearly, neither the centralist nor decentralist paradigms can claim much comfort from the findings. Federalism's causal effects vindicate the centralist vision, but the results for parliamentarism and PR are ambiguous — the first because the statistical correlations are weak and the second because it is unclear how to conceptualize the centralizing and decentralizing effects of a PR electoral system. Insofar as the empirical results of this study are valid, we are led to conclude that standard modes of conceptualizing governance do not do justice to the causal mechanisms operating between basic-level constitutional structures and human development outcomes. In short, there are strong empirical grounds for a thoroughgoing reconceptualization of this age-old subject.

We suggest, speculatively, that the relevant dimension of analysis for this subject is not centralist/decentralist but rather centripetal/centrifugal. Specifically, we put it forth as a tentative hypothesis that the optimal constitutional structures with respect to human development outcomes are those that bring relevant actors together to share their views, deliberate, and arrive at mutually agreeable solutions. We call these constitutional structures *centripetal*, signalling an inclusionary dynamic that cajoles, convinces, and occasionally coerces adversaries into finding common ground on important matters of politics and public policy. Although this sort of dynamic is difficult to observe, and hence to operationalize, we think it plausible that unitary (nonfederal) states, parliamentary executives, and PR electoral systems are the constitutional elements most likely to establish a centripetal dynamic within a polity.¹⁷ This may help to account for the superior performance of these institutions in the foregoing empirical analysis.

With respect to the final category of political institution, state capacity, the results are empirically clear and theoretically unambiguous. There is no reason to doubt that more efficacious governments save infant lives, though we cannot identify the precise causal pathways by which this complicated process occurs. This result deserves emphasis, for it goes against the grain of usual assumptions. We are accustomed to the idea that state capacity fosters economic development; it may even be a precondition for sustained economic growth (Ades and De Tella 1997a; Hutchcroft 1997; Johnson, Kaufmann, and Zoido-Lobaton 1998; Kahn 1998; Keefer and Knack 1997; Leite and Weidmann 1999; Mauro 1995, 1997, 1998; Tanzi and Davoodi 1997; Wedeman 1997; Wei 1997; World Bank 1997). We are less accustomed to the notion that state capacity directly fosters human development. Similarly, we are accustomed to the idea that governments alleviate problems of poverty through expenditure programs, primarily those of a redistributive nature. We are less accustomed to the idea that competence in government, by itself, might enhance human development. If this seems like reckless weberianism, consider that a further analysis of equations 6-10 showed these results — for all five state capacity variables — to be robust even when a measure of redistributive expenditure (per capita health and/or education spending) was added to the equation. In short, state capacity appears to provide a strong boost to human development, independent of policy expenditures. Of course, it would not weaken our argument if it were discovered that high

¹⁷ We do not mean to suggest that other social and political elements are unimportant, of course. However, we think it likely that the organization of interest groups, ethnic groups and other salient actors in the political arena respond to constitutional settings, rather than — or in addition to — the reverse.

social expenditures were associated with high state capacity, since we can assume that the former is exogenous relative to the latter. But the re-analysis described here suggests that what matters for human development achievement is not simply monetary effort, but also the wide variety of additional tasks that governments are called upon to perform (and that our measures of state capacity may be considered proxies for). It is the effectiveness of government, not merely its fiscal outlays, that matters.

Appendix A:
Cases, Outcomes, and Coded Variables

This appendix includes all country-cases employed in the analyses reported in Table 1, along with the raw values for the dependent variable and codings of key independent variables (for cases included in the relevant regression) wherever collection or coding was conducted by the authors. See text for further discussion of coding procedures; see Appendix B for data sources.

- A: *Infant mortality rate*, 1995. N (total) = 188 Mean = 44 Median = 30 Minimum = 4 (Finland, Japan, Norway, Singapore, Sweden) Maximum = 179 (Sierra Leone). (Note: The dependent variable for all regressions is the logarithmic transformation of this raw statistic.)
- B: *Federalism*. 1=unitary (N=118), 2=quasi-federal (N=14), 3=federal (N=22). N (total) = 154 Mean = 1.4 (Note: Coding represents the predominant constitutional arrangement over the previous two decades.) Employed in equation 5, Table 1.
- C: *Parliamentarism*. 1 = presidential (N=72); 2=semipresidential (N=14); 3 = parliamentary (N=68). N (total) = 154 Mean = 2 (Note: Coding represents the predominant constitutional arrangement over the previous two decades.) Employed in equation 5, Table 1.
- D: *PR electoral system*. 1 = all other systems (N=69); 2 = Pure PR or Mixed (plurality and PR) systems (N=85). N (total) = 154 (Note: Coding represents the predominant constitutional arrangement over the previous two decades.) Employed in equation 5, Table 1.
- E: *Govt stats*. Number of data entries for a country in *World Development Indicators 1998 (CD-ROM)*. Data for 1993-95. N (total) = 154 Range = 1-526 Mean = 308 Median = 340 Minimum = 16 Maximum = 439 Employed in equation 5, Table 1.

Country	A	B	C	D	E						
Afghanistan	158				69	Congo, Dem Rep	91		344		
Albania	40	1	3	2	281	Congo, Rep	90	1	1	1	362
Algeria	34				356	Costa Rica	13	1	1	2	430
Angola	124				302	Cote d'Ivoire	86	1	1	1	349
Antigua & Barbu	18	2	3	1	194	Croatia	9	1	1	2	332
Argentina	22	3	1	2	369	Cuba	9				96
Armenia	14	1	1	2	298	Cyprus	9	1	1	2	329
Australia	6	3	3	1	388	Czech Republic	8	1	3	2	358
Austria	5	3	3	2	399	Denmark	5	1	3	2	375
Azerbaijan	23	1	1	2	269	Djibouti	110	1	1	1	202
Bahamas	19	1	3	1	174	Dominica	18	1	3	1	151
Bahrain	19				277	Dominican Rep	42	1	1	2	400
Bangladesh	79	1	3	1	361	Ecuador	36	2	1	2	408
Barbados	13	1	3	1	285	Egypt	56	1	1	1	411
Belarus	13	1	1	1	300	El Salvador	36	1	1	2	416
Belgium	6	3	3	2	345	Eq. Guinea	111				281
Belize	36	1	3	1	389	Eritrea	66				155
Benin	91	1	1	2	321	Estonia	15	1	3	2	371
Bermuda	7	1	3	1	46	Ethiopia	112	3	3	1	363
Bhutan	109				285	Fiji	19	1	3	1	327
Bolivia	69	2	2	2	339	Finland	4	1	2	2	395
Botswana	56	1	3	1	400	France	5	1	2	1	394
Brazil	37	3	1	2	394	Gabon	89	1	2	1	355
Brunei	10				122	Gambia	80	1	1	1	338
Bulgaria	15	1	2	2	405	Georgia	13	1	2	2	207
Burkina Faso	99	1	1	2	338	Germany	5	3	3	2	296
Burundi	98				370	Ghana	73	2	1	1	357
Cambodia	108	1	3	2	247	Greece	8	1	3	2	362
Cameroon	56	1	1	2	406	Grenada	14	1	3	1	285
Canada	6	3	3	1	356	Guadeloupe	8	1	3	1	63
Cape Verde	45	1	1	2	339	Guatemala	43	1	1	2	397
Central African	97	1	1	1	344	Guinea	123	1	1	2	344
Chad	117	1	1	1	340	Guinea-Bissau	136	1	1	2	324
Chile	12	1	1	2	428	Guyana	60	1	3	2	289
China	34				414	Haiti	72	1	2	1	306
Colombia	26	2	1	2	409	Honduras	45	1	1	2	381
Comoros	70				320	Hong Kong	5	1	3	2	289
						Hungary	11	1	3	2	403

Iceland	6	1	3	2	337	Philippines	39	2	1	2	415
India	68	3	3	1	419	Poland	14	1	2	2	407
Indonesia	51	1	2	2	426	Portugal	7	1	2	2	342
Iran	39				356	Puerto Rico	12	1	1	1	94
Iraq	108				68	Qatar	18				150
Ireland	6	1	3	1	343	Reunion	8	1	3	1	70
Israel	7	1	3	2	356	Romania	21	1	1	2	380
Italy	6	2	3	2	374	Russia	18	3	1	2	309
Jamaica	13	1	3	1	365	Rwanda	133				318
Japan	4	1	3	2	376	Samoa (Western)	23	2	3	1	164
Jordan	31	1	3	2	412	Sao Tome/Princi	51	1	1	2	270
Kazakstan	27	1	1	1	265	Saudi Arabia	21				241
Kenya	58	1	1	1	392	Senegal	62	1	1	2	372
Korea, No.	56				59	Seychelles	18	1	1	2	248
Korea, So.	10	1	2	2	413	Sierra Leone	179	1	1	2	358
Kuwait	12	1	3	1	274	Singapore	4	1	3	2	386
Kyrgyzstan (Kyr	28	1	1	1	275	Slovakia (Slova	11	1	3	2	378
Laos (Lao PDR)	104				240	Slovenia	6	1	2	2	318
Latvia	19	1	3	2	359	Solomon Islands	41	3	3	1	152
Lebanon	32	1	2	1	290	Somalia	128				70
Lesotho	76	1	3	1	345	South Africa	50	3	3	2	425
Liberia	172				86	Spain	6	2	3	2	374
Libya	25				82	Sri Lanka (Ceyl	17	2	2	2	425
Lichtenstein	5	1	3	2	16	St Kitts/Nevis	25	3	3	1	263
Lithuania	12	1	2	2	346	St Lucia	18	1	3	1	255
Luxembourg	6	1	3	2	209	St Vincent/Gren	19	1	3	1	257
Macedonia	23	1	1	2	217	Sudan	77				157
Madagascar	89	1	1	2	397	Suriname	26	1	3	2	143
Malawi	133	1	1	1	355	Swaziland	69				337
Malaysia	12	3	3	1	430	Sweden	4	1	3	2	359
Maldives	52	1	1	1	212	Switzerland	5	3	1	2	312
Mali	121	1	1	1	339	Syria	32				234
Malta	9	1	3	1	282	Taiwan	6	1	2	2	
Martinique	8	1	3	1	64	Tajikistan	31				214
Mauritania	96	1	3	1	346	Tanzania	87	2	1	1	271
Mauritius	20	1	3	1	415	Thailand	35	1	3	1	414
Mexico	33	3	1	2	437	Togo	88	1	1	1	335
Micronesia	32	3	1	1	44	Trinidad/Tobago	13	1	3	1	420
Moldova	21	1	1	2	275	Tunisia	32	1	1	1	422
Mongolia	55	1	1	1	293	Turkey	44	1	3	2	439
Morocco	55	1	1	1	390	Turkmenistan	42				152
Mozambique	126	1	1	2	343	Uganda	98	1	1	1	348
Myanmar (Burma)	83				253	Ukraine	14	1	1	2	264
Namibia	62	1	1	2	335	United Arab Em	16				196
Nepal	88	1	3	1	383	United Kingdom	6	1	3	1	314
Netherlands	6	2	3	2	395	United States	8	3	1	1	359
New Caledonia	11	3	3	2	35	Uruguay	20	1	1	2	414
New Zealand	7	1	3	1	371	Uzbekistan	26				245
Nicaragua	46	1	1	2	416	Vanuatu	41	2	3	2	179
Niger	119	1	1	2	271	Venezuela	23	3	1	2	424
Nigeria	80	3	1	1	360	Vietnam	41				254
Norway	4	1	3	2	360	Virgin Is (US)	20	1	3	1	38
Oman	20				285	Yemen	100				292
Pakistan	90	3	3	1	410	Zambia	110	1	1	1	357
Panama	23	1	1	2	412	Zimbabwe	55	1	1	1	387
Papua New Guine	64	2	3	1	376						
Paraguay	25	1	1	2	398						
Peru	43	1	1	2	397						

Appendix B:
Variable Definitions and Data Sources

Africa. 0 = other, 1 = sub-saharan African.

Agricultural labor force. % of total labor force in agriculture. Source: *World Development Indicators 1998 (CD-ROM)*, supplemented by the *CIA World Factbook 1998 (web)*. Data for 1990.

Bureaucratic quality. Measures the professional quality and independence of the civil service, the public sector, and parastatal institutions and enterprises. Coding categories are as follows (half-point increments possible): 0) poorly paid, overstaffed, largely corrupt civil service dependent to a large degree on political favors; .5) poorly trained, inadequately manned, overstretched civil service; 1) well-trained civil service, but overmanned and bureaucratic, used as a means of rewarding political favors and/or mopping up excess unemployment; 2) well-paid, largely professional civil service, but deeply politicized, 3) well-paid, largely independent, largely professional civil service, but with political appointees, 4) well-paid, independent, professional civil service, largely free from political influence. Source: Political Risk Services. Data for 1999.

Central govt revenue. Tax revenue as % of GDP. Includes compulsory, unrequited, nonrepayable receipts for public purposes collected by the central government. Source: *World Development Indicators 1998 (CD-ROM)*. Data for 1995.

Corruption. The exercise of public power for private gain, as measured by the frequency of actual bribes to government officials and (in some polls) the perceived effects of corruption on the business environment. Followed by variables describing the standard errors and observations (surveys) for each case. Source: Kaufmann, Kraay, and Zoido-Lobaton (1999a; 1999b). Data for 1997-98.

Democracy. Years democratic in the 20th century. Scored as democratic where at least two consecutive years are 5-10 in the Polity III database ("Democracy" variable), or — if not covered by Polity III — where at least two consecutive years are 1-4 in the Freedom House database. Since the Freedom House database begins in the 1970s, earlier years for cases not covered in the Polity III database are based loosely on the secondary literature (e.g., Derbyshire and Derbyshire 1996; CIA Factbook). Data for 1900-95.

Ethnic heterogeneity. Based on information on ethnic groups contained in *CIA World Factbook 1998 (web version)*, calculated with Rae and Taylor's (1970: 32) fractionalization formula. A score of 0.1 means that there is a 10% chance that two individuals chosen at random from the general population will belong to different ethnic groups; a score of 1 means that there is a 100% chance. Countries for which exact ethnicity figures are not available, but where heterogeneity is by all accounts extreme, are scored as 0.80. [Heterogeneity1]

Federalism. 1 = unitary, 2 = semi-federal, 3 = federalism. Coding represents the predominant constitutional arrangement over the previous two decades. Sources: Derbyshire and Derbyshire (1996), Elazar (1991), Watts (1996).

Gini index. Income inequality, as measured by Gini index (an average of available studies for each country-case). Source: Deininger and Squire (1996). Data for 1960s-90s.

Government effectiveness. Perceptions of the quality of public service provision — including the bureaucracy, the competence of civil servants, the independence of the civil service from political pressures, and the credibility of the government's policy commitments. Source: Kaufmann, Kraay, and Zoido-Lobaton (1999a; 1999b). Data for 1997-98.

Govt stats. Number of data entries for a country in *World Development Indicators 1998 (CD-ROM)* (total: 526). Data for 1993-95 (mean).

GDP per capita. Real GDP/capita, averaged from 1970-95 (ln). Source: *World Development Indicators*, obtained from La Porta et al (1998).

Inflation. Mean inflation rate. Source: Johnson et al (1999). Data for 1985-95.

Latin America. 0 = other, 1 = Latin America.

Parliamentarism. 1 = presidential; 2=semipresidential; 3 = parliamentary. Coding represents the predominant constitutional arrangement over the previous two decades. See text for further discussion. [Exec1a]

Poorest 20%. Real GDP/cap (PPP\$) of poorest 20%. Source: *HDR98cd*. Data for 1980-94.

PR electoral system. 1 = all other systems; 2 = Pure PR or Mixed (plurality and PR) systems. Coding represents the predominant constitutional arrangement over the previous two decades. See text for further discussion. [PRDemos]

Socialism. 0 = nonsocialist, 1 = socialist (current or former). Source: La Porta et al (1998).

Table 1: Determinants of Infant Mortality Rates

Equation	1	2	3	4	5 ^a	6	7	8	9	10	11 ^a	12 ^b
Constant	4.926***	5.472***	5.970***	4.967***	5.721***	4.370***	4.718***	5.291***	4.344***	5.654***	5.407***	6.029***
GDP/cap (1970-95,ln)	-0.258*** (-0.339)	-0.393*** (-0.494)	-0.290*** (-0.377)	-0.268*** (-0.352)	-0.340*** (-0.437)	-0.184*** (-0.241)	-0.165*** (-0.216)	-0.272*** (-0.358)	-0.184*** (-0.241)	-0.316*** (-0.412)	-0.303*** (-0.382)	-0.387*** (-0.492)
Agricultural laborforce	0.013*** (0.347)	0.009** (0.217)	0.006 (0.147)	0.012*** (0.329)	0.009*** (0.221)	0.010*** (0.253)	0.013*** (0.334)	0.013*** (0.342)	0.012*** (0.299)	0.008*** (0.221)	0.007** (0.172)	0.005* (0.123)
Socialism	-0.307*** (-0.112)	-0.127 (-0.048)	-0.428*** (-0.167)	-0.302*** (-0.111)	-0.177 (-0.063)	-0.422*** (-0.163)	-0.393*** (-0.142)	-0.316*** (-0.116)	-0.408*** (-0.157)	-0.185 (-0.061)	-0.261** (-0.098)	-0.294*** (-0.112)
Africa	0.252*** (0.107)	0.365*** (0.146)	0.410*** (0.153)	0.225** (0.095)	0.400*** (0.162)	0.398*** (0.163)	0.194 (0.076)	0.261*** (0.111)	0.325*** (0.134)	0.359*** (0.140)	0.495*** (0.192)	0.463*** (0.173)
LatinAmerica	0.241** (0.072)	0.220 (0.074)	0.220 (0.078)	0.220** (0.065)	0.346*** (0.121)	0.104 (0.033)	0.210* (0.068)	0.304*** (0.091)	0.195* (0.061)	0.164 (0.057)	0.260** (0.093)	0.210* (0.079)
Democracy (1900-95)	-0.011*** (-0.285)	-0.006*** (-0.169)	-0.005** (-0.153)	-0.010*** (-0.279)	-0.007*** (-0.214)	-0.005*** (-0.148)	-0.007*** (-0.193)	-0.010*** (-0.274)	-0.007*** (-0.186)	-0.008*** (-0.251)	-0.005*** (-0.140)	-0.004*** (-0.127)
GINcoeff.		0.009 (0.083)	-0.012* (-0.112)									
Poorest20%			-0.0001*** (-0.305)									
Ethnic heterogeneity				0.149 (0.040)								
Federalism					0.111*** (0.082)						0.082** (0.058)	0.117*** (0.086)
Parliamentarism					-0.050 (-0.048)						-0.010 (-0.009)	-0.020 (-0.019)
Prelectoral system					-0.202*** (-0.100)						-0.181** (-0.084)	-0.160** (-0.075)
Corruption						0.366*** (0.317)					0.228*** (0.198)	0.188*** (0.167)
Bureaucratic quality							-0.252*** (-0.273)					
Govtstats								-0.001*** (-0.087)				
Government effectiveness									-0.306*** (-0.261)			
Central govt. revenue/GDP										-0.011*** (-0.112)		
N	188	105	79	188	141	152	139	187	153	114	115	108
R2(adjusted)	0.850	0.878	0.906	0.851	0.870	0.883	0.878	0.859	0.881	0.881	0.898	0.924

Estimator: OLS. Displayed: unstandardized coefficients, standardized coefficients in parentheses.

*p<0.10; **p<0.05; ***p<0.01 (2-tailed tests).

a: restricted to cases which are minimally democratic (Political Rights < 6, on a scale of 1-7, 7 being the least democratic).

b: excludes influential cases, defined as cases with studentized deleted residuals > 2 (in equation 11) — Gabon, Kenya, Mongolia, Sierra Leone, Sri Lanka, Tanzania, Turkey.

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