

EPRU

Economic Policy Research Unit

Institute of Economics

University of Copenhagen

Studiestræde 6

DK-1455 Copenhagen K

DENMARK

Tel: (+45) 3532 4411

Fax: (+45) 3532 4444

web: <http://www.econ.ku.dk/epru/>

The Political Economy of Institutions and Corruption in American States

James E. Alt and David Dreyer Lassen

2002-16

ISSN 0908-7745

The activities of EPRU are financed by a grant from
The National Research Foundation

The Political Economy of Institutions and Corruption in American States.¹

**James E. Alt
CBRSS and Department of Government, Harvard University,
and
David Dreyer Lassen
EPRU and Institute of Economics, University of Copenhagen.**

November 2002

Abstract:

Theoretically, this paper draws on political agency theory to formulate hypotheses. Empirically, it shows that political institutions have a role in explaining the prevalence of political corruption in American states. In the states, a set of democracies where the rule of law is relatively well established and the confounding effects of differing electoral systems and regimes are absent, institutional variables relating to the openness of the political system inhibit corruption. That is, other things equal, the extent to which aspiring politicians can enter and gain financial backing, and to which voters can focus their votes on policies and thereby hold incumbent politicians accountable for policy outcomes and find substitutes for them if dissatisfied with those outcomes, reduce corruption as a general problem of agency. These institutional effects are estimated in the presence of controls for variables representing other approaches.

¹ Comments welcome at jalt@sundance.harvard.edu or David.Dreyer.Lassen@econ.ku.dk. We are grateful to Johan Lambsdorff, and seminar participants at the Copenhagen Business School, Harvard, NYU, and Yale for comments and suggestions, and to Richard Boylan and Cheryl Long for generously sharing survey data. This paper was originally prepared for presentation at the Olson Memorial Lecture Series, University of Maryland, College Park April 2002. Lassen thanks EPRU for funding. The activities of EPRU are financed by a grant from the Danish National Research Foundation.

1. Introduction

Corruption is high on the current research agenda in political science and economics. While corruption has long been thought to be a major issue in development, it is only recently that broader, systematic empirical work on the causes and consequences of corruption has begun to emerge. For example, Mauro (1995) demonstrates empirically some detrimental effects of corruption on growth and investment. Lambsdorff (1999) reviews related research on the relationship between corruption and the informal sector, receipt of foreign direct investment, and public provision of health and education, among other things.

This paper examines the relationship between institutions and corruption in American states. The paper has two main purposes. First, as part of an ongoing project, we link corruption with our previous work on fiscal transparency, accountability, government trust, and the size of government (Alt, Lassen and Skilling, 2002), to understand the interplay of these forces at the state government level. Second, we use the American states for comparative political examination of the effects of institutions and politics on the prevalence of corruption, in order to combine past theory and empirical work on corruption.² A value of using the states is that we can hold some legal institutions constant while also avoiding many unobservable differences in culture and institutions that exist across countries. On the other hand, there are enough cases and sufficient heterogeneity in institutions and socioeconomic conditions to allow tests of leading conjectures and explanations of corruption. We show at several points how these conjectures relate to and are influenced, even inspired, by Mancur Olson's work. Along the way, we also discuss the need to distinguish between rent seeking and corruption and collect in a systematic way several available measures of corruption in American states.

However, there is no commonly agreed-upon theoretical approach on which to base an empirical model of corruption, let alone to investigate the causes of corruption. While other classifications are possible, we take note of six different approaches to explaining corruption. Each of these has a different core of explanatory concepts and variables. They include:

- 1) Socio-demographics (a historical and structural approach);
- 2) The size of government, bureaucracy, and rent-seeking;
- 3) Exposure to competition;

² Previous studies of corruption in the states include Meier and Holbrooke (1992), who examine empirically a ten-year average from 1977–87 of the proportion of public officials convicted for violating laws against public corruption. Goel and Nelson (1998) investigate the effect of size and composition of government budgets on a similar measure of corruption, and Fisman and Gatti (2002b) extend that study to include fiscal decentralization.

- 4) Regulatory burden and intrusiveness;
- 5) Observability, transparency, and trust; and
- 6) Electoral institutions.

To start with, socio-demographic and cultural factors associated with the extent of corruption (see Rose-Ackerman, 1999; Klitgaard et al., 2000; Treisman, 2000) include urbanism (corruption thrives in cities), education (corruption is lower where the population is more educated), and income (corruption is lower in richer societies). But Hall and Jones (1999) and Kaufman, Kraay, and Zoido-Lobaton (1999) show why the relationship of corruption and income is causally ambiguous: are more corrupt countries poorer or poorer countries more corrupt, or less able to fight corruption? Treisman's thorough cross-national empirical examination shows some effects of cultural variables like religion and also finds less corruption in more open economies and countries with common law systems (read: a history of British rule). Husted (1999) examines whether more inequality produces more corruption. Meier and Holbrooke (1992) demonstrate the effects of average education and urban concentration on corruption in US states.

Next, as for example Olson (1982) argues, specialized interests that manifest themselves as interest groups tend to decrease efficiency as preferential treatment dissipates resources, leading to larger government and lower growth (Lambsdorff 2002; Sobel and Garrett 2002). Government intervention that requires the use of bureaucrats to make decisions also opens up possibilities for bureaucratic corruption (Shleifer and Vishny 1993; Acemoglu and Verdier 2000), though power to special interests could also show up as inefficient policies being adopted by legislatures rather than as bureaucratic corruption. In this broad public choice tradition are many empirical studies that link corruption (and the temptation to act corruptly) to the extent of public employment, salaries, and government scale (Becker and Stigler, 1974; Rose-Ackerman, 1978); to the extent of redistribution or transfers (La Porta et al 1999); and to federalism (Treisman 2000) and decentralization of government (Fisman and Gatti 2002 a,b), the latter of which relates directly to American states.

The lack of competition among interest groups that Olson (1982) attacked reflects a third, long-standing, argument. In this view competition affects corruption, since exposure to economic competition inhibits rent-seeking by firms or interest groups. Ades and Di Tella (1999), echoed in Treisman (2000), find empirically that corruption increases in the presence of rents in the form of fuel and mineral exports, trade distance, and a lack of import competition. For other recent examples, see Henderson (1999) or Paldam (2002). The equivalent political argument is that

informed, closely contested elections can “produce a world in which corruption is limited by competition” (Rose-Ackerman 1978, p. 213). Another “exposure to alternatives” argument is the effect of unbundling issues in citizen politics (Besley and Coate 2000). In the competition between politicians and citizens, unbundling relatively empowers citizens. In much the same way, the extent of competition among politicians between incumbents and entrants, argue Persson and Tabellini (2002) depends on district magnitudes (the number of candidates elected from a district) or limited monopolization of contributions (Rose-Ackerman 1999) that lower barriers to entry. In cross-sections of countries, showing how institutions that expose politicians to competition produce less corruption has often involved comparing democracies to autocracies (Montinola and Jackman 2002; a point also related to Olson 1993).

Fourth, however, in quite a different way Olson, in *Power and Prosperity*, argues that "one reason why many societies have a lot of corruption in government is that they prescribe outcomes that all or almost all private parties have an incentive to avoid" (Olson 2001, p. 107; see also Olson 1998). The context of that quotation makes clear that Olson is thinking (projecting our way of thinking onto him) of a predictive regression with corruption on the left hand side and a variable called "extent of regulation" on the right. He says "regulation that is market contrary must leave all or almost all parties with an incentive to evade the law" (same page) and that is right below a discussion of governments setting quantities and prices. Olson's argument finds some empirical support in the recent article by Djankov et al. (2002), who show that a greater number of procedures, official time, and official cost that a start-up firm must bear before it can operate legally is associated with higher levels of corruption (see also Kaufman and Wei 1999). Knack (2002) discusses the quality of US state public management and government in ways that is similar to this approach.

Institutions feature surprisingly little in the analysis of corruption, even though institutions are widely regarded as a key element in structuring incentives and information transmission to agents in the political and economic arena. One connection between corruption and institutions -- the fifth approach in this review -- lies in (lack of) transparency. Transparent procedures foster coordination and durable self-enforcing collective institutions (Ostrom 1990) and lend credibility, improving performance of the "stationary bandit" (Olson 1993). In the same way, a free press (Brunetti and Weder 2003) or unbridgeable media (Besley and Prat 2001) inhibits corruption, resulting in increased trustworthiness of government (LaPorta et al 1997). Budget institutions with higher transparency have also been shown to increase trust and approval of

government in the US states (Alt, Lassen, and Skilling 2002). The effects of transparency are also causally ambiguous: transparency might increase the detection of corrupt acts, or reduce corruption when the expectation of being observed in corrupt acts is sufficiently internalized. On the other hand, since Alt, Lassen, and Skilling (2002) show that transparency increases the scale of government, it could also increase temptation in line with the argument in (2) above and thus indirectly increase corruption.

The final approach we consider, also explicit about institutions affect corruption, is an agency-theoretic model (Persson, Tabellini and Trebbi 2001). They predict and empirically demonstrate significant effects of electoral institutions such as proportional vs. majoritarian systems, district magnitude, and list voting on the scale and distribution of rents and favors and thus the prevalence of corruption, in a cross-country setting. Large districts inhibit while proportional representation increases rent-seeking and thus corruption. Persson and Tabellini (2002) also deal with presidentialism, which they associate with less corruption.

We build on this political agency theory to formulate new conjectures about the effect of institutions on the prevalence of political corruption in American states. In the empirical part of the project, a significant goal is also to design cross-state analyses including control variables that reflect and relate to findings from each of the other five approaches reviewed above. On the whole, as we describe below, we are able to do this. Indeed, to our knowledge, ours is the first study to relate corruption in US states to measures reflecting the last three, and maybe the last four approaches. Moreover, the approaches are not mutually exclusive, and interestingly we find some evidence that supports all of them. The next section defines corruption and raises some issues about models of political rents, rent seeking and corruption in the context of political agency models. Section three presents our theory and hypotheses, section four our empirical work, and section five discusses the results.

