Abstract

I study patterns of decentralisation and tax capacity in 68 countries in 1996. Seven indicators of decentralisation clustered around fiscal, administrative, and political dimensions, and these dimensions had independent and surprising relationships with tax capacity. First, politically decentralised regimes taxed less. Second, administrative and fiscal decentralisation showed no systematic relationship to tax capacity. The negative association between taxation and political decentralisation suggests a need to look deeper into the impact of political decentralisation on the way in which state and society interact and political interests advance demands.

Decentralisation biases political conflict. By redrawing the political-administrative division of the state, decentralisation changes the geographical boundaries of political contestation, alters the relative power of different actors, and changes the location of government interaction with society. The current project seeks systematic cross-national
patterns in the ways that shifting resources and power from the centre to the local level affects policy outputs. The project proceeds by examining a specific policy area, taxation policy, which is likely to pitch those who hold wealth against those who would like to tax it. The chief hypothesis is that centralisation provides those with preferences for higher taxes with certain organisational and material advantages that they either lack at the local level or possess only in scattered jurisdictions. In contrast, holders of wealth do not depend on centralisation to advance their preferences, and they can wield influence at both the local and the national level. Of course, cleavages focused on wealth do not define all types of political conflict, but when they do, this paper argues that, other things being equal, the amount of decentralisation is a deciding factor in the outcome of struggle.

Many studies have attempted to explain why tax capacity varies across countries. It is beyond the scope of the current study to examine all the literature, but it is worth noting that valuable advances have been made through studies of welfare states, economic growth and distribution, and interest group politics. Still, we have far too little understanding of the independent impact of differences in the level and kind of decentralisation.

The need to consider multilevel government institutions has increased in recent decades, as many central governments have decentralised functions and resources to lower levels. To test the impact of these changes, the project builds on measures of decentralisation that make conceptual and empirical distinctions between three dimensions of decentralisation: fiscal, administrative, and political. Fiscal decentralisation refers to how much of the money collected and spent by government goes through non-central government entities.

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2 A theoretical argument along these lines is made by Slater, in a critique of decentralisation during the 1980s (Slater, 1990).

3 There have been studies of the impact of decentralisation on related areas, however. For example, Bendor and Mookherjee (1997) examine the impact on the ability to organise collective action, Baun and Grote (2000) examine the impact on poverty, and Brandt and Zhu (2000) examine the impact on redistribution in China.

4 This distinction is not new; the World Bank makes exactly this division of the decentralisation concept on its webpage: http://www1.worldbank.org/publicsector/decentralisation. For a statistical verification and measurement of these three dimensions, see Schneider (2002). The individual country measures can be found in Appendix One.
Administrative decentralisation refers to how much autonomy non-central government entities have relative to central control. Finally, political decentralisation refers to the degree to which non-central government entities satisfy the political functions of governance, such as representation. The dimensions are related to each other, but the current analysis suggests that the independent impact of each dimension on tax capacity can be estimated and evaluated. Tax capacity is the degree to which government can tap into the wealth of society. The policy implications of calculating the impact of each dimension will be lessons for those interested in choosing degrees and kinds of decentralisation to boost tax capacity.

To develop this argument, the paper examines data from 1996 for 68 countries (see Appendix One). A factor analytic exercise confirmed the conceptual validity and improved the accuracy of measures of three dimensions of decentralisation (Schneider, 2002). Here, the project applies regression techniques to these indicators to test the impact of decentralisation on tax capacity. By distinguishing between fiscal, administrative, and political decentralisation, the paper draws out the independent, and, at times opposite, impact of each dimension of decentralisation. The paper’s major contribution is to suggest that decentralising political authority weakens the overall capacity of government to extract taxes. In particular, this highlights the link between political centralisation and the organisational weapons of those who favour higher taxes and the legitimacy and accountability of government that allow it to tap into private wealth.

**Conceptual Frameworks for Tax Capacity**

This project tests the impact of decentralisation on tax capacity. Others have used tax capacity to reflect broad social science concepts, such as state-building (Tilly 1992) or collective action among citizens (Bates 1985). Here, tax capacity is chosen because it focuses
attention on characteristics of state-society interaction linked to decentralisation. In particular, tax capacity reflects the relative size of the public sector, its administrative capacity, and the ability of government to call private wealth for public purposes.

Some might suggest that to truly test the way taxation links to these concepts, greater attention should be paid to social outcomes, such as poverty, rather than a focus on policy outputs, such as taxation. On this, the project is less ambitious; it limits its ambitions to a partial understanding of the impact of decentralisation. Attempting to trace the impact of decentralisation through to its social conclusion would require accounting for the many other variables that determine social outcomes. Nevertheless, the project views tax capacity as interesting in and of itself.

Tax capacity indicates a fiscal choice about the size of government relative to the economy. How much economic wealth belongs in public hands? Indeed, some have posed this question within a general argument that a large public sector ‘crowds out’ the private sector (Barro, 1974). This perspective guided leaders in Europe and the United States during the 1980’s, and has been at the root of opposition to taxation since. For neo-Marxists, by contrast, growth in government parallels the growth of the private sector. As capitalism progresses, it faces ever greater monopoly and instability, and a larger and larger government is needed to manage crises of accumulation (O’Connor, 1973).

Tax capacity also reflects the ability of government to administer and enforce tax rules, prompting Milka Casanegra to make the oft-quoted statement that "tax administration is tax policy". Administration requires government to accomplish the complicated task of monitoring economic activities. Government must categorise and quantify economic actors and activities, by itself a vast effort of resources and effort (Scott, 1998). Even if administration can oversee private wealth, extraction also requires tax handles that effectively

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5 For an early discussion of incidence, see Harberger (1962). More recently, see Gemmell and Morrissey (2002).
tap into bases that inevitably attempt to avoid, and perhaps evade, taxes. Curbing such
behaviour requires enforcement, and many countries have turned to revenue authorities in an
attempt to patch the holes in a porous administration and protect themselves from capture.

Finally, taxation is also an indicator of the level of quasi-level compliance – the degree to
which citizens are willing to pool their private resources to attain collective goods (Levi,
1988). Governments cannot expect to monitor and enforce all rules; at a certain point they
depend on citizens accepting the legitimacy of tax payments and handing over their wealth.
The principles that underlie taxation (e.g. ability to pay) and the justification offered (e.g.
democratic rights and social benefits) must be enough to convince citizens to accept levies.
The breakdown of this quasi-voluntary compliance leads more and more citizens to skirt the
tax net and undercuts the ability of government to finance itself.

Tax capacity, then, is central to governance. Governments that can collect resources do so
only because they have made a fiscal choice about the relative role of government and are
able to implement that vision of government. Administration and legitimacy are key
components of greater capacity. Before turning to the way in which decentralisation might
affect tax capacity, it is necessary to look a little closer at the meaning of decentralisation.

Conceptual Frameworks for Decentralisation

One way to understand differences in the kind and degree of decentralisation is in terms
of the use to which the categories are to be put. Some of the most successful
conceptualisations and categorisations in the literature have concentrated on decentralisation
in terms of decentralisation to. They define and distinguish dimensions of decentralisation in

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6 Leonard suggests that researchers choose a conceptual framework only after deciding the causal
relationships they intend to test. “The variety of forms of decentralisation threatens to become unmanageable if
we try to be comprehensive. To impose a limit one must specify the purpose for which the typology is being
created and elaborate only those dimensions that are useful to it” (Leonard, 1982: 28-29).
terms of who receives the power and resources that are being decentralised. Thus, democratic
devolution identifies the category of cases in which decentralisation occurs to elected local
authorities (Manor and Crook, 1998). Privatisation defines the category of cases in which
decentralisation occurs to organisations outside the government sector (Rondinelli, 1989).
The non-governmental sector has been further disaggregated into private sector organisations
that are for-profit versus non-governmental, voluntary associations (Leonard, 1982). Each of
these distinctions, and others, has been useful for understanding causes and effects of
decentralising to one kind of unit or another. For example, what is the difference between
decentralising to an elected local government versus decentralising to a committee of users of
a particular local service? Conceptualisations that apply these categories offer a useful
beginning. But what about answering the more fundamental question asked in this project.
Does decentralisation help some interests more than others, and does it alter the willingness
of citizens to give their wealth to government?

In the following paragraphs, care will be taken to conceptualise and define
decentralisation in ways that produce categories useful for this basic question. The project
chooses to concentrate on decentralisation from. Each dimension of decentralisation is
conceptualised in terms of the degree to which power and resources are ceded or taken away
from central governments. This will allow us to measure and evaluate the impact of
decentralisation as compared to centralisation. Here, the varied recipients of decentralisation
are left ambiguous, and the conceptualisation focuses on the one thing all forms of
decentralisation share: regardless of the recipient, decentralisation involves shifting power
and resources away from the central government.

This approach builds on applications of the decentralisation concept in theories of fiscal
federalism, public administration, and political science. Briefly, fiscal federalism theories

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7 I am indebted to James Manor for highlighting this distinction.
view decentralisation in terms of the welfare effects of giving resources to one level of government or another. Fiscal decentralisation indicates a greater proportion of government resources at levels other than the central government (Oates, 1972: 17; 1999). Administrative arguments focus on the administrative effects of granting local jurisdictions autonomy from central control. This autonomy refers to general policymaking authority and personnel control, as well as control over what is done with public finances (Rondinelli, 1984). Finally, political arguments focus on the effects of conducting political activities such as participation, organisation, elections, and representation at the local level as opposed to the national level. Decentralised political systems are those in which political actors and issues are significant at the local level and at least partially independent from those at the national level (Fox and Aranda, 1996).

Hypotheses Linking Decentralisation to Tax Capacity

The current analysis highlights a diverse economic and political literature about the determinants of taxation. In particular, there are competing about the impact of decentralisation. For some, decentralised regimes tax less while for others they tax more. In part, these different hypotheses arise from conceptual differences about what taxation represents. Is taxation a reflection of the relative power of different groups in protecting their interests; is it an indicator of state administrative capacity to extract; and/or is it a reflection of the legitimacy of the state and citizen willingness to pay for government needs? These conceptual differences are borne out in the different hypotheses that surround fiscal,

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8 Theories of fiscal federalism begin from the assumption that fiscal interventions are necessary in the very specific cases in which government intervention improves on market operation. For example, normal market operations can produce instability (as in cases of financial panic), can misallocate resources (as in cases of monopoly or oligopoly), and can poorly distribute resources. For more detail, Stiglitz (1989: 9-89) provides an excellent discussion.
administrative, and political decentralisation. In testing these hypotheses empirically, the analysis here will separate the different types of decentralisation, and as a result, allow empirical examination of these different approaches to taxation. In particular, the analysis focuses on the way decentralisation affects the ability of government and those without wealth to tap into the resources of those who hold wealth.11

The project highlights the argument that political centralisation allows government and groups interested in higher taxes to concentrate their organisational resources; allows them to exert more political influence; and thus, gives government greater tax capacity. This suggests that the impact of decentralisation on different interest groups will partly be a question of their ability to organise politically. Where decentralisation includes political decentralisation, it weakens the political resources of those who seek higher taxes, and there is likely to be less overall taxation. Before focusing more directly on this hypothesis, it makes sense to locate it within the wider literature on decentralisation and taxation.

**Fiscal Federalism Approaches to Taxation**

There are a number of ways in which fiscal decentralisation could affect taxation, and many of the most important hypotheses have emerged from theories of fiscal federalism. The main insights from fiscal federalism follow from notions of competition among jurisdictions. In fiscally decentralised settings, any attempt to increase taxes in one jurisdiction will result in the migration of its tax base to another jurisdiction (Tiebout, 1956). Brennan and Buchanan

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9 Thus, a system can be fiscally decentralised without administrative decentralisation if the use of local funds is set at the central level.
10 For an excellent review of the literature, see Campbell (1993).
11 "Decentralization of policy making authority has generally mobilized socially heterogeneous forces (e.g. regionally specific cultural groups), undercut progressive and egalitarian political forces at the national level (e.g. trade union movements, cross-class coalitions) and favored local economic and political elites. In addition, institutional structures that decentralize policy-making responsibility tend to undercut the formation of coherent national policy strategies by groups and parties; the organization of parties and groups tends to be concentrated
(1980) follow this approach, and argue that fiscal decentralisation heightens the competition among jurisdictions. Such competition forces restraint on political elites, even if they would like to maximise revenues.  

If decentralisation heightens competition among jurisdictions, then jurisdictions will be tempted to attach themselves to those tax handles that will produce the least negative response, which may not be the most lucrative. One implication is that jurisdictions will be forced to target those sources of wealth that are least easy to move, such as immovable property and perhaps labour. Mobile capital, by contrast, will be least likely to be targeted. Critics have labelled this tendency to tax immobile factors a ‘race-to-the-bottom’ (Musgrave, 1958, 1997; Inman and Rubinfeld, 1997).

Centralisation implies the opposite effects. Centralisation lowers competition among jurisdictions and reduces migration by which taxpayers can escape taxation by a subnational unit. This allows greater overall levels of taxation and also taxation of goods with higher elasticities of demand and more mobile wealth.

Of course, if the decentralisation-competition argument does not hold, then these propositions are invalid. Some argue that, in the context of increased liberalisation and globalisation, national governments are just as likely to race-to-the-bottom as a result of competition with other nations. The causal connection may not be between decentralisation and competition, but between capital mobility and competition (Swank, 1992; Wallerstein, 1997). In the end, the impact of fiscal decentralisation remains an open question that the current analysis will evaluate.

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Administrative Approaches to Taxation

Administrative approaches direct their attention to the ways in which decentralisation influences administrative performance. Administrative decentralisation gives local units autonomy, which entails flexibility to experiment and innovate. Further, decentralisation allows them to imitate successful examples from other regions. In effect, this replicates the benefits of competition highlighted by fiscal federal theories, this time with an emphasis on competition for efficiency. The implications for tax capacity, however, are ambiguous.

For some, competition forces jurisdictions to provide more services for lower cost (Rondinelli, et al 1984; Tendler, 1997; Wildavsky, 1984; Buchanan and Tullock, 1962; Dye, 1966; Toqueville, 1969).14 These governments will waste fewer resources on administrative bureaucracy, and can simply collect lower taxes (Shah, 1999).

For others, competition improves administrative effectiveness. By keeping bureaucracy small and limited to local jurisdictions, decentralisation counters the tendency of large organisations to become rigid and unresponsive.15 Limited geographical scope improves information flows and allows the state to monitor citizens more effectively, both in terms of their demands and their wealth. In addition, local units may be more agile when changes have to be made, making it easier for them to tap into elusive tax bases (Dye, 1966; Toqueville, 1969; Huther and Shah, 1998; Fisman and Gatti, 2000). At the very least, this enhances the capacity to collect taxes, and will lead to less evasion and avoidance.

Of course, these beneficial effects of administrative decentralisation only hold if local administrations have the capacity to administer taxation. An effective public sector requires

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13 The growth of the informal sector in developing countries is one reflection of the shift away from those activities that government can tax (Tendler, 2002).
14 Many models of administrative competition rest on the model of a ‘market’ in which jurisdictions compete to keep their citizens, who use voice and exit to discipline local government. Tiebout (1956) applied this model for individual citizens; Oates and Schwab (1991) do the same for firms.
15 Michels (1966) described this process of bureaucratic rigidification as the ‘iron law of oligarchy’.
resources and professionalism, which are unlikely to exist in uniform quantities across a territory, and are often concentrated in higher status and higher paying central bureaucracies. Further, administration may operate with economies of scale and be more efficient in single national units (Prud’homme 1995: 201-203). In addition, decentralisation disconnects local welfare from national welfare in ways that encourage lower levels to shirk difficult tasks and push these tasks to their neighbours or to the national level. The difficulty of taxation, in administrative and political terms may be high, and local jurisdictions may prefer to depend on transfers from above (Petrei, 1998; Shah, 1991; Hommes, 1995).

If these problems exist, they may undercut any advantages from the impact of decentralisation on administrative efficiency and accountability (Bird and Vaillancourt, 1998). In fact, decentralisation may simply increase the number of governments attempting to extract wealth. Rather than competing by cutting taxes, they may compete to collect them, leading to an overall increase in taxation, with no connected improvement in services (Oates, 1985).

The administrative impact of decentralisation depends critically on the capacity of local institutions, which must monitor, enforce, and implement administration. The current analysis will test the argument and counter-arguments about the link between administrative decentralisation and taxation.

**Political Approaches to Taxation**

The current approach suggests that both decentralisation and taxation are eminently political phenomena, with a central role being played by systems of representation. Systems of representation are the institutions that link citizens to the state and map their interests into state policies. Some systems of representation operate through civil society institutions, such
as NGOs, social movements, or interest organisations. Other systems of representation, such as political parties, aim to bring interests directly into positions of official political power. All systems of representation are bounded by the institutions of the state itself, which set the rules for representation and thus, shape what interests get represented and how. Under decentralised systems of representation, citizens direct their demands through local organisations and institutions, and representatives orient their appeals to local constituencies. The current project suggests that a local orientation to politics will manifest itself in tax structures. Two issues arise here: first, who gets represented, and second, how well does that representation lead to accountability?

Decentralisation allows different interests to attain representation across a territory and thus provides representation to a more diverse array of interests than would otherwise occur. Centralised systems of representation are likely to exclude the interests of minorities unless affirmative mechanisms are in place for ensuring minority representation.17

This possibility only matters in the current analysis if decentralisation influences representation and policymaking with respect to groups interested in different kinds and levels of taxation. Advocates of decentralised representation suggest that decentralisation will allow a taxation structure that raises more revenues. First, they argue that in traditionally centralised, exclusionary regimes, decentralisation frees national governments from capture by narrow interests (Morris and Lowder, 1992: 4-7). Second, by creating smaller and more numerous institutions of representation, decentralisation increases opportunities for participation, multiplying the sites at which the poor can exercise their citizenship and gain

16 “After all, there are few policy areas in which the redistributive interests of different social classes come into sharper conflict than tax policy” (Steinmo, 1989: p.404).
17 See Grodzins (1960: 974-978) for the U.S. case. Also commenting on the U.S., Congressman Barney Frank observed, “99.9 percent of Congress clearly prefer that the issue be decided at that level of government which will decide the issue the way they like” (Rosen 1997: 484).
Third, some argue that the poor tend to be concentrated geographically, thus decentralisation creates jurisdictions in which the median voter is poor (Gandmont, 1978). Fourth, there are those who argue that decentralisation provides multiple training grounds for democracy, altering the culture of a polity, incorporating previously excluded groups, and raising citizen consciousness of the plight of poor compatriots (Toqueville, 1969).

By contrast, there are those who argue that decentralised systems privilege the interests of those with preference for lower taxes. In decentralised cases, national representative institutions are often simply the sum of locally oriented ones, and no mechanism links national institutions directly to citizens (Grodzins, 1960). If only regional or local issues get politicised, high tax interests may find it difficult to focus attention on problems that are supra-regional and that require higher taxation.

Decentralisation may directly privilege holders of wealth. They use their wealth to purchase influence in government or to threaten government revenues by slowing economic production. Political decentralisation does not change the tools available to the rich, nor does it change their effectiveness; decentralisation simply forces them to apply their political leverage to lower levels of government. The key is that decentralisation implies deconcentrating government, while capital remains concentrated. These weapons of the

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18 There are some who argue that participation is only possible on a small scale, and therefore at the local level (Pateman, 1970: 109; Dahl, 1970: 132; and Mansbridge, 1980: 293; Olson, 1965: 33-36).
19 A similar application has been made to the case of environmental interests. Environmental activists seek protection from pollution, which necessarily involves externalities and spill-overs from one jurisdiction to another. If environmentalists win many local struggles but have no representation at the national level, spill-overs from a single polluter in a single jurisdiction can overturn the impact of environmental victories in many local jurisdictions (Ames, 1995; Ames and Keck, 1998). For an application to the issue of representing the poor, see von Braun and Grote, 2002; Crook and Sverisson, 2001; Swank, 2002; and Smith, 1985.
20 Some argue, in fact, that the market automatically organises the interests of the rich. See Block, 1977; Lindblom, 1977; Przeworski and Wallerstein, 1988; Wallerstein, 1989.
21 Some argue that decentralisation increases the strength of capital with respect to the state, as local governments must compete against each other, as well as against foreign competitors. Others argue that in the current context, national governments are equally as weak. The debate on the ‘structural dependence of the state’ has aroused significant research, see Swank (1992: 32-54); Quinn and Shapiro (1991: 851-874); Williams and Collins (1997: 208-244), though none of it suggests that national governments are less able to discipline capital than local governments.
wealthy are likely to be equally, if not more, effective at local as well as central levels of government.22

In contrast, political decentralisation weakens the influence of groups that do not hold wealth. The poor are not without economic leverage of their own, but the impact of their wealth depends on levels of centralisation. By definition, the poor do not hold enough wealth to purchase much influence, though they at least purchase some influence when they aggregate their wealth in a single organisation at the national level (McConnell, 1970). Likewise, their threats to slow economic production are only credible if they are united across companies and across jurisdictions, where withholding their labour cannot be easily side-stepped by shifting production.23 In some contexts, peak level unions pool material resources and coordinate national strikes to pressure for pro-poor policy (Wallerstein, 1997; Swenson, 1991).24

The most important effect of decentralisation may be its detrimental impact on the ability of the poor to concentrate politically. Organisation is the main weapon of the poor, as it allows them to utilise the one resource they have in abundant quantities, their numbers. Organisation is no easy task, however; it requires leadership, discipline and mobilisation, and these resources are often in short supply. Decentralisation spreads these scarce organisational resources, and forces the poor to organise in multiple jurisdictions for multiple contests. Further, organisational resources that exist in one jurisdiction are not easily transferred or leveraged to another.25 The key for the poor is an institutional structure that can overcome resource and collective action constraints to press demands (Hicks and Swank, 1992).

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22 Some might even argue that the effectiveness of weapons of the rich is even higher at the local level. Coordination and collective action problems that exist at the national level may be absent at the local level, where structures of production and class interest are more homogenous.

23 Wallerstein shows that centralised and cohesive labour unions are more effective in promoting wage gains and redistributing wealth than decentralised ones (1997).

24 Of course, while the economic impact of the poor may be greater at the national level than at the local level, the economic tools available to the poor are still probably less politically significant than those available to the rich.
Political decentralisation forces the poor to organise in multiple jurisdictions for multiple contests, electoral and otherwise, and spreads thin their organisational resources (Garrett 1995: 657-687). Though the poor may find the leaders to discipline and mobilise them in some cities or regions, they are unlikely to be able to replicate this success in all jurisdictions.

The preceding discussion has focused mostly on the way in which political decentralisation shifts the balance of power between different interest groups. There is an additional political dynamic that deserves attention, however, and that is the degree to which decentralisation influences the links between state and society. For some, levels and kinds of taxation are an indicator of government accountability and governance more generally (Moore, 2001). Citizens are willing to hand over their wealth if and only if they believe they can hold government accountable. If this is the case, then political decentralisation is important for the way in which it changes the linkages between state and society. Simply increasing the sites of contact by decentralising may enhance the ability of citizens to monitor and hold government accountable.26

Of course, monitoring and accountability may be less forthcoming at the local level than at the national level.27 Legislatures, judiciaries, civil society organisations, and the press act as monitoring mechanisms to deliver information to citizens, but these institutions may actually be inhibited at the local level by their smaller scale (not to mention the fact that they are usually much more recent at the local level than their national counterparts). In addition,  

26 Olson (1965) emphasises the difficulty of overcoming collective action constraints. To do so once, in a single, national organisation is difficult, to do so many times in multiple jurisdictions is even harder.

27 Crook and Manor (1998: Chapter 6) conclude that accountability is the crucial variable that influences the performance of democratic decentralisation.

28 Hausmann and Stein (1995) discuss these potential problems in the context of agency and collective action problems. Agency problems occur any time a principal attempts to contract an agent to carry out a task in which monitoring effort and judging ability involves some transaction cost. Collective action problems arise any time members of a group have incentives to free-ride on the efforts of others within the group.
small scale and distance from central authority allows clientelism and private power to survive in local contexts (Bardhan and Mookherjee, 2000: 2-7).  

The impact of political decentralisation depends critically on 1) the impact on the relative power of interest groups, and 2) the impact on the accountability of the state. If the poor cannot counter the tendency to fragment and divide, they may be better off under politically centralised systems. Similarly, if political decentralisation does not increase the accountability of government, it may lead to lower levels of taxation. The current analysis will test these arguments against the possibility that political decentralisation has the opposite effect.

How then do we proceed in testing these arguments? The sections below describe the use of cross-national statistical data to obtain measures of the three dimensions of decentralisation and tax capacity.

**Measuring Fiscal Decentralisation**

Fiscal federalism theories dealing with decentralisation focus on the location of resources. These theories highlight social welfare, which is portrayed as a combination of economic stability, allocative efficiency, and distributive equity. The precise combination and importance attached to each goal will depend on the context, but the challenge is to locate resources at the level of government that optimises these fiscal categories of social welfare (Musgrave, 1958: 132-33, 175-178).

Expenditures and revenues form the two main components of fiscal activity. Others have focused on different aspects of fiscal decentralisation. Some choose to focus on the relationship between expenditures and allocated revenues (‘vertical imbalance’) to get a sense for the fiscal

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28 O’Donnell (1992) describes these local, authoritarian patches in Latin America as ‘brown areas’ within new democracies.

29 Others have focused on different aspects of fiscal decentralisation. Some choose to focus on the relationship between expenditures and allocated revenues (‘vertical imbalance’) to get a sense for the fiscal
money that governments put into or take out of an economy as well as where governments put the money and where they take it from. The current study hypothesises that the best indicator for the level of fiscal centralisation or decentralisation is the share of subnational expenditures and revenues.

The choice of focusing on fiscal instruments rather than regulatory or financial policies is partly methodological and partly substantive. Governments influence the amount of wealth in society and its distribution through various instruments, though fiscal instruments are the easiest to measure with cross-national statistics. Regulatory instruments are built into the formal and informal institutions that govern civil society and private sector behaviour; thus, they are extremely complex and context specific. Financial instruments are similarly difficult to measure with statistics, and their impact on distribution is not so direct as fiscal policy. Fiscal policy offers the most accessible window into levels of fiscal decentralisation, and regulatory or financial mechanisms will have to be taken up in closer country studies.

Despite being easier to measure, fiscal instruments still present some methodological difficulties. Though the IMF attempts to standardise its definition of local versus national resources, it is extremely difficult to attain accurate measurement using self-reported national statistics.30 What is measured as a local expenditure or revenue in one context may be scored as a national government resource in another.

Nevertheless, there are several advantages to a focus on revenues and expenditures. First, revenues and expenditures offer the best measures available without detailed study of each and every country. Second, errors are not likely to be correlated with other variables of interest thus they introduce no bias into estimation. Finally, by using both expenditures and

revenues, we tap into the main attributes implied by the concept of fiscal decentralisation. The key attribute that defines fiscal decentralisation is the fiscal impact of sub-national governments relative to the overall impact of government. Expenditures focus on the amount of government activity that sub-national governments undertake, and revenues focus on the quantity of resources that pass through them.

Expenditures are all cash outlays made by a given level of government. They can be examined as a whole, over time, in terms of revenues, as a percentage of GDP, in distinct subsections, in subsections as a percentage of some other variable, in constant values, in current values, or as done here, as a percentage of all government outlays. Each treatment cuts a slightly different perspective on spending policy, but sub-national expenditures as a percentage of total expenditures is the most appropriate to gauge decentralisation.\(^\text{31}\) A larger proportion of the expenditures spent by lower level governments indicates decentralised fiscal expenditures.

The revenue side of fiscal decentralisation is composed of all cash inflows to sub-national governments, including taxes, loans, and grants. As in the case of expenditures, these can be examined in a number of ways and with respect to other variables, and each treatment offers a different view of revenue policy. Similar to the choice for expenditures, the indicator chosen is sub-national revenue as a percentage of total government revenue, which focuses on the fiscal revenues passing through sub-national governments as opposed to those

\(^{31}\) There are some drawbacks to expenditures as a percentage of total expenditures, as they miss those expenditures that do not appear as cash outlays, such as credit guarantees, nor does this measurement distinguish among expenditures mandated by the central government as opposed to those that are decided wholly locally. Still, sub-national expenditures as a percentage of total expenditure focuses on the fiscal power exercised by lower governments as opposed to that exercised by central governments. Altering the indicators did not adjust the results of factor analysis. For example, measuring sub-national expenditures and revenues as a percentage of GDP also load heavily on a single dimension, though these indicators relate more to the impact of local governments on the economy.
revenues that remain at the centre. A larger proportion of revenues passing through sub-national governments indicates decentralised fiscal revenues.

Measuring Administrative Decentralisation

Public administration theories dealing with decentralisation broadly focus on the location of administrative authority. These theories highlight modern bureaucracies that are perceived as efficient, capable, and rational (Weber 1968, esp. 926-939 and 956-989). There is significant debate about whether these goals operate in tandem or if there are trade-offs, and the combination will probably depend on individual cases. The challenge of administration is to locate authority at the level of government that will promote modern administration.

Administrative decentralisation has received significant attention in previous literature. This literature has categorised administrative decentralisation in terms of break-points along a continuum from less to more local autonomy. The three most commonly used break-points are labelled deconcentration, delegation, and devolution (see Rondinelli, 1990). Deconcentration involves the least amount of autonomy, delegation slightly more, and devolution the most.

Deconcentration refers to a central government that disperses responsibility for a policy to its field offices. This transfer changes the spatial and geographical distribution of authority, but does not significantly change the autonomy of the entity that receives the authority. Under deconcentration arrangements, the central government retains authority over the field office, and exercises that authority through the hierarchical channels of the central

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32 There are some drawbacks to this specification, which does not distinguish for example between revenues over which lower levels of government have total control, such as block grants, and revenues that are tied to central government priorities, such as ear-marked transfers. This distinction will be taken into account below, however, in measuring the degree of administrative autonomy exercised by sub-national governments.

33 It should be noted that some applications of the categories differentiate a syndrome of characteristics. These applications mark the distinctions across categories in terms of a host of factors, and not simply in terms
government bureaucracy. Deconcentration allows only moderately more autonomy than centralised systems.

By contrast, delegation transfers policy responsibility to local governments or semiautonomous organisations that are not controlled by the central government but remain accountable to it. The main difference between deconcentration and delegation is that the central government must exercise its control through the contractual relation that enforces accountability on the part of local government. This represents a slightly higher level of administrative autonomy for local entities than under deconcentration.

Finally, under devolution, the central government allows quasi-autonomous local units of government to exercise power and control over the policy responsibility being transferred. Compared to the other two types of administrative decentralisation, devolution provides the greatest degree of autonomy to the local unit. The local unit is only accountable to the central government in so far as the central government can impose its will by threatening to withhold resources or responsibility that the local unit needs.

The dimension that discriminates among these categories of administrative decentralisation is the autonomy granted by the central government to the entity that receives power and resources. Deconcentration involves a bureaucratic, hierarchical relationship; delegation involves a contractual relationship; and devolution involves an arm’s length of different levels of autonomy. Also, some form of privatisation is often included as another category (Rondinelli, 1990).

Both delegation and deconcentration open the potential for a principal-agent problem, created by the self-interested behaviour of the entity that receives the decentralised power and resources. Of course, in the case of deconcentration, the agent may be easier to control, as it is simply the field office of a central government hierarchy. Delegation introduces increased possibility of divergence between interests of the central government principal and the local government/semiautonomous agent.

Arguments about democratic decentralisation tend to include accountability to the local population as part of its argument. “Whilst increased participation had a positive impact on the performance of decentralised institutions, adequate resources for councils were also essential, and - as we shall see - the social and political contexts within which decentralisation was undertaken also influenced outcomes. But the most critical determinant was the existence of a combination of all these factors with effective mechanisms of institutional and popular accountability. It is those mechanisms which provided - and are likely to provide more generally - the crucial link between enhanced participation and enhanced institutional performance.” (Crook and Manor, 1998: 21).
The differences in kind among hierarchy, contract, or arm’s length relationships are a syndrome of factors. The best way to summarise that syndrome is in paying attention to the degree of autonomy granted by the central government. Such a simplification perhaps misses some of the conceptual richness of the different relationships, but is sufficient if the underlying concern is to distinguish between systems with more or less administrative decentralisation. The categories, quite simply, represent break-points along a continuum from more administratively decentralised to less administratively decentralised systems.

One way to measure levels of local administrative autonomy is in the control exercised over local revenue. This is different from the total amount of resources, which is more a measure of wealth than a measure of control. As mentioned before, sub-national revenues are a combination of taxes, transfers, grants and loans. Taxes offer the greatest degree of autonomy, grants and loans offer somewhat less, and discretionary transfers probably offer the least. Transfers, even supposedly automatic ones, can be withheld, and grants and loans generally arrive with conditions or with expenditures earmarked. Two measures are hypothesised for administrative decentralisation. The first measure is percentage of total grants and revenues accounted for by taxes. The second measure is the percentage of total grants and revenues not accounted for by transfers. The hypothesis here is that a larger

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36 It should be noted that all three types of administrative decentralisation can be analysed using economic theories of principal-agent, moral hazard, and adverse selection techniques. Under all arrangements besides centralisation, central governments have imperfect information about non-central units and the capacity or effort they will dedicate to assigned tasks. In terms of achieving administrative goals, this imperfect information is what makes central governments nervous about ceding autonomy – they do not know for sure what the outcome will be.

37 Simplifying the syndrome of characteristics into the single dimension of autonomy becomes more complicated when we consider other aspects of decentralisation at the same time. For example, the level of autonomy becomes unclear when we compare a local government with significant resources (fiscal decentralisation) and deconcentrated authority (administrative centralisation) to a local authority with few resources (fiscal centralisation) but devolved authority (administrative decentralisation). Correct measurement of autonomy requires taking into account the interrelationship of the dimensions.

38 The kind of revenue is at best only a rough indicator of the amount of administrative control. Grants and loans can arrive either with conditions or without them. Though unconditional loans or grants (block grants) suggest local control, the fact that the centre can withhold them implies some limitation of local autonomy.
proportion of revenues raised through taxation and less obtained through transfers indicates greater local administrative autonomy.\(^{39}\)

**Measuring Political Decentralisation**

Political science theories dealing with decentralisation focus on the location of mobilisation, organisation, articulation, participation, contestation, and aggregation of interests. All political systems must resolve the challenges of institutionalising these processes, and the way in which this occurs will depend on individual contexts. The challenge of decentralisation is to resolve these political functions at the level of government that allows the greatest degree of institutionalisation. Two key political functions measured here involve representation and checks on the central government.

In elections, the electorate votes; the votes are aggregated; and candidates take power. Elections at the local level indicate that some portion of representative activity is being undertaken at the local level and parties must organise for local contests. Candidates must compete and make appeals in local jurisdictions, and citizens participate at the local level. Citizens may organise and participate through non-electoral channels, but these are harder to characterise, and probably do not have as direct an impact on representation. Of course, simply holding elections does not automatically mean that national forces do not overwhelm

Own-taxes are probably the most controllable form of local revenue, though even in these revenues, the centre can exert some authority by earmarking tax streams to certain expenditures.\(^{39}\) It might even be argued that this measure picks up some of the differences in kind implied by deconcentration, delegation, and devolution. Under deconcentration, local resources show up simply within the central bureaucracy; there are likely to be few, if any, local taxes; and the score on this measure will be a low one. Under delegation, there is likely to be a low level of local taxation, and a high level of resource transfer that are likely to come with strings attached, such as matching grants, ear-marked grants or discretionary grants. The use of these types of transfers is easily controlled by the central government, even when they delegate some autonomy over implementation to lower levels of government. In the case of devolution, those transfers that occur are more likely to be in the form of block grants or revenue-sharing, which indicate that local levels have significant autonomy. These types of grants limit the capacity of the central government to intervene in what lower levels of government do. A greater proportion of revenues, however, is likely to come from taxation, which grants the most autonomy (Nice, 1987; Winkler, 1994). In the future, case studies will be used to draw out some of the distinctions among types of transfers.
local ones, but local elections at least increase the likelihood that some political functions will be decentralised. The existence of elections at the municipal level or the state/provincial level is hypothesised here as an indicator of political decentralisation.

A second set of political functions is related to checking the power of central government. Legislative oversight, independent judiciaries, and organised interests act to restrain central governments. More relevant to the issue of decentralisation, national territories can be fragmented into regional jurisdictions in which local authorities have capacity to check the power of the central government. Perhaps the greatest local check on central power occurs in polities in which geographic portions of the nation have autonomous, legal jurisdiction designated in the constitution. For the central government to exercise authority in these regions, it must negotiate and bargain first with local authorities. The existence of constitutionally designated, autonomous regions is hypothesised here as an additional indicator of political decentralisation.

Though there are other political functions, the electoral component and the check on central government power are the most valid indicators of political decentralisation as they tap into fundamental aspects of political authority. Elections address the issue of representation, which is the way interests gain possession of legislative and executive power. Regional autonomy addresses the existence of local checks on central government political authority. Table One displays the concepts, measures and sources used for the different dimensions of decentralisation.

—Insert Table One ‘Decentralisation Indicators and Dimensions’ Here—

Using the Indicators to Obtain Accurate Aggregate Measures

40 Literature on federalism has paid particular attention to the way decentralisation interacts with partisan politics and elections (Grodzins, 1960).
For the concept of decentralisation, factor analysis generates more accurate scores of the three dimensions than other techniques. Measuring decentralisation dimensions is complicated by the fact that core attributes are difficult to measure, and any metric for one dimension is likely to simultaneously pick up elements of the others. In part, this is because there are causal relationships among the dimensions (political decentralisation may contribute to fiscal decentralisation etc.) but also because any quantitative measure is likely to be somewhat imprecise. No single indicator can capture the decentralisation concept fully, and no simple combination of indicators, such as an average or sum, could capture the multidimensionality of the concept. To avoid the mistakes that might arise from other methods, factor analytic techniques calculated the unique and interrelated characteristics of the different dimensions of decentralisation and confirmed that three dimensions underlay the indicators. Next, the technique used correlations among the variables to measure the underlying dimensions in each case. Thus, factor analysis both confirmed that there were three dimensions to the decentralisation concept (fiscal, administrative, and political) and quantified the amount that each case had decentralised along each dimension. The scores for the cases are included in Appendix One.

The factor analysis was carried out for 68 countries in which the seven indicators of decentralisation were available in and around 1996. The analysis confirmed that three dimensions underlay the indicators, and confirmed that fiscal indicators clustered together, administrative indicators clustered together, and political indicators clustered together. Based

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41 The literature on ‘market-preserving federalism’ has emphasised the importance of decentralisation to limiting government size (Weingast, 1995; Qian, 1997). Oates, by contrast, makes the argument that decentralisation may not counteract tendencies of central governments to expand (Oates, 1985).

42 For a more thorough discussion of factor analytic techniques, see Kim and Mueller (1978); Long (1983); and Bollen (1989). For an application, see Brady (1990).

43 Where data from 1996 was not available, but data from some years between 1994 and 1998 were available, the data was interpolated. As most of the indicators are variables that change incrementally over time, if at all (expenditures, revenues, etc.) this practice was not likely to change the results. The findings were robust
on this clustering, the analysis used the portion of each indicator that related to an underlying dimension to generate a score on that dimension in each case. Appendix One describes the factor analytic process for generating scores. To make the scores more intelligible, they were normalised to a zero-one scale, and can be read in terms of decentralisation units. Thus, the United States scored .84 fiscal decentralisation units, .41 administrative decentralisation units, and .60 political decentralisation units.

**Overall Tax Levels: Taxation as a Percentage of GDP**

Many of the fiscal, administrative, and political hypotheses relate decentralisation to the fiscal size and administrative capacity of government. To measure these outputs, overall tax levels as a percentage of GDP reflect the size of government with respect to overall economic activity. Governments that possess the capacity to extract resources and whose leaders make the decision to extract will score high on taxation as a percentage of GDP. Other denominators, such as total expenditures or tax as a percentage of total revenues, would also measure aspects of the size and capacity of government, but would bring in other conceptual interpretations, such as the efficiency of government administration. Here, the analysis is most concerned with the concepts of fiscal size and administrative capacity.

In measuring tax capacity, the study was careful to measure all of the taxes collected. Many datasets include only central government tax revenues, missing those taxes collected by local and regional governments. Data from the *Government Finance Statistics* was used to add central, regional, and local taxes when considering total tax capacity.44

The relationship between total taxes and total economic activity, measured as taxation as a percentage of GDP, focuses on the willingness and ability of governments to tap into

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44 to using data from a single year data alone (1995, 1996, 1997, or 1998), but pooling the data into a single year increased the number of cases available for the causal analysis conducted in the next section.
private wealth for public action. This directs attention to those decentralisation hypotheses that degrees of decentralisation affect the administrative capacity of government, change the incentives facing fiscal actors, alter the accountability of government, and shift the relative power of interests.

The politics of choosing who to tax reflects the political power of interest groups to shape and implement beliefs about fairness.

**Research Design**

The current project asks whether government has greater tax capacity under centralised or decentralised systems. More specifically, the study attempts to trace the causal mechanism between decentralisation and taxation levels by looking at different kinds of decentralisation. In particular, are differences in the amount and structure of taxation due to patterns of fiscal, administrative or political decentralisation?

The broader literature on the determinants of taxation offers a large number of hypotheses in addition to decentralisation. An effort was made to include a number of these rival explanations while maintaining the principal focus, which was to test the marginal impact of decentralisation on taxation policy.

The first rival hypothesis that was likely to influence taxation was simply the level of development. Though it is an imprecise concept, the level of development reflects in one way or another 1) the amount of resources available to extract, 2) the organisation of social interests, and 3) the resources available for government administration. Each of these

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44 See, for example, World Bank, *World Development Indicators*, table 5.5.
variables could potentially influence taxation. To control for the impact of development, the model includes the log of GDP per capita in 1995 US$.45

A second rival hypothesis involved globalisation. Globalisation certainly puts pressure on taxation. For some, this pressure militates for a decrease in taxation as countries must shrink the size of government and lower labour costs. For others, globalisation forces the state to increase taxation to compensate or insure those dislocated by international competition.46 To control for levels of globalisation, the model included an indicator of trade openness. Trade openness was measured as the total value of imports and exports as a percentage of GDP.47

A third rival hypothesis involves the major claimants on government. The proportion of resources that are required for government and the amount of progressive redistribution that occurs are likely to depend on the demographic and political weight of key dependants on government. One group that clearly depends on and benefits from government policy is the elderly. To control for the weight of state dependants, the analysis includes a measure of the proportion of the population aged 65 and over.

Finally, the model also acknowledges the possibility that the dimensions of decentralisation interact. Fiscal decentralisation may combine with administrative decentralisation and/or political decentralisation to create changes in pro-poor policy beyond the impact of any single dimension alone.48

The analysis also incorporates the theoretical possibility that many of the hypotheses depend on a regime variable that intervenes between decentralisation and tax capacity outputs and outcomes. Especially those hypotheses revolving around political decentralisation would be likely to operate most powerfully in democratic political systems, in which citizens have

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45 Calculating the log transformation of GDP per capita resolves the problem of the abnormal distribution of cases, with most cases clustered at high incomes or low incomes, and few in the middle.
46 For examples of those who argue that globalisation weakens state capacity to promote pro-poor social policy, see Huber and Stephens (1992) and Evans (1997). For examples of those who argue that globalisation actually has the opposite impact, see Rodrik and Fernandez (1991) or Rodrik (1996).
47 Data from the 2000 Human Development Report.
more freedom to organise and governments are more likely to answer to citizens. To control for this potential confounding variable, the final application removes countries that are not democratic from the sample. Democracies were defined as those countries that the Polity IV dataset scored more democratic than authoritarian.\textsuperscript{49}

The analysis was conducted in a series of models that test the different permutations of variables. The first model examines the impact of factor scores on dimensions of decentralisation with the control variables for globalisation, social policy recipients, and level of development. The second model examines the impact of the decentralisation dimensions after including the controls variables and the interaction term. The third model applies the full analysis to democratic countries alone. The control for level of development is included in all models. A fourth model chooses an indicator for each dimension of decentralisation rather than use the factor scores. Though worse measures, the indicators alone offer more explicit implications for those uncomfortable with the factor analysis terminology. The dependent variable is tax capacity, measured as total amount of taxation as a percentage of GDP.\textsuperscript{50}

**Results.** The results of regression analysis demonstrate that dimensions of decentralisation have independent effects on tax capacity. The impact of political decentralisation was consistently in the direction of less taxation. Administrative decentralisation and fiscal decentralisation did not appear statistically significant in any analysis.

Table Two displays the results from the different models for tax capacity. If we compare the adjusted r-squared and standard error of the estimate from each model, there does not

\textsuperscript{48} Data from the 2002 World Bank, *World Development Indicators.*

\textsuperscript{49} The Polity IV dataset scored countries on a continuous scale from democratic to authoritarian in terms of regulation, competitiveness, and openness of executive recruitment, constraints on executives, institutions of participation, and extent of non-elite participation. For more detail, see http://www.bsos.umd.edu/cidcm/inscr/polity/#data.

\textsuperscript{50} The equation for tax capacity was $Y_k = \sum a_j F_{jk} + a(F_{jk} * F_{jk}) + \sum bD_k + u_k$, in which ‘Y’ is tax capacity, ‘F’ is the factor score, and ‘D’ are control variables. The subscript ‘k’ indicates the case, and the subscript ‘j’ indicates the factor.
appear to be significant change in the explanatory power of the models when we alter the different specifications.\textsuperscript{51}

In each model, political decentralisation was negatively related to tax capacity and was statistically significant. For example, model two suggests that democratic countries that were .1 unit lower on the scale of political decentralisation were .98 lower in taxation as a percent of GDP.

Models that included the control variables did not change the significance of the primary hypotheses, and did not significantly improve predictive accuracy, as shown in the adjusted r-squared and the standard error of the estimate. The interaction term was not significant in any model, nor was the impact of globalisation. Analysing democratic countries alone did not change most of the results about the impact of different kinds of decentralisation. The weight of state dependents and the level of development were significant in all models, and had the predicted impact of increasing tax capacity. For example, democratic countries with 10% higher per capita income collected .24% more in taxes as a percent of GDP.\textsuperscript{52} Also, countries with 1% more of the population over 65 collected 1.49% more of GDP in taxes.

The final model repeats the analysis using a single indicator for each dimension of decentralisation. The coefficients are consistent with those using the factor analysis. For example, there was no significant impact of decentralised fiscal resources or administrative autonomy. The presence of municipal elections, by contrast, was associated with a 4.31% drop in tax capacity.

—Insert Table Two 'Decentralisation and Redistributive Outputs' about here—

A graphical representation in Figure One brings together the measurement model from the factor analysis with the linear regression results from this section. Squares indicate that

\textsuperscript{51} Comparing adjusted r-squared and standard error of the estimate statistics offers an imprecise comparison of models, but does give an idea of the relative explanatory power of each. The more important result of comparing the models is to note the consistency in the statistical significance and direction of correlation of the variables.
variables were observable, and ovals, like the decentralisation dimensions, show that concepts had to be derived from other indicators. The left side of the figure shows a measurement model in which the three abstract dimensions of decentralisation in ovals at the centre are connected by arrows to the seven measurable variables in squares to the left. Above the decentralisation ovals are squares representing the control variables in the regression analysis. Arrows connect the control variables and the decentralisation ovals to the dependent variable on the right, tax policy policy outputs. The arrows indicate the causal relationship between each explanatory variable and pro-poor policy.

—Insert Figure One 'Linear-Structural Model of Pro-Poor Outputs' about here—

**Implications.** The main concern of this exercise was to understand the impact of decentralisation on tax capacity. Unlike other potential influences on tax capacity, decentralisation offers a unique opportunity to policymakers and policy advisors. They might conceivably take steps to precise the system of intergovernmental relations to improve tax capacity. Other determinants of tax capacity, such as level of development, had a positive impact on tax capacity, but it is probably tautological and at least unlikely to think that countries can simply trigger development to promote tax capacity. A second rival explanation, globalisation, was found to have no relationship to tax capacity. The third rival explanation, government dependants, was also positively related to tax capacity, but again, it is not immediately obvious what policy changes would be involved with expanding the size of beneficiary interest groups.

The dimensions of decentralisation, however, are attributes that governments can potentially alter with less difficulty. Though the dimensions may be fundamentally related, they did not combine in a systematic way to influence tax capacity. This suggests that

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52 The coefficient on the logged GDP per capita was 5.87.
centralisation along one dimension might be combined with decentralisation along another
dimension to fine-tune the conditions for expanding tax capacity.

The regressions confirmed a negative impact of political decentralisation and no
significant impact of the fiscal and administrative dimensions. The negative relationship
between political decentralisation and tax capacity suggests that decentralisation lowers the
political resources available to those who favour a larger public sector and strengthens the
political influence of those who do not. In addition, the relationship suggests that political
decentralisation does not enhance the accountability and governance that would increase
citizen willingness to trust government with private wealth.

The fact that the administrative and fiscal decentralisation dimensions have no
relationships to tax capacity while political decentralisation does suggests an interesting
policy possibility. Decentralisation along one dimension can be combined with centralisation
along another. This is particularly true if there are no interaction effects, as shown in the
current analysis. For example, if there are benefits to fiscal and administrative
decentralisation (efficiency, flexibility, etc.), these dimensions could be decentralised while
politics remained centralised.

Policy advisors seeking to promote tax capacity might encourage governments to
strengthen the institutions that centralise political functions. For example, they might
encourage national political parties, unions, and interest groups, and adjust electoral
institutions to favour issues and contests with national scope. The final model takes up this
possibility explicitly. Governments that hold municipal elections collected around four
percent less as a percentage of GDP than those that did not.
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Appendix 1. Factor Analysis for Decentralisation

The model proposed here conceptualises decentralisation as three distinct but interrelated dimensions that can be measured using the seven indicators described above. Factor analytic techniques applied to the indicators can calculate the unique and interrelated characteristics of the different dimensions of decentralisation and test whether the model is accurate. This technique of proposing and testing a measurement model using factor analysis is known as confirmatory factor analysis, and it rests on the intuition that underlying concepts, such as the dimensions of decentralisation, are difficult to measure, but they are manifest in empirically observed indicators.

The specific hypotheses to be tested are 1) that decentralisation consists of three abstract dimensions; and 2) each of the seven indicators is closely related to one of the three dimensions. To test the first hypothesis, confirmatory factor analysis separates the unique characteristics of each indicator from the characteristics shared with other indicators. If the most statistically accurate grouping of shared characteristics divides the indicators into three clusters, the analysis confirms that there are three underlying dimensions, as opposed to two or four (or some other number).

Next, factor analysis uses the correlations among the variables to find the size of the impact of underlying dimensions. The shared characteristics can be divided into the portion explained by each dimension, given as a factor coefficient for each dimension. If the model is

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53 A more extended version of this factor analytic exercise can be found in Schneider, 2002.
54 For a more thorough discussion of factor analytic techniques, see Kim and Mueller (1978); Long (1983); or Bollen (1989). For an application, see Brady (1990).
55 Confirmatory factor analysis tests the marginal increase in variance explained by adding another dimension against the variance explained by randomly organising the data. The statistic used to show the relative amount of variance explained by the dimensions is called the eigenvalue, and eigenvalues below one suggest that there is little marginal increase from adding more dimensions (Kim and Mueller, 1978: 32-37). An additional method of confirming the number of dimensions is graphical, in which the eigenvalues of each added dimension are graphed, called a scree plot. When the graph begins to flatten, i.e. adding dimensions is explaining little more of the data, then there is little marginal benefit to adding dimensions. It is possible to use exploratory factor analysis to discover how many dimensions exist, and simply add dimensions until the eigenvalue drops below one or the scree plot flattens. Here there are strong hypotheses that three dimensions should exist, so confirmatory factor analysis is used.
correct, the largest factor coefficients should relate indicators to the dimension they are hypothesised to measure. For example, the largest factor coefficient on sub-national percentage of expenditures should be the coefficient related to the fiscal decentralisation dimension. These steps confirm the measurement model. They also produce improved and more precise measures of the concepts.

This is possible because the analysis generates factor coefficients relating each indicator to all the dimensions. Partly, this is because the measures are imprecise, and they will pick up some of the impact of other dimensions. In addition, the coefficients reflect the fact that the dimensions are related. For example, politically decentralised systems might find local political weight used to allocate more resources to lower levels of government. As a result, part of the sub-national revenues indicator should not be attributed to fiscal decentralisation but reflects characteristics derived from the political decentralisation dimension.

Factor analysis uses this information to improve measurement in ways that simple aggregation or indexes cannot. Factor analysis separates the impact of each dimension and calculates its size in the factor coefficients. This allows us to use only the information from each indicator that is relevant to a single dimension and ultimately obtain better measures of the dimensions.

A second output of the analysis is an accurate measurement of each dimension in each case. The factor coefficient measures the intensity of the relationship between each variable and each dimension and can be multiplied by each case score on each variable. The sum of the coefficients times the case scores gives a factor score for each case on each dimension. In other words, we can produce a measure of fiscal decentralisation, administrative decentralisation, and political decentralisation in each case. In fact, this measure is superior to
other methods of measurement that do not take as many indicators into account and/or that do not attempt to separate the unique and shared characteristics of each indicator.\textsuperscript{56}

**Cases and Data**

The current project applied confirmatory factor analysis to decentralisation data collected from 108 countries in 1996. The data included fiscal indicators from IMF Government Finance Statistics, obtained from the World Bank website on decentralisation, and filled in missing values with data from the 2001 IMF hardcopy publication where available. Other data were collected in the Database of Political Indicators collected by researchers at the World Bank and the Government of Switzerland. Missing political data was obtained from country constitutions, Library of Congress Country Facts, and the CIA Factbook.\textsuperscript{57}

In cases in which there was no fiscal data available from 1996 but data from other years in the 1990s were available, linear trends obtained through regression analysis of available data filled the 1996 data. As most fiscal indicators are variables that change incrementally over time, if at all (expenditures, revenues, etc.) this practice was not likely to change the results. The findings were robust to using data from a single year data alone (1995, 1996, 1997), but pooling the data into a single year increased the number of cases available.

Special care was also taken with relation to indicators that were related to variables that might confound the analysis, such as the type of regime. This was particularly the case for the political decentralisation indicators that focused on elections and electoral rules. Some non-democracies held elections and data was therefore available on the political decentralisation

\textsuperscript{56} The equation for each observed variable is given by: $$X_i = \sum b_{ij}F_j + d_iU_i$$  
The observed variable is ‘$X$’; ‘$F$’ is a common factor shared by two or more variables; and ‘$U$’ is a factor unique to a given variable. The correlation between the observed variable and the shared factor is ‘$b$’, and ‘$d$’ is the correlation between the unique factor and the observed variable. The subscript $i$ indicates the observed variable and the subscript $j$ indicates the common factor.

\textsuperscript{57} Websites listed in the bibliography.
indicators. Nevertheless, some might argue that the representation that occurs in non-democracies, however decentralised, is substantively different than that occurring in democracies. A local election in which the national government is authoritarian or in which only one party competes can hardly be called competitive, and probably does a poor job of decentralising political functions.\textsuperscript{58} To address this issue, the analysis was conducted after removing non-democracies. No significant changes in results occurred.\textsuperscript{59}

**Factor Analysis**

Confirmatory factor analysis was used to test the hypothesis that three dimensions of decentralisation (fiscal, administrative, and political) that underlay measurable indicators. The seven indicators were: 1) sub-national expenditures as a percentage of expenditures; 2) sub-national revenues as a percentage of total revenue items; 3) the relative importance of tax as a percentage of sub-national revenues; 4) the relative importance of transfers as a percentage of sub-national revenues; 5) the existence of municipal elections; 6) the existence of state or provincial elections; and 7) the existence of autonomous regions. The hypothesis was that the first two indicators mostly measured fiscal decentralisation; the third and fourth indicators measured administrative decentralisation; and the last three indicators measured political decentralisation.\textsuperscript{60}

The number of cases with data available on all indicators was 68. Among these cases, the mean percentage of expenditures as a percentage of total expenditures was 22.27 and the

\textsuperscript{58} On the other hand, local elections and representative processes can be a key factor in politically decentralising an authoritarian regime. For example, in Brazil, local elections forced military leaders to consider local and regional pressures, even though the national executive was controlled through undemocratic means. See Hagopian (1996).

\textsuperscript{59} The results were robust to excluding non-democracies. Using an indicator of democracy from the Polity IV database, eleven non-democratic cases were excluded from the analysis. Confirmatory factor analysis results on the democratic cases alone produced few differences from the analysis of all cases together. Three dimensions underlay the data, and factor coefficients and factor scores changed only slightly.

\textsuperscript{60} The importance of transfers was reversed to keep the signs positive.
mean percentage of revenues was 17.24. The mean percentage of subnational revenues from
taxes was 44.65 and the mean percentage from transfers was 34.60. 58 of the cases had no
autonomous regions, 12 had no municipal elections, and 26 had no state elections.

Principle factor analysis of the data confirmed the assertion that three dimensions most
appropriately organised the data. The eigenvalue for the third dimension was 1.001 with a
cumulative percent of variance explained of 76.57% (see Table Three).61

—Insert Table Three ‘Eigenvalues’ Here—

Next, the covariances among the variables were used to measure the relationship between
variables and underlying dimensions.62 As expected, sub-national expenditures as a
percentage of total expenditures and sub-national revenues as a percentage of total revenues
were highly correlated with each other and with what was labelled the ‘fiscal
decentralisation’ dimension. The factor coefficient of sub-national expenditures as a
percentage of total revenues was .957 and the coefficient of sub-national revenues as a
percentage of total revenues was .933.

Also as expected, the relative importance of tax and transfer revenues as a percentage of
sub-national revenues were most highly correlated with each other and with what was
labelled the ‘administrative decentralisation’ dimension. The factor coefficient of tax revenues as a percentage of local revenues was .885 and the coefficient of non-transfer
income as a percentage of local revenues was .852.

Finally, municipal elections, state elections, and regional autonomy were most closely
related to each other and to the third dimension, which has been labelled ‘political
decentralisation’. The factor coefficient of municipal elections was .466, the factor coefficient

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61 The scree plot did not show a significant change in the amount of variance explained by each dimension. Each added dimension appeared to explain about as much as the next, though the eigenvalues did drop far below one after the third dimension.

62 The solution was rotated to obtain orthogonal factors using a varimax rotation technique.
of state elections was .834, and the factor coefficient of regional autonomy was .655 (see Table Four).

—Insert Table Four 'Fiscal, Representation, and Administrative Decentralisation' Here—

Factor analysis also allows us to determine the degree to which the dimensions are related to one another. Given the nature of the decentralisation concept, in which one kind of decentralisation is expected to influence other kinds, correlation among the dimensions was expected. Nevertheless, the factor analysis showed that the correlation between the dimensions was relatively small. Only in the case of the correlation between fiscal decentralisation and political decentralisation was the component correlation coefficient larger than .10. Every one unit increase in fiscal decentralisation correlated with a .13 increase in political decentralisation. The correlations between the other dimensions did not exceed .05. Though this result was somewhat surprising, it supported the assumption that the dimensions could be analysed as though they were orthogonal.

Finally, the factor coefficients for each variable were used to obtain a score for each case along each dimension. For each case, the factor scores are the sum of the products of the factor coefficients and the indicator scores. To make them easier to interpret, the factor scores were normalised to a zero to one scale, and can be read in terms of decentralisation units. Thus, Albania has a score of .35 fiscal decentralisation units, 0 administrative decentralisation units, and .42 political decentralisation units. Appendix One displays the factor score on each dimension for the different countries in the study. The average amount of fiscal decentralisation, on a zero to one scale, was .43. The average amount of administrative decentralisation was .46, and the average amount of political decentralisation was .45.63

These factor scores were used as the measures for fiscal, administrative, and political...
decentralisation in the causal analysis of pro-poor policy. The scores for each country are listed in Table Five for those who would like to reproduce this analysis or examine other hypotheses.

—Insert Table Five 'Factor Scores from Confirmatory Factory Analysis etc.' about here—

country was simply the least decentralised among the sample; zero does not mean that local jurisdictions had no resources, autonomy, or political functions.
<table>
<thead>
<tr>
<th>Dimension</th>
<th>Indicator</th>
<th>Source</th>
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<tr>
<td>Fiscal Decentralisation</td>
<td>2. Sub-national Revenues as Percent of Total Revenues</td>
<td>Decentralisation Statistics. World Bank Website.</td>
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Table 2. Decentralisation and Taxation Capacity

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* indicates statistically significant at .10 level, ** at .05 level, and *** at .01.
Figure 1.

Linear–Structural Model of Tax Capacity

- Interest Group
- Globalisation
- Development
- Interaction
- Fiscal Decentralisation
- Administrative Decentralisation
- Political Decentralisation
- Tax Capacity

Factors:
- Subnational Revenues
- Subnational Expenditure
- Subnational Tax Autonomy
- Subnational Transfer Autonomy
- Municipal Elections
- State Elections
- Autonomous Regions

Weights:
- $b_{11}$
- $b_{21}$
- $b_{31}$
- $b_{41}$
- $b_{22}$
- $b_{32}$
- $b_{42}$
- $b_{33}$
- $b_{43}$
- $b_{13}$

Note: The diagram shows the relationships and weights between various factors influencing tax capacity.
### Table 3. Eigenvalues

**Total Variance Explained**

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Extraction Method: Principal Component Analysis.
Table 4. Fiscal, Representation, and Administrative Decentralisation

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Table 5. Factor Scores from Confirmatory Factor Analysis – Countries and Decentralisation Dimensions

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