2. Defining corruption

Corruption is not a new phenomenon, but has existed as long as government. Indeed, Brooks (1909) claimed that “in the whole vocabulary of politics it would be difficult to point out any single term that is more frequently employed than the word ‘corruption.’ ” However, not only is there no common theoretical approach to modeling corruption, but also there exists no common, agreed upon, definition of corruption. We need to clarify first exactly what we mean by corruption, and how we see the mapping from theoretical models to empirical analysis of corruption.

In this paper, we follow Treisman (2000) in defining corruption as *the misuse of public office for private gains*. This has some important implications. Implicit behind many of the models and approaches above is a distinction between a *political rents* approach (as in Persson, Tabellini and Trebbi, 2001) and a *compensation* approach (for instance, Ades and di Tella, 1999). A political rents approach, built on models of political agency and focused on political agents, asks how the political system and political institutions affect the prevalence of political corruption, based on models of political rents, or rent-seeking. This is distinct from a compensation approach that considers the relation between government and the bureaucracy, and the factors that affect the remuneration of bureaucrats. Thus, it concerns bureaucratic or administrative corruption, say of tax collectors and regulatory agencies, rather than corruption of political officials (political corruption).

The three studies mentioned in the previous paragraph focus their empirical work on cross-national differences in subjective measures of overall corruption, which (by definition) includes both bureaucratic and political corruption. However, relating their models to empirical data entails two (implicit) assumptions. First, bureaucratic corruption must be positively correlated with political corruption. This assumption is at least partly validated empirically (on cross-national data) by the high correlation between perceptions of corruption by politicians and public administrators in a Gallup International Survey reported in Lambsdorff (2000).

The other assumption is that rent-seeking by politicians must be positively correlated with political corruption. This assumption requires some additional considerations. A number of both theoretical and empirical papers in the economics literature take as their starting point models of political rents. It is not clear, however, that such rents are illegal (i.e. corruption) rather than legal (rent-seeking). For example, when Persson, Tabellini and Trebbi (2001) review the predictions of political agency literature they build on Ferejohn (1986) and Persson, Roland and Tabellini (1997) regarding the effects of institutions on the level of political rents. However, when testing the model empirically they measure this rent extraction with a number of common corruption indices.

However, this fails to distinguish ordinary special interest politics (what political scientists consider the *use* of office) from political corruption (the *misuse* of office). Special interest politics is, within limits, legal and part of the political process, as are campaign contributions, while corruption is illegal.³ Often, special interest politics, or the use of office more generally, has to do with broad categories; for example, that certain favors are granted to an industry, but that firms

³ The line of demarcation is often unclear. For example, Stigler (1971) considers regulators enacting regulation with the sole purpose of receiving contributions or bribes from firms; in later literature this is considered rent-seeking. See also Lambsdorff (2002).

within the industry are treated equally. Corruption, on the other hand, typically has to do with special treatment of particular firms, or individuals. Furthermore, Grossman and Helpman (2001, pp. 225-6) distinguishes corruption from special interest politics by noting that while the former involves an *explicit* quid pro quo, the latter is characterized by a tacit understanding between special interest groups and politicians that campaign contributions are allocated to politicians sympathetic to the groups' causes.

Theoretically, then, we can distinguish political rent seeking from corruption. However, it is not obvious how to do this empirically. Also it is not clear that the correlation between a legal and an illegal activity (rent-seeking and corruption) would be very strong, or even positive, in contrast to the likely correlation between two illegal acts (two types of corruption). In the empirical analysis below, we include various measures of interest group activity as a potential determinant of corruption, but perhaps interest group activity should be thought of independently from corruption. Ideally, if a measure of rent-seeking could be obtained, it would be possible to compare the extent of rent-seeking with perceived corruption levels. This would enable empirical validation of the implicit assumption in Persson, Tabellini and Trebbi (2001) that political rent-seeking and corruption are positively correlated.⁴ Below, we follow Persson, Tabellini and Trebbi (2001) in employing political agency models to suggest testable hypotheses about the effects of institutions and political variables on perceived levels of corruption, so readers should keep in mind this warning about the difference between model and data.

3. Theory and Related Literature

How do institutions and other characteristics of the political system influence the incentives for rent-seeking and corruption by political officials? We answer these questions within a model of political agency. As Barro (1973) pointed out, voters and politicians are engaged in a principal-agent relationship. Voters, the principals, choose a politician, the agent, who in turn rules the principals. The premise of such agency models is that interests of voters and politicians are not perfectly aligned, so the authority given to politicians creates scope for actions that voters dislike.

We build on a generic model of political agency, in the tradition of Ferejohn (1986) or Persson, Roland and Tabellini (1997). To capture the idea that voters and politicians have conflicting interests, we simply assume that voters pay taxes to finance public goods provision by the

⁴ Sobel and Garrett (2002) seek to measure the extent of rent-seeking by the difference in industry structure between state capital areas and non-capital areas; this could in principle be included as a measure of rent seeking; we leave this for future research.

politician, and that the politician extracts rents from the tax revenue collected leaving less funds for public goods. Hence, voter utility is decreasing in the amount of rents extracted.

The politician's objective is to maximize the sum of current and future rents. In reduced form, the preferences of the incumbent politician can be written as

$$U^P(r) = u(r) + p(r, \chi) \delta V^P$$

where U^P is the politician's expected utility. This depends positively both on current rents, r , as well as on expected future rents, $p(r, \chi) \delta V^P$, where $p(r, \chi)$ is the probability of being reelected or reappointed and δV^P is the politician's discounted continuation value, reflecting expected future utility if in office. A crucial assumption of the political agency literature is that the probability of being reelected depends negatively on the amount of rents extracted. The variable χ captures factors that influence or indicate the possibility of holding politicians accountable for the rent extraction, such as barriers to entry into politics and the resulting level of political competition.

The intuition of the model is as follows. Politicians enjoy utility from rents, at the expense of voters. Voters, in turn, respond by conditioning their votes on the amount of rents extracted. If the current level of rents is deemed 'too high' by voters, they vote the incumbent politician out of office. The simple trade-off facing incumbent politicians, then, is that more rents now decreases the probability of being in office in the next period. From the politician's point of view, the optimal level of rents balances this trade-off, so that the politician extracts the level of rents that makes voters just indifferent about reelection.

Indeed, a central figure in the political agency literature is the retrospective voter who conditions the vote on the observed outcome of a policy process in which there is asymmetric information. The key focus of the literature has been how institutions and information interact to affect voters' possibilities for holding politicians accountable for their rent extraction, since this is a major influence on the incentives faced by politicians. When institutions differ over political jurisdictions we should expect to see differences in the extent of rent-seeking and corruption across these jurisdictions. Therefore, we next derive hypotheses about the effect of different institutions on the level of rent-seeking and corruption. Most of these results can be rationalized from the simple reduced-form above, though we build on ideas formulated in slightly differing models.

Myerson (1993) characterizes the possibilities for voting corrupt politicians out of office under alternative electoral regimes and finds that holding politicians accountable for corrupt behavior is more difficult, the harder it is for voters to find good political substitutes. Myerson's

analysis of proportional vs. plurality voting cannot be applied directly to the case of American states, but the logic extends to other factors determining the scope for political accountability.⁵ For example, the extant degree of political competition suggests how difficult it is to vote an incumbent out of office. If political competition is low, it is possible for politicians to increase rents without getting thrown out of office (see, for example, Lassen, 2000).

While the degree of political competition is often used as an independent variable on its own, it is arguably an endogenous outcome of political institutions. In particular, institutions governing who is selected to run for office can affect the menu of choices available to voters. A key feature of candidate selection is the primary process, which varies considerably across states. In *closed* primaries, voters have to declare a party affiliation some time before the primary, whereas in *open* primaries, voters can participate without such a declaration. As noted by Gerber and Morton (1998), closed primaries increase the influence of party elites. This, we argue, reduces the scope for popular accountability that, in turn, makes it possible for incumbents to increase corruption without getting voted out of office.

Similarly, the level of political competition can be affected by campaign finance restrictions. Incumbents generally have fund raising advantages over opponents (Alexander, 1991) and, hence, allowing for unlimited campaign expenditures can make it more difficult for opponents to challenge incumbents. Thus, we would expect restrictions on campaign expenditures to be associated with lower barrier to entry and, therefore, lower levels of corruption.

Above, we argued that if the incumbent was ‘too sure’ of continuing in office, corruption would be high. The converse can also be true. If the incumbent is almost certain *not* to have a next period, for example due to term limits (in which case $p = 0$ regardless of r), nothing is lost in terms of reelection possibilities by increasing rents, or not combating corruption. Besley and Case (1995) show that economic policy choices by lame duck governors -- governors who cannot run next time due to term limits - are different from those who have a reputation to sustain.⁶ In particular, lame duck governors are associated with larger governments and smaller reactions to

⁵ See Persson, Tabellini and Trebbi (2001) for an analysis of other barriers of entry into politics in a cross-national context. However, note that when their model is tested in a cross-section of countries, the relationships among presidentialism, plurality, and district size are subtle, but all US states are “presidential”, all have plurality systems, and none have list voting. That leaves district size that in this model measures barriers to candidate entry. While the states generally elect one candidate per district, as we shall see below they vary in other ways that reflect barriers to candidate entry: the structure of primary elections and limitations on campaign contributions, for example.

⁶ In a recent update of their previous work, Besley and Case (2002), this effect is somewhat weaker. Of course, incumbents can have ambitions beyond their current office, and this could constrain their rent-seeking.

natural disasters. The same reasoning applies in our context. Governors and legislators who are not up for reelection care less, other things equal, about electoral sanctions due to corruption.⁷

Finally, institutions reducing the dimensionality of the policy space improve voters' possibilities for holding politicians accountable for their performance, leading to less rents and corruption. Ferejohn (1986, 1999) observed that achieving accountability is harder in a multidimensional policy space, as different voters would use their one vote on performance in different policy dimensions, destroying the coordination of voters necessary for performance voting to be effective. Besley and Coate (2000) argue that representative democracy "bundles" issues, so policy outcomes on non-salient issues may diverge far from the wishes of a majority of voters (see also Dahl, 1956), since people have only one vote. The role of initiatives is to permit an "unbundling" of issues, forcing a closer relationship between voter preferences and policy outcomes on these issues. Other things equal, separating out a number of issues to be voted on through initiatives (or by referendum) effectively "frees" the party vote to be used for other things like retrospective economic voting, disciplining the incumbent's rent-seeking (Ferejohn, 1986; Persson, Roland and Tabellini, 1997),⁸ so the possibility of voter initiatives, other things equal, should increase accountability while decreasing rents.

Summing up, straight from a generic political agency model, we expect that open primaries, some campaign finance restrictions, and electoral competition more generally, as well as provisions for voter initiatives⁹ should decrease corruption, while the presence of term limits should increase corruption. Other predictions that can be related to agency models include the effects of transparent budget procedures, but we saw above that the causal effects in this case were ambiguous.

4. Data

In the cross-country literature (for example Mauro 1995; Ades and di Tella 1999; Treisman 2000), corruption is measured by subjective indices or by combinations of such indices. International for-profit consultancy firms, such as Political Risk Services and the Economist Intelligence Unit, produce the subjective indices. These are then used, for example, by Transparency International, a

⁷ Peters and Welch (1980) report that congressional candidates typically lose around 6-11 % of votes if they are found to be corrupt, which, however, seldom is enough to make them lose the election.

⁸ Direct democracy is often used where policy issues are value-based and cross party lines (see Matsusaka, 1992).

⁹ Feldman (1998) suggests a model in which voter initiatives provide interest groups with an outside option in their bargaining vis-à-vis legislators. Essentially, Feldman argues that introducing voter initiatives implies no change in the policy adopted from an assumption of efficient bargaining. However, it leads to lower campaign contributions, higher rents to interest groups and less rents to politicians. Observationally, we cannot distinguish the agency explanation from the bargaining-with-interest-groups one.

German-based NGO, for estimation of their compound index, the widely used Corruption Perceptions Index.

In the US, Boylan and Long (2002) provide similar subjective assessments. They conducted a survey of state house reporters' perception of public corruption in their state in 1998. State house reporters were asked to rate their state in terms of level of corruption of all government employees (including elected officials, political appointees, and civil servants), on a scale from 1 to 7 (least corrupt to most corrupt). The average of "local" reporters' opinions for each state is used as the variable measuring corruption, and is the dependent variable in our research. The three most corrupt states, according to this measure, are Rhode Island, Louisiana, and New Mexico (so there is some face validity here), while the three least corrupt are Colorado, North Dakota and South Dakota. As for some additional data, the complete list of sources and detail on coding is given in the appendix.

As an alternative to survey data, prosecution data from the criminal justice system exists. In fact, past empirical literature on corruption in the US states has been based on federal prosecutions and the number of public officials convicted. Meier and Holbrooke (1992) and Goel and Nelson (1998) use the proportion of public officials convicted for "abuse of public trust" (the ratio of officials convicted to the number of public officials). The correlation between the Meier-Holbrooke measure (which was an average over 1977-87) and the results of the Boylan-Long survey is high and positive at 0.64 ($p = .000$). However, as Boylan and Long (2002) point out, while federal prosecution data does provide valuable information about corruption by state, the number of prosecutions is a function not only of the level of corruption, but also of the priority, or amount of effort devoted to prosecution of public officials, which also varies by state. The number of public officials convicted also includes convictions unrelated to corruption. More recent measures,¹⁰ though not directly comparable, report the number of federal defendants, by state, on bribery and political corruption charges, but these suffer from similar problems with respect to state level effort as the Meier-Holbrooke measure. For these reasons we concentrate on the survey data, rather than use the number of prosecutions as a proxy for the level of corruption.

¹⁰ The newer data are available through the U.S. Department of Justice website. Boylan and Long (2002) show that the corruption survey variable we employ here predicts the number of federal corruption prosecutions, even after allowing for the effects of state level prosecutions and variations in effort devoted to prosecuting corruption.

5. Empirical analysis

Empirical Specification

Estimating models of corruption is not without problems. Treisman (2000) notes the large number of potential explanatory variables, often correlated with each other, as well as problems arising from potential endogeneity of explanatory variables. Our focus on American states allows us to keep fixed a number of factors that are often controlled – or left unaccounted – for in cross-national studies. Nevertheless, the number of hypotheses about institutional effects on the prevalence of corruption set out in the theoretical section above is high. Including few explanatory variables at a time risks omitted variable bias, but testing all hypotheses in one specification makes it problematic to distinguish between them if the data does not contain sufficient variation (Treisman, 2000).

Similarly, while we consider theoretically only the causes of corruption, the consequences of corruption have also been widely studied and, indeed, are part of the rationale for examining the causes in the first place. For example, Mauro (1995) reports a negative relationship between growth and corruption, which in our case could mean that higher levels of per capita income could be a consequence, rather than a cause, of lower corruption. Empirically, the existence of a causal link from corruption to some of our explanatory variables can also bias the results. We touch upon the issue when discussing the robustness of our empirical results below.

Our approach is to start out with a base regression, including four core variables and then add variables one-by-one. Thereafter, we consider a larger regression, to see which effects hold up when all hypotheses are accounted for simultaneously. The four core variables capture the four commonly made assertions about the prevalence of corruption in the historical-structural approach (Rose-Ackerman 1999; Klitgaard et al. 2000; Treisman 2000) that (i) corruption thrives in cities; (ii) corruption is lower in richer societies; (iii) corruption is lower when the population is more educated; (iv) corruption increases with the size of the public budget. In the states we measure these with the share of state population in metropolitan areas, state real income per capita, the share of population with a high school diploma or better, and the size of government measured as general tax revenue in real per capita terms. The regressions include forty-five states, excluding Alaska and Hawaii as these are outliers in many dimensions of the data, and New Hampshire, New Jersey and Massachusetts due to missing data on corruption. We estimate the model by OLS with robust standard errors.

Main results

Table 1 shows the result of the core regression of state house reporters' perception of corruption on the four variables mentioned above. The four core variables together explain 57 percent of the variation in corruption, and they are all significant at the 95 or 99 percent level with the expected signs.

< Table 1 about here >

The finding that larger governments are associated with higher perceived corruption parallels that of Goel and Nelson (1998), who find that high-spending governments are associated with more convictions per government employee, controlling for resources spent on law enforcement.¹¹ To get an idea of the magnitude of the estimated effects, a 10 percentage-point increase in the share of the population with high school diploma, which is about half the difference between the minimum and maximum values observed, decreases corruption perceptions almost by one standard deviation. Similarly, increasing real government revenue per capita by 900 dollars (three standard deviations) increases perceived corruption by, roughly, one standard deviation.

We now turn to testing the institutional hypotheses derived above, as well as a number of the alternatives presented in the introduction. Table 2 shows the empirical results. The table reports separate regressions, such that each row adds an additional control variable (or, in some cases, a number of variables) to the core regression, the results of which are always robust to the inclusion of these additional variables.¹² Many interesting results emerge. First, we look at the predictions from the simple agency model. Regression (1) examines whether statutory gubernatorial term limits affect corruption. The coefficient on term limits has the expected sign, suggesting that statutory term limits tend to increase corruption, but with a p-value of .20 it is not statistically significant. Similarly, we get the expected (negative) sign on political competition, measured by Holbrooke and van Dunk's (1993) district level competition variable (regression (2)), but this is far from significant. Note, however, that both the term limits indicator variable as well as the measure of political competition are strongly correlated with the education variable (the percent of the population with high school diploma) so that they are in fact significant when the education variable is omitted from the estimating equation.

< Table 2 about here >

¹¹ Further, our finding is independent of various ways to measure taxes and spending.

¹² Throughout, the results are robust to the inclusion of an indicator variable for Southern states. While often included in empirical work on state fiscal policy, it is never significant in our regressions.

Regression (3) includes an indicator for open primaries. We hypothesized above that open primaries should be associated with lower barriers to entry and, hence, greater scope for holding politicians accountable. The results suggest that this may be the case: open primaries are empirically associated with lower corruption, significant at the 90 % level. This echoes the findings of Persson, Tabellini and Trebbi (2001) on a cross-country sample that lower barriers to entry in politics are associated with lower corruption.

Regressions (4) to (6) examine the effect of voter initiatives. Regression (5) finds that the possibility of initiatives decreases corruption, but that this effect is smaller, the higher is the percentage of signatures required for an initiative. Both of these are significant at the 95 percent level. Regression (6) looks instead at the average use of initiatives per cycle since year of adoption, and finds similar results. Finally, following Hug (2001), regression (7) splits initiatives into two categories, including direct initiatives (that can be put directly on ballot), and indirect initiatives (that require approval of the legislature). We find that it is only direct initiatives that matter; the coefficients are significant at the 99 % level. This is consistent with our conjecture that voter initiatives increase the scope for political accountability by ‘unbundling’ the voting decision.

Finally, we consider the effects of campaign finance restrictions and fiscal transparency. Campaign expenditures restriction, by and on behalf of a candidate, are associated significantly with lower corruption. One possible reason could, as noted above, be that campaign expenditure restrictions counter the incumbents’ advantage in fund raising and, thus, serve to level the playing field by lowering entry barriers for opponents. Conversely, fiscal transparency (see Alt, Lassen and Skilling, 2002) is associated with *higher* levels of corruption. Empirically, this means that increased transparency increases detection of corrupt acts, at least more than internalizing the expectation of more detection leads politicians to avoid corrupt acts.¹³ Also, the direction of causation could be from corruption to fiscal transparency. In more corrupt states, there might be higher pressure, at least from voters, for more transparent budget institutions.

Having examined the hypotheses from the agency model, which represent approaches five and six identified in the introduction, we turn to the alternative approaches. We begin by looking at the second approach, which has to do with rent-seeking and the size of government. As noted above, following Olson (1982) specialized interests, manifested as interest groups, will tend to decrease efficiency. Gray and Lowery (1996) provide the total number of interest groups and the concentration of interest groups in particular policy areas, calculated as a Herfindahl index. We

¹³ A smaller, indirect effect of transparency, is that by increasing government scale (Alt, Lassen, and Skilling 2002) it also increases the temptation to be corrupt.

adjust the number of interest groups for state size by regressing it on state population and using the residuals from this regression, capturing deviations from the trend, as independent variables. As can be seen from regressions (8) and (9), we find no significant effects of the interest group variables, though both the number and the degree of concentration of interest groups tend to increase corruption. However, we return to this issue below.

Similarly, we find no significant effects of the share of federal transfers to total state revenue. Federal transfers appear with a negative sign, in contrast to Fisman and Gatti (2002b) who found positive and significant effects. One plausible reason for this discrepancy could be their use of prosecution data, rather than the survey employed here. Further, we find no significant effects of decentralization of state revenues (regression 11), measured by local government revenues relative to total state and local government revenues. Nevertheless, the coefficient has the expected sign, and thus partly confirms Fisman and Gatti's (2002a) cross-country results. Finally, we include a measure of relative wages in the public sector. A recurring theme in the development economics literature on corruption is that efficiency wages will tend to reduce corruption, as higher-than-average public sector wages will make being fired due to corruption more costly. Regression (12) reports a negative and significant coefficient on the average state government wage, measured relative to per capita state income. Thus, we find fairly strong evidence, controlling for income level and public sector size, that relative public sector wages matter: where average wages are higher, corruption is lower.

Does excessive regulation cause corruption? Stigler (1971) suggested that often the very reason for implementing regulation was the possibility of extracting bribes from firms and interest groups. In an impressive study, Djankov et al. (2002) find on a cross-country sample that various measures of entry regulation are positively correlated with levels of corruption. To the best of our knowledge, however, no comparable measure exists for American states. As an imperfect proxy, we include the so-called Small Business Survival Index (2002), an index constructed every year by the Small Business Survival Committee (2002). The index includes taxation, health and worker regulations and a number of other factors of influence to small business, and is organized such that higher values of the index reflects more regulation and higher taxes. We find the index to be signed as expected, but nowhere near significant. As an alternative, we include the number of public employees per 100 residents to capture the idea that more regulation, other things equal, will require a larger number of government employees to administer it. We find the coefficient to be

positive and strongly significant. But given the size of the “wage bill” in government consumption, it is not clear whether we are measuring regulation or the effect of size of government.

Finally, we look at the effects of trust and transparency. Alt, Lassen and Skilling (2002) show that higher budget transparency increases government size and public approval of government. However, as noted above, in this context budget transparency is associated, though not significantly, with a *higher* degree of corruption. As noted above, one possible reason could be that more transparency can increase the size of government (Ferejohn, 1999) that in turn can increase the temptation for corruption. Alternatively, we can look at other proxies for good governance. As argued by Knack (2002), social capital can influence the quality of government. In his empirical analysis, Knack uses the percent of the population reporting Scandinavian ancestry as an instrument for measures of social capital. In regression (16) we include it directly, and find that in states with more people reporting Scandinavian ancestry corruption is significantly lower and the fit of the regression improves substantially. Finally, we include a measure of the strength of the Progressive movement, which had combating corruption as a central part of their agenda. We include an indicator variable for states that have had a Progressive governor and find that these states generally have lower corruption.

In sum, we find that many predictions, both from the agency theoretic framework and from other approaches, are not rejected by the data. However, our testing of the models has so far been partial, in the sense that potential explanatory variables have been included one-by-one (while controlling for the core regression). To remedy this, we next include the explanatory variables simultaneously.

Additional results

Based on the results reported in Table 2, we now include a larger number of explanatory variables. Table 3 reports the results. We first include variables from the political agency framework that were significant in Table 2 above: direct initiatives, campaign expenditure restrictions and open primaries. The results, presented in the first column, roughly correspond to those obtained above. In particular, direct initiatives, with a correction for thresholds, campaign expenditure restrictions and open primaries continue to be significantly associated with lower corruption, though income per capita ceases to be significant. The next column reports results with the full set of political agency controls, i.e. including political competition and term limits in addition to those above. As before,

neither of the additional variables are significant, and in this case the effect of open primaries is slightly less precisely estimated.¹⁴

< Table 3 about here >

The third column reports the results when the additional significant explanatory variables from Table 2 are added to the regression of column one, thus including all significant variables from Table 2 in one regression. Most of the results hold up, while some are slightly weaker than when included on their own. In particular, the effects of open primaries, relative public sector salaries, number of public employees and Scandinavian ancestry are less precisely estimated, though no results seem to have been altered fundamentally. Furthermore, the final result (fourth column), shows that if we add to this regression the number of interest groups corrected for size and the Small Business Survival Indicator, these variables are actually strongly significant with the expected positive signs, and at the same time this inclusion reestablishes the significance of both public sector wages and Scandinavian ancestry. We conclude that correlations among the explanatory variables as well as bias from omitting relevant explanatory variables create some problems of inference at the margin, but the broad contours of the results are clear. The variables, derived from agency theory, that reflect ease of political entry and exposure of incumbents to competition (initiatives and their thresholds, campaign expenditure restrictions, and possibly open primaries) reveal their expected effects. This is true even after we control for structural variables (urbanism, education, less clearly income), the public choice approach (government scale, relative public sector salaries, number of interest groups adjusted for size), and regulatory burden (the small business index).

An issue often raised – but only rarely addressed – in empirical analyses of corruption is the problem of reverse causation. For example, it is not clear *a priori* whether higher income ‘buys’ better institutions including lower corruption, the cross-country literature on political institutions argues, or whether it is corruption that is the cause of low income levels and growth. To find suitable instruments is often difficult, as is instrumenting all potentially endogenous variables. However, to explore the problem of potential endogeneity, we instrument our income variable with the level of income in 1950. These are highly correlated, 1950 income explaining more than 50 per cent of the variation in current income. In results like those in Table 3 but not separately reported, we find that including an instrument this way makes income insignificant, both in the base case

¹⁴ As noted above, part of the explanation for the insignificance of competition and term limits is collinearity with the education variable. If the education variable is left out, both competition and term limits are significant, with no other changes.

regression as well as in the subsequent results presented above. It does not, however, have any impact on the estimates and levels of significance for the other variables. That the income variable is not robust to employing an instrumental variables approach is perhaps less surprising given the relative lack of robustness of that variable in the comprehensive regressions presented in Table 3. We leave exploring other consequences of endogeneity for future work.

5. Discussion and Concluding Remarks

First and foremost, this paper makes the point that political institutions have a role in explaining the prevalence of political corruption. The inhibiting effects of having a limited number of observations and only a single cross-sectional measure of corruption as well as interrelationships among the explanatory variables, make sweeping claims about results inappropriate. But it appears clear in the data that in the US states, a set of democracies where the rule of law is relatively well established and the confounding effects of differing electoral systems and regimes are absent, institutional variables relating to the openness of the political system inhibit corruption. That is, to the extent to which aspiring politicians can enter and gain financial backing, to which voters can focus their votes on policies and thereby hold incumbent politicians accountable for policy outcomes and find substitutes for them if dissatisfied with those outcomes, corruption as a general problem of agency is reduced. Many of these institutional effects can be estimated in the presence of controls for variables representing other approaches. We do not intend to dismiss the historical-structural emphasis on at least urban context and education, as well as the public choice focus on rent-seeking, government scale and salaries, and the inefficient activities of interest groups. Indeed, our results support those claims, yet the effects of institutions show up independently. In fact, some effects are clear only in the presence of a full set of controls, so it is important to think of the choice among the six approaches we review as not necessarily either-or.

Looking at the corruption results we present is another lens through which to admire Mancur Olson's enormous contribution to the social sciences. Olson wrote about the pervasive dangers of having interest groups that should be competing instead be embedded in the political process. He wrote about excessive regulation as a threat to entry and innovation as well as an opportunity for excessive rent-seeking. And he was concerned about promoting competition among politicians and with the circumstances in which newly-formed governments could gain credibility with their populations. Since his work is more widely cited throughout political science than any other recent theorist, it is no surprise that an empirical analysis of corruption controls for many

variables whose inclusion can be traced back to an argument of Olson's. At the same time we have to be clear that though he certainly was interested in the effect of institutions on the performance of social, political, and economic systems, Olson was less concerned to analyze institutions as creations of strategic individuals. Thus the insights that come from a political agency approach – and another “conclusions” of this paper is that such an approach is valuable for studying corruption – lie largely outside his work.

Nor does our work stop here. We believe that the agency approach and the variables it specifies, especially those that relate to institutions creating conditions for more open electoral competition, will stand up to further empirical scrutiny. But other approaches, and other institutional effects, are sure to be found. To take a simple example that relates to where our own work will go next, among the many variables that did not appear significant as we worked our way through what is now Table 2 were divided government (different parties controlling different branches of state government), which seemed to be weakly associated with lower corruption, and having elected (as opposed to appointed) state supreme court judges, that also tended to reduce corruption, but not significantly. However, we find that including also an interaction term of elected judges and divided government makes the other two have linear terms with strongly significant negative signs, while the interaction is significantly positive. Therefore, one can think of elected judges and divided government as substitutes. This means that the effect of elected judges in reducing corruption is smaller where there is divided government. Or, put differently, elected judges are more important where there is unified government, that is, when government “cannot control itself” because the checking effect of another party sharing power, with incentives to disclose (at least unshared) corruption, is absent. So this paper will be the first, but by no means the last, on agency models and institutional effects.

References

- Acemoglu, Daron and Thierry Verdier. 2000. "The Choice between Market Failures and Corruption." *American Economic Review* 90, 194-211.
- Ades, A. and R. Di Tella (1997), "National Champions and Corruption: Some Unpleasant Interventionist Arithmetic", *Economic Journal*, CVII, 1023-1042.
- _____. 1999. "Rents, Competition, and Corruption." *American Economic Review* 89, 982-993.
- Alexander, Herbert. 1991. *Reform and Reality: The Financing of State and Local Campaigns*. New York: Twentieth Century Fund.
- Alt, James E., David Dreyer Lassen and David Skilling. 2002. "Fiscal Transparency, Gubernatorial Popularity, and the Scale of Government: Evidence from the States." *State Politics and Policy Quarterly* 2.
- Barro, Robert J. 1973. "The Control of Politicians." *Public Choice* 14, 19-42.
- Becker, Gary S. and George Stigler. 1974. "Law Enforcement, Malfeasance, and Compensation of Enforcers." *Journal of Legal Studies* 1.
- Besley, Timothy and Anne Case. 1995. "Does Political Accountability Affect Economic Policy Choices? Evidence from Gubernatorial Term-Limits." *Quarterly Journal of Economics* 110, 769-98.
- _____. 2002. "Political Institutions and Policy Choices: Evidence from the United States." *Journal of Economic Literature*, forthcoming.
- Besley, Timothy and Stephen Coate. 2000. "Issue Unbundling via Citizens' Initiatives." NBER Working Paper 8036, Cambridge, MA, December.
- Besley, Timothy and Andrea Prat. 2001. "Handcuffs for the Grabbing Hand: Media Capture and Government Accountability." Manuscript, LSE, November.
- Boylan, Richard T. and Cheryl X. Long. 2002. "A Survey of State House Reporters' Perception of Public Corruption." Manuscript, Washington University, April.
- Brooks, Robert C. 1909. "The Nature of Political Corruption." *Political Science Quarterly* 24, 1-22.
- Brunetti, A. and B. Weder. 2003. "A Free Press is Bad News for Corruption." *Journal of Public Economics*, forthcoming.
- Dahl, Robert A. 1956. *A Preface to Modern Democratic Theory*. Chicago: University of Chicago Press.

- Djankov, Simeon, Rafael La Porta, Florencio Lopez-de-Silanes and Andrei Shleifer. 2002. "The Regulation of Entry." *Quarterly Journal of Economics* 117, 1-37.
- Feldmann, Sven E. 1999. "Bargaining for Legislation with Voter Initiatives." Manuscript, Harris School of Public Policy, University of Chicago.
- Ferejohn, John. 1986. "Incumbent Performance and Electoral Control." *Public Choice* 50, 5-26.
- _____. 1999. "Accountability and Authority: Towards a Model of Political Accountability", in Przeworski, Adam, Bernard Manin and Susan C. Stokes (eds.) *Democracy, Accountability, and Representation*. New York: Cambridge University Press, 131-153.
- Fisman, R. and R. Gatti. 2002a. "Decentralization and Corruption: Evidence Across Countries." *Journal of Public Economics* 83, 325-345.
- _____. 2002b. "Decentralization and Corruption: Evidence from U.S. Federal Transfer Programs." *Public Choice* 113, 25-35.
- Gerber, Elisabeth "Legislative Response to the Threat of Popular Initiatives." *American Journal of Political Science* 40, 99-128.
- Gerber, Elisabeth R. and Rebecca Morton. "Primary Election Systems and Representation." *Journal of Law, Economics and Organization* 14, 304-324.
- Goel, Rajeev K. and Michael A. Nelson. 1998. "Corruption and Government Size: A Disaggregated Analysis." *Public Choice* 97(1-2), 107-120.
- Gray, Virginia and David Lowery. 1996. *The Population Ecology of Interest Representation: Lobbying Communities in the American States*. Ann Arbor: University of Michigan Press.
- Grossman, Gene and Elhanan Helpman. 2001. *Special Interest Politics*. MIT Press.
- Hall, R. and C. Jones. 1999. "Why do Some Countries Produce so much more Output per Worker than Others". *Quarterly Journal of Economics* 114, 83-116.
- Henderson, D.R. 1999. "Power Corrupts - Editorial Comment", *The Wall Street Journal*, April 19.
- Holbrook and van Dunk. 1993. "Electoral Competition in the American States." *American Political Science Review* 87, 955-962.
- Hug, Simon. 2001. "Direct and Indirect Initiatives." Presented to the 97th Annual Meeting of the American Political Science Association, San Francisco, August 2001.
- Husted, B. 1999. "Wealth, Culture, and Corruption." *Journal of International Business Studies* 30, 339-60.
- Johnson, S., D. Kaufmann and P. Zoido-Lobaton. 1998. "Regulatory Discretion and the Unofficial Economy." *American Economic Review* 88, 387-92.

- Kaufmann, D. and S.-J. Wei. 1999. "Does 'Grease Money' Speed up the Wheels of Commerce?" *National Bureau of Economic Research Working Paper* 7093, Cambridge MA.
- Kaufmann, D., A. Kraay and P. Zoido-Lobaton. 1999. "Governance Matters." World Bank Policy Research Working Paper No. 2196, October (Washington D.C.: The World Bank).
- Klitgaard, Robert, Ronald Maclean-Abaroa and H. Lindsey Parris. 2000. *Corrupt Cities*. Washington D.C.: World Bank Institute.
- Knack, Stephen. 2002. "Social Capital and the Quality of Government: Evidence from the U.S. States." *American Journal of Political Science* 46, 772-85.
- La Porta, R., F. Lopez-De-Silanes, A. Shleifer and R.W. Vishny. 1997. "Trust in Large Organisations." *American Economic Review* 87, 333-8.
- _____. 1999. "The Quality of Government." *Journal of Law, Economics and Organization* 15, 222-79.
- Lambsdorff, J. Graf (1999), Corruption in Empirical Research - A Review. Transparency International Working Paper, November.
- _____. 2000. *Transparency International Source Book*. Goettingen.
- _____. 2002. "Corruption and rent-seeking." *Public Choice* 113, 97-125.
- Lassen, David Dreyer. 2000. "Political Accountability and the Size of Government: Theory and Cross-Country Evidence." EPRU Working Paper 00-20, University of Copenhagen, December.
- Matsusaka, John. 1992. "The Economics of Direct Legislation." *Quarterly Journal of Economics* 107, 541-71.
- Mauro, P. 1995. "Corruption and Growth", *Quarterly Journal of Economics* 110, 681-712.
- Meier, Kenneth J. and Thomas M. Holbrook. 1992. "'I Seen My Opportunities and I Took'Em:' Political Corruption in the United States." *Journal of Politics* 54, 135-155.
- Montinola, Gabriella and Robert Jackman. 2002. "Sources of Corruption: A Cross-Country Study". *British Journal of Political Science* 32 (January):147-70.
- Myerson, Roger B. 1993. "Effectiveness of Electoral Systems for Reducing Government Corruption: A Game-Theoretic Analysis." *Games and Economic Behavior* 5, 118-32.
- Olson, Mancur. 1982. *The Rise and Decline of Nations*. Yale University Press.
- _____. 1993. "Dictatorship, Democracy, and Development." *American Political Science Review* 87(3), 567-576.

- _____. 1998. "Why Poor Economic Policies Must Promote Corruption: Lessons from the East for All Countries" in Baldassarri, Paganetto and Phelps (eds.) *Institutions and Economic Organization in the Advanced Economies: The Governance Perspective*. Basingstoke: Macmillan Press.
- _____. 2001. *Power and Prosperity*. NY: Basic Books.
- Ostrom, Elinor. 1990. *Governing the Commons*. New York: Cambridge University Press.
- Paldam, M. 2002. "The Big Pattern of Corruption. Economics, Culture and the Seesaw Dynamics." *European Journal of Political Economy*.
- Persson, Torsten, Gerard Roland and Guido Tabellini. 1997. "Separation of Powers and Political Accountability." *Quarterly Journal of Economics* 112, 1163-1202.
- Persson, Torsten and Guido Tabellini. 2002. The Economic Effect of Constitutions: What do the data say? MIT Press, forthcoming.
- Persson, Torsten, Guido Tabellini and Francisco Trebbi. 2001. "Electoral Rules and Corruption." Manuscript, IIES Stockholm University, November.
- Peters, John G. and Susan Welch. 1980. "The Effects of Charges of Corruption on Voting Behavior in Congressional Elections." *American Political Science Review* 74, 697-708.
- Rose-Ackerman, Susan. 1978. *Corruption: A Study in Political Economy*. New York: Academic Press.
- _____. 1999. *Corruption and Government*. Cambridge: Cambridge University Press.
- Shleifer, Andrei and Robert W. Vishny. 1993. "Corruption." *Quarterly Journal of Economics* 108, 599-617.
- Small Business Survival Committee. 2002. *Small Business Survival Committee 2002*. <http://www.sbsc.org>. Accessed October 2002.
- Sobel, Russell S. and Thomas A. Garrett. 2002. "On the Measurement of Rent-Seeking and its Social Opportunity Cost." *Public Choice* 112, 115-36.
- Stigler, George. 1971. "The Theory of Economic Regulation." *Bell Journal of Economics and Management Science* 2, 3-21.
- Tolbert, Caroline J., Daniel H. Loewenstein and Todd Donovan. 1999. "Election Law and Rules for Using Initiatives," in Bowler, Donovan and Tolbert (eds.): *Citizens as Legislators: Direct Democracy in the United States*, Ohio State University Press.
- Treisman, Daniel. 2000. "The Determinants of Corruption." *Journal of Public Economics* 76, 399-457.

Appendix: Data sources

Variable	Source
Corruption survey	Boylan and Long (2002)
Per cent metropolitan population	http://www.census.gov
Real per capita income	Statistical Abstract of the United States
Per cent with high school diploma	http://www.census.gov
Real government revenue per capita	Statistical Abstract of the United States
Initiatives	Hug (2001) and Tolbert et al. (1999)
Term limits	Besley and Case (1995) and http://www.termlimits.org
Electoral competition	Holbrook and van Dunk (1993)
Primaries	Book of the States, various years
Campaign spending restrictions	Book of the States, various years
Fiscal transparency index	Alt, Lassen and Skilling (2002)
Per cent with Scandinavian ancestry	http://www.census.org
States with Progressive Governor	Gillespie (1993)
Average salary of state government employees relative to state personal income per capita	Statistical Abstract of the United States
Small Business Survival Index	http://www.sbsc.org
Government employees per 100	Statistical Abstract of the United States
Interest group measures	Gray and Lowery (1996), data updated at http://www.unc.edu/depts/polisci/Lowery/ Accessed October 2002.

Table 1: Core regression of corruption in American states, 1990s

	survey
metropolitan population (in %)	.0414*** (.0073)
real income per capita	-.0003** (.0001)
% of population with high school diploma	-.1012*** (.0240)
general real tax revenue per capita	.0013*** (.0004)
Constant	9.6321*** (1.4415)
Number of observations	45
R ²	.57

Note: ***, ** and * denote significance at 99 %, 95 % and 90 % levels, respectively.

Table 2: Determinants of corruption in American states

Regression		Coefficient	Robust Std. error	P-value	R ² of regression
1	Stat. gub. term limits	0,378	0,287	0,196	0,59
2	Political competition	-0,013	0,015	0,376	0,58
3	Open primaries	-0,477	0,256	0,070	0,60
4	Initiatives	-1,114	0,523	0,040	0,62
	Initiatives threshold	0,142	0,061	0,025	
5	Av. use of initiatives	-0,221	0,063	0,001	0,64
6	Direct initiatives	-1,975	0,610	0,003	
	Direct initiatives thr.	0,304	0,089	0,002	0,67
	Indirect initiatives	0,551	1,597	0,732	
	Indirect initiatives thr.	-0,094	0,145	0,520	
7	Campaign spending restrictions	-0,602	0,247	0,019	0,61
8	No. of interest groups, 1997	0,001	0,001	0,335	0,58
9	Conc. of interest groups, 1997	21,208	21,496	0,330	0,58
10	Federal revenues	-4,516	3,147	0,159	0,58
11	Decentralization of state rev.	-2,607	1,757	0,146	0,59
12	Relative gov. empl. salary	-2,002	0,649	0,004	0,62
13	Government employees	0,049	0,016	0,003	0,60
14	Small Business Survival Index	0,008	0,010	0,420	0,57
15	Fiscal transparency	0,115	0,073	0,122	0,59
16	% Scandinavian ancestry	-0,039	0,007	0,000	0,65
17	Progressive governor	-1,031	0,185	0,000	0,61

Dependent variable: State house reporters' perception of corruption, 1999

All regressions included a constant term and as control variables share of metropolitan population, real income per capita, share of population with high school diploma, and real general tax revenue per capita.

Table 3: Corruption in American states, full model

	(18)	(19)	(20)	(21)
Metropolitan population (in %)	.033*** (.006)	.033*** (.007)	.034*** (.007)	.030*** (.008)
Real income per capita	-.0001 (.0001)	-.0001 (.0001)	-.0003* (.0001)	-.0002* (.0001)
% of population with high school diploma	-.127*** (.024)	-.114*** (.029)	-.105*** (.031)	-.132*** (.031)
General real tax revenue per capita	.001*** (.000)	.001*** (.000)	.001*** (.000)	.001*** (.000)
Direct initiatives	-1.827*** (.558)	-1.787*** (.577)	-1.350* (.699)	-1.426** (.567)
Direct initiatives, threshold	.265*** (.079)	.269*** (.082)	.220** (.093)	.241*** (.076)
Campaign expenditure restrictions	-.698*** (.203)	-.671*** (.212)	-.485* (.253)	-.533** (.253)
Open primaries	-.418** (.198)	-.310 (.219)	-.295 (.208)	-.290 (.203)
Political competition		-.005 (.011)		
Term limits		.263 (.260)		
Public employees			.027* (.016)	.014 (.015)
Relative public sector salary			-1.171 (.778)	-1.490** (.625)
Population with Scandinavian ancestry (%)			-.017 (.011)	-.019* (.010)
Progressive Governor			.233 (.347)	.105 (.308)
Small Business Survival Index				.025*** (.009)
No. of interest groups, size adj.				.001** (.000)
Constant	11.062*** (1.307)	9.652*** (1.683)	12.063*** (2.282)	13.097*** (1.818)
number of observations	45	45	45	45
R ²	.74	.75	.77	.83

Note: ***, ** and * denote significance at 99 %, 95 % and 90 % levels, respectively.

Titles published in EPRU's Working Paper Series, beginning in November 1993:

2002

- 02-01 Wolfgang Eggert and Martin Kolmar: *Information Sharing, Multiple Nash Equilibria, and Asymmetric Capital-Tax Competition*
- 02-02 Carl-Johan Dalgaard and Claus Thustrup Kreiner: *Endogenous Growth: A Knife-Edge or the Razor's Edge?*
- 02-03 Marta Loi, Teresa Lloyd-Braga and Hans Jørgen Whitta-Jacobsen: *Endogenous Business Cycles and Systematic Stabilization Policy*
- 02-04 Wolfgang Eggert and Martin Kolmar: *Contests with Size Effects.*
- 02-05 Wolfgang Eggert and Laszlo Goerke, *Fiscal Policy, Economic Integration and Unemployment.*
- 02-06 Carl-Johan Dalgaard, *Idle Capital and Long-Run Productivity.*
- 02-07 Sylvester C.W. Eijffinger and Wolf Wagner, *Taxation if Capital is not Perfectly Mobile: Tax Competition versus Tax Exportation.*
- 02-08 Jesper Gregers Linnaa, *The Idiosyncrasy of Business Cycles Across EU Countries.*
- 02-09 Michael M. Hutchison and Ilan Neuberger, *How Bad Are Twins? Output Costs of Currency and Banking Crises.*
- 02-10 Rasmus Fatum and Michael M. Hutchison, *ECB Foreign Exchange Intervention and the Euro: Institutional Framework, News and Intervention.*
- 02-11 Rasmus Fatum and Michael M. Hutchison, *Is Foreign Exchange Market Intervention an Alternative to Monetary Policy? Evidence from Japan.*
- 02-12 Michael M. Hutchison and Ilan Noy, *Sudden Stops and the Mexican Wave: Currency Crises, Capital Flow Reversals and Output Loss in Emerging Markets.*
- 02-13 Henrik Jacobsen Kleven and Claus Thustrup Kreiner, *The Taxation of Married Couples in OECD Countries: A Need for Reform?*
- 02-14 Pascalis Raimondos-Møller and Alan D. Woodland, *Non-Preferential Trading Clubs.*
- 02-15 Marta Aloia, Teresa Lloyd-Braga and Hans Jørgen Whitta-Jacobsen, *Endogenous Business Cycles and Systematic Stabilization Policy.*
- 02-16 James E. Alt and David Dreyer Lassen, *The Political Economy of Institutions and Corruption in American States.*

2001

- 01-01 Henrik Jensen: *Optimal Degrees of Transparency in Monetary Policymaking*
- 01-02 Thorvaldur Gylfason and Gylfi Zoega: Natural Resources and Economic Growth: *The Role of Investment.*
- 01-03 Wilhelm Kohler: *International Fragmentation of Value-added Chains: How Does it Affect Domestic Factor Prices?*
- 01-04 Mark A. Roberts and Eric O’N. Fisher: *Funded Pensions, Labor Market Participation, and Economic Growth.*
- 01-05 Søren Bo Nielsen, Pascalis Raimondos-Møller and Guttorm Schjelderup: *Formula Apportionment and Transfer Pricing under Oligopolistic Competition.*
- 01-06 Christian Keuschnigg and Søren Bo Nielsen: *Public Policy for Venture Capital.*
- 01-07 Søren Bo Nielsen, Pascalis Raimondos-Møller, and Guttorm Schjelderup: *Tax Spillovers under Separate Accounting and Formula Apportionment.*
- 01-08 Peter Birch Sørensen: *International Tax Coordination: Regionalism versus Globalism.*
- 01-09 Michael M. Hutchison: *A Cure Worse Than the Disease? Currency Crises and the Output Costs of IMF-Supported Stabilization Programs.*
- 01-10 Rasmus Lenz and Torben Tranæs: *Job Search and Savings: Wealth Effects and Duration Dependence.*
- 01-11 Dieter Bös: *Bureaucrats and Public Procurement.*
- 01-12 Kala Krishna and Cemile Yavas: *Wage Equality in a General Equilibrium Model with Indivisibilities.*
- 01-13 Mark A. Roberts: *Funding the Transition from Pay-As-You-Go Pensions by Taxing Capital Gains on Land.*
- 01-14 Wilfred J. Ethier: *Punishments and Dispute Settlement in Trade Agreements.*
- 01-15 Peter Christoffersen, Eric Ghysels, and Norman R. Swanson: *Let’s Get “Real” about Using Economic Data.*
- 01-16 James E. Alt, David Dreyer Lassen, and David Skilling: *Fiscal Transparency, Gubernatorial Popularity, and the Scale of Government: Evidence from the States*

2000

- 00-01 Andrew Hughes Hallett and Maria Demertzis: *When Can An Independent Central Bank Offer Lower Inflation at No Cost? A Political Economy Analysis.*
- 00-02 Torben M. Andersen: *International Integration, Risk and the Welfare State.*
- 00-03 F. Gulzin Ozkan, Anne Sibert and Alan Sutherland: *Monetary Union, Entry Conditions and Economic Reform.*
- 00-04 Michael M. Hutchison: European Banking Distress and EMU: *Institutional and Macroeconomic Risks.*
- 00-05 Bertil Holmlund: *Labor Taxation in Search Equilibrium with Home Production.*
- 00-06 Knud Jørgen Munk: *Administrative Costs and the “Double Dividend”.*
- 00-07 Carl-Johan Dalgaard and Claus Thustrup Hansen: *Scale-Invariant Endogenous Growth.*
- 00-08 A. Lans Bovenberg and Ben J. Heijdra: *Environmental Abatement and Intergenerational Distribution.*
- 00-09 Jan Overgaard Olesen: *A Simple Explanation of Stock Price Behaviour in the Long Run: Evidence for Denmark.*
- 00-10 John E. Roemer, Rolf Aaberge, Ugo Colombino, Johan Fritzell, Stephen P. Jenkins, Ive Marx, Marianne Page, Evert Pommer, Javier Ruiz-Castillo, Maria Jesus San Segundo, Torben Tranæs, Gert G. Wagner, and Ignacio Zubiri: *To What Extent Do Fiscal Regimes Equalize Opportunities for Income Acquisition among Citizens?*
- 00-11 Christian Schultz and Tomas Sjöström: *Local Public Goods, Debt and Migration.*
- 00-12 Francesco Daveri: *Is Growth an Information Technology Story in Europe Too?*
- 00-13 Peter F. Christoffersen: *Dating the Turning Points of Nordic Business Cycles.*
- 00-14 Reuven Glick and Michael M. Hutchison: *Stopping “Hot Money” or Signalling Bad Policy? Capital Controls and the Onset of Currency Crises.*
- 00-15 Dan Anderberg and Carlo Perroni: *Renegotiation of Social Contracts by Majority Rule.*
- 00-16 Henrik Jacobsen Kleven: *Optimum Taxation and the Allocation of Time.*
- 00-17 Clemens Fuest, Bernd Huber and Søren Bo Nielsen: *Why Is the Corporate Tax Rate Lower than the Personal Tax Rate?*
- 00-18 Christian Keuschnigg and Søren Bo Nielsen: *Tax Policy, Venture Capital, and Entrepreneurship.*

- 00-19 Harry Huizinga and Søren Bo Nielsen: *Withholding Taxes or Information Exchange: The Taxation of International Interest Flows*.
- 00-20 David Dreyer Lassen: *Political Accountability and the Size of Government: Theory and Cross-Country Evidence*.

1999

- 99-01 Henrik Jacobsen and Peter Birch Sørensen: Labour Tax Reform, *The Good Jobs and the Bad Jobs*.
- 99-02 Ignacio Ortuno-Ortin and Christian Schultz: *Divide the Dollar, A Model of Interregional Redistributive Politics*.
- 99-03 Pekka Ilmakunnas, Vesa Kanniainen, and Uki Lammi: *Entrepreneurship, Economic Risks, and Risk-Insurance in the Welfare State*.
- 99-04 Niels Thygesen: *Evolving Ambitions in Europe's Monetary Unification*.
- 99-05 Sajal Lahiri and Pascalis Raimondos-Møller: *Lobbying by Ethnic Groups and Aid Allocation*.
- 99-06 Roel M.W.J. Beetsma and Henrik Jensen: *Structural Convergence under Reversible and Irreversible Monetary Unification*.
- 99-07 Wolfgang Mayer and Pascalis Raimondos-Møller: *The Politics of Foreign Aid*.
- 99-08 Dermot Leahy and Catia Montagna: *Temporary Social Dumping, Union Legalisation and FDI: A Note on the Strategic Use of Standards*.
- 99-09 Rasmus Fatum and Michael M. Hutchison: *Is Sterilized Foreign Exchange Intervention Effective After All? An Event Study Approach*.
- 99-10 Christian Schultz and Tomas Sjöström: *Public Debt, Property Values and Migration*.
- 99-11 Roel M.W.J. Beetsma and Henrik Jensen: *Risk Sharing and Moral Hazard with a Stability Pact*.
- 99-12 Henrik Jacobsen Kleven, Wolfram F. Richter and Peter Birch Sørensen: *Optimal Taxation with Household Production*.
- 99-13 Huw Dixon, Claus Thustrup Hansen and Henrik Jacobsen Kleven: *Dual Labour Markets and Menu Costs: Explaining the Cyclicalities of Productivity and Wage Differentials*.
- 99-14 Jim Malley and Hassan Molana: *Fiscal Policy and the Composition of Private Consumption: Some Evidence from the U.S. and Canada*.

- 99-15 Jonas Agell and Per Lundborg: *Survey Evidence on Wage Rigidity and Unemployment: Sweden in the 1990s.*
- 99-16 Satya P. Das: *North-South Trade, Capital Accumulation and Personal Distribution of Wealth and Income.*
- 99-17 Holger Bonin, Bernd Raffelhüschen and Jan Walliser: *Can Immigration Alleviate the Demographic Burden?*
- 99-18 Morten Hvidt and Søren Bo Nielsen: *Noncooperative vs. Minimum-Rate Commodity Taxation.*
- 99-19 Lisandro Abrego and Carlo Perroni: *Investment Subsidies and Time-Consistent Environmental Policy.*
- 99-20 Reuven Glick and Michael M. Hutchison: *Banking and Currency Crises: How Common Are Twins?*
- 99-21 Mark Gradstein and Moshe Justman: *Public Schooling, Social Capital and Growth.*
- 99-22 Jeremy S.S. Edwards and Alfons J. Weichenrieder: *Ownership Concentration and Share Valuation: Evidence from Germany.*
- 99-23 Henrik Jensen: *Targeting Nominal Income Growth or Inflation?*
- 99-24 Svend E. Hougaard Jensen and Thomas F. Rutherford: *Distributional Effects of Fiscal Consolidation.*

1998

- 98-01 Pascalis Raimondos-Møller and Kimberley A. Scharf: *The Optimal Design of Transfer Pricing Rules: A Non-Cooperative Analysis.*
- 98-02 Michael Keen, Sajal Lahiri and Pascalis Raimondos-Møller: *When Is Policy Harmonisation Desirable?*
- 98-03 Clemens Fuest and Bernd Huber: *Tax Progression and Human Capital in Imperfect Labour Markets.*
- 98-04 Frank Hettich and Minna Selene Svane: *Environmental Policy in a Two Sector Endogenous Growth Model.*
- 98-05 Harry Huizinga and Søren Bo Nielsen: *Is Coordination of Fiscal Deficits Necessary?*
- 98-06 Claus Thustrup Hansen: *A Note on Blanchard & Kiyotaki (1987).*

- 98-07 Claus Thustrup Hansen: *Long Run Impact of Increased Wage Pressure*.
- 98-08 Erkki Koskela and Ronnie Schöb: *Why Governments Should Tax Mobile Capital in the Presence of Unemployment*.
- 98-09 Mark A. Roberts: *Unfunded Social Security in the OLG Model with an Imperfectly Competitive Finance Market*.
- 98-10 Peter Birch Sørensen: *Tax Policy, the Good Jobs and the Bad Jobs*.
- 98-11 Roel M.W.J. Beetsma and Henrik Jensen: *Optimal Inflation Targets, “Conservative” Central Banks, and Linear Inflation Contracts: Comment*.
- 98-12 Ole Risager: Random Walk or Mean Reversion: *The Danish Stock Market Since World War I*.
- 98-13 João Ejarque and Torben Tranæs: *Skill-Neutral Shocks and Institutional Changes: Implications for Productivity Growth and Wage Dispersion*.
- 98-14 Minna Selene Svane: *Growth, Training Leave and Unemployment*.
- 98-15 Svend E. Hougaard Jensen: *Nominal Stability, Real Convergence, and Fiscal Transfers in a Monetary Union*.
- 98-16 U. Michael Bergman and Michael Hutchison: *The Costs of EMU and Economic Convergence*.
- 98-17 Niels Thygesen: *Fiscal Institutions in EMU and the Stability Pact*.
- 98-18 Søren Bo Nielsen: *A Simple Model of Commodity Taxation and Cross-Border Shopping*.
- 98-19 Christian Schultz: *Monetary Policy, Delegation and Polarization*.
- 98-20 Knud Jørgen Munk: *Should Governments Create Production Inefficiency?*
- 98-21 Syed M. Ahsan and Panagiotis Tsigaris: *The Public Discount Rate and the Uncertain Budgetary Flows*.
- 98-22 Minna Selene Svane: *Emission Standards and Growth*.

1997

- 97-01 Harry Huizinga and Søren Bo Nielsen: *The Political Economy of Capital Income and Profit Taxation in a Small Open Economy*.
- 97-02 Torsten Sløk and Jens Peter Sørensen: *How Small Shocks and Heterogeneous Expectations Can Create Swings in the Exchange Rate*.

- 97-03 Thórarinn G. Pétursson and Torsten Sløk: *Wage Formation in a Cointegrated VAR Model: A Demand and Supply Approach.*
- 97-04 Jeffrey H. Nilsen: *Borrowed Reserves, Fed Funds Rate Targets, and the Term Structure.*
- 97-05 Carlo Perroni and Kimberley A. Scharf: *Tiebout with Politics: Capital Tax Competition and Constitutional Choices.*
- 97-06 Sajal Lahiri, Pascalis Raimondos-Møller, Kar-yiu Wong, and Alan D. Woodland: *Optimal Income Transfers and Tariffs.*
- 97-07 Claus Thustrup Hansen and Hans Jørgen Jacobsen: *Rebalancing Unemployment Benefits in a Unionized Labour Market.*
- 97-08 Søren Blomquist and Vidar Christiansen: *Price Subsidies versus Public Provision.*
- 97-09 Amrita Dhillon, Carlo Perroni and Kimberley A. Scharf: *Implementing Tax Coordination.*
- 97-10 Peter Birch Sørensen: *Optimal Tax Progressivity in Imperfect Labour Markets.*
- 97-11 Syed M. Ahsan and Peter Tsigaris: *The Design of a Consumption Tax under Capital Risk.*
- 97-12 Claus Thustrup Hansen and Søren Kyhl: *Pay-per-view Television: Consequences of a Ban.*
- 97-13 Harry Huizinga and Søren Bo Nielsen: *The Taxation of Interest in Europe: A Minimum Withholding Tax?*
- 97-14 Harry Huizinga and Søren Bo Nielsen: *A Welfare Comparison of International Tax Regimes with Cross-Ownership of Firms.*
- 97-15 Pascalis Raimondos-Møller and Alan D. Woodland: *Tariff Strategies and Small Open Economies.*
- 97-16 Ritva Tarkiainen and Matti Tuomala: *On Optimal Income Taxation with Heterogenous Work Preferences.*
- 97-17 Minna Selene Svane: *Optimal Taxation in a Two Sector Model of Endogenous Growth.*
- 97-18 Frank Hettich: *Growth Effects of a Revenue Neutral Environmental Tax Reform.*
- 97-19 Erling Steigum, Jr.: *Fiscal Deficits, Asset Prices and Intergenerational Distribution in an Open Unionized Economy.*
- 97-20 Rod Falvey and Geoff Reed: *Rules of Origin as Commercial Policy Instruments.*
- 97-21 U. Michael Bergman, Michael M. Hutchison and Yin-Wong Cheung: *Should the Nordic Countries Join A European Monetary Union? An Empirical Analysis.*

- 97-22 Kenneth M. Kletzer: *Macroeconomic Stabilization with a Common Currency: Does European Monetary Unification Create a Need for Fiscal Insurance or Federalism?*
- 97-23 Martin Richardson: *Trade Policy and Access to Retail Distribution.*
- 97-24 Sugata Marjit and Hamid Beladi: *Protection, Underemployment and Welfare.*
- 97-25 Bernd Huber: *Tax Competition and Tax Coordination in an Optimum Income Tax Model.*
- 97-26 Clemens Fuest and Bernd Huber: *Tax Coordination and Unemployment.*
- 97-27 Assaf Razin, Efraim Sadka, and Chi-Wa Yuen: *Quantitative Implications of the Home Bias: Foreign Underinvestment, Domestic Oversaving, and Corrective Taxation.*
- 97-28 Mark A. Roberts, Karsten Stæhr, and Torben Tranæs: *Two-Stage Bargaining with Coverage Extension in a Dual Labour Market.*

1996

- 96-01 Torben Tranæs: *A Simple Model of Raiding Opportunities and Unemployment.*
- 96-02 Kala Krishna and Ling Hui Tan: *Transferable Licenses vs. Nontransferable Licenses: What is the Difference?*
- 96-03 Jiandong Ju and Kala Krishna: *Market Access and Welfare Effects of Free Trade. Areas without Rules of Origin.*
- 96-04 Anders Sørensen: *Growth Enhancing Policies in a Small Open Economy.*
- 96-05 Anders Sørensen: *Industrialization and Factor Accumulation.*
- 96-06 Christian Schultz: *Announcements and Credibility of Monetary Policy.*
- 96-07 Christian Schultz: *Political Competition and Polarization.*
- 96-08 Ole Risager and William G. Tyler: *Macroeconomic Policy and Exchange Rate Policy Management in a Small Dependent Economy: Estimating the Effects of Currency Devaluation in Jordan.*
- 96-09 Neil Rankin: *How Does Uncertainty About Future Fiscal Policy Affect Current Macroeconomic Variables?*
- 96-10 U. Michael Bergman and Michael M. Hutchison: *The 'German View', Fiscal Consolidation and Consumption Booms: Empirical Evidence from Denmark.*

- 96-11 Eric Hansen and Michael M. Hutchison: *Exchange Rates, Non-traded Goods and the Terms-of-Trade: An Empirical Application for New Zealand.*
- 96-12 Michael M. Hutchison and Carl E. Walsh: *Central Bank Institutional Design and the Output Cost of Disinflation: Did the 1989 New Zealand Reserve Bank Act Affect the Inflation-Output Tradeoff?*
- 96-13 Rasmus Fatum and Michael M. Hutchison: *Is Intervention a Signal of Future Monetary Policy? Evidence from the Federal Funds Futures Market.*
- 96-14 Tryggyi Thor Herbertsson and Anders Sørensen: *Policy Rules for Exploitation of Renewable Resources: A Macroeconomic Perspective.*
- 96-15 Anders Sørensen: *International Welfare Effects from Country-Specific R&D Subsidies.*
- 96-16 Andreas Haufler and Søren Bo Nielsen: *Dynamic Effects of an Anticipated Switch from Destination- to Origin-Based Commodity Taxation.*
- 96-17 Harry Huizinga and Søren Bo Nielsen: *The Coordination of Capital Income and Profit Taxation with Cross-Ownership of Firms.*
- 96-18 Svend Erik Hougaard Jensen: *Wage Rigidity, Monetary Integration and Fiscal Stabilisation in Europe.*
- 96-19 Ole Risager and Jan Rose Sørensen: *Job Security Policies and Trade Union Behaviour in an Open Economy.*
- 96-20 Slobodan Djajic, Sajal Lahiri and Pascalis Raimondos-Møller: *Transfer and the Intertemporal Terms of Trade.*
- 96-21 Slobodan Djajic, Sajal Lahiri and Pascalis Raimondos-Møller: *Logic of Aid in an Intertemporal Setting.*
- 96-22 Svend E. Hougaard Jensen and Bernd Raffelhüschen: *Public Debt, Welfare Reforms, and Intergenerational Distribution of Tax Burdens in Denmark.*

1995

- 95-01 Vesa Kanniainen and Jan Södersten: *On Financial Adjustment and Investment Booms: Lessons from Tax Reforms.*
- 95-02 Søren Bo Nielsen: *Withholding Taxes and Country-Specific Shocks.*
- 95-03 Vesa Kanniainen and Rune Stenbacka: *Towards a Theory of Socially Valuable Imitation with Implications for Technology Policy.*

- 95-04 Bent E. Sørensen, Pierfederico Asdrubali, and Oved Yosha: *Channels of Interstate Risksharing: US 1963-1990.*
- 95-05 Peter Birch Sørensen: *Changing Views of the Corporate Income Tax.*
- 95-06 Robin Broadway: *The Role of Second-Best Theory in Public Economics.*
- 95-07 Sjak Smulders: *Environmental Policy and Sustainable Economic Growth - an endogenous growth perspective.*
- 95-08 Bernd Genser: *Patterns of Tax Arbitrage and Decentralized Tax Autonomy.*
- 95-09 Harry Huizinga and Søren Bo Nielsen: *Capital Income and Profits Taxation with Foreign Ownership of Firms.*
- 95-10 Ben Lockwood: *Commodity Tax Harmonisation with Public Goods - an Alternative Perspective.*
- 95-11 Saqib Jafarey, Yannis Kaskarelis, and Apostolis Philippopoulos: *Private Investment and Endogenous Fiscal Policy. Theory and Evidence from UK and USA.*
- 95-12 Svend Erik Hougaard Jensen: *Debt Reduction, Wage Formation and Intergenerational Welfare.*
- 95-13 Sajal Lahiri and Pascalis Raimondos: *Public Good Provision and the Welfare Effects of Indirect Tax Harmonisation.*
- 95-14 Ruud A. de Mooij and A. Lans Bovenberg: *Environmental Taxes, International Capital Mobility and Inefficient Tax Systems: Tax Burden vs. Tax Shifting.*
- 95-15 David F. Bradford: *Consumption Taxes: Some Fundamental Transition Issues.*
- 95-16 Ole Risager: *On the Effects of Trade Policy Reform: The Case of Jordan.*
- 95-17 Niels Thygesen: *The Prospects for EMU by 1999 - and Reflections on Arrangements for the Outsiders.*
- 95-18 Christian Keuschnigg and Søren Bo Nielsen: *Housing Markets and Vacant Land.*
- 95-19 Hans Fehr: *Welfare Effects of Investment Incentive Policies: A Quantitative Assessment.*
- 95-20 Ben Lockwood, Torsten Sløk, and Torben Tranæs: *Progressive Taxation and Wage Setting: Some Evidence for Denmark.*
- 95-21 Claus Thustrup Hansen, Lars Haagen Pedersen, and Torsten Sløk: *Progressive Taxation, Wages and Activity in a Small Open Economy.*

- 95-22 Svend Erik Hougaard Jensen and Bernd Raffelhüschen: *Intertemporal Aspects of Fiscal Policy in Denmark*.

1994

- 94-01 Niels Thygesen: *Reinforcing Stage Two in the EMU Process*.
- 94-02 Kåre P. Hagen and Vesa Kanniainen: *Optimal Taxation of Intangible Capital*.
- 94-03 Ed W.M.T. Westerhout: *The Economic and Welfare Effects of Taxing Foreign Assets*.
- 94-04 Slobodan Djajic: *Illegal Immigration and Resource Allocation*.
- 94-05 Sajal Lahiri and Pascalis Raimondos: *Is There Anything Wrong with Tied-Aid?*
- 94-06 Ben Lockwood, Apostolis Philippopoulos, and Andy Snell: *Fiscal Policy, Public Debt Stabilization and Politics: Theory and evidence from the US and UK*.
- 94-07 Partha Sen: *Welfare-Improving Debt Policy under Monopolistic Competition*.
- 94-08 Sajal Lahiri and Pascalis Raimondos: *Tying of Aid to Trade Policy Reform and Welfare*.
- 94-09 Mark Gradstein and Moshe Justman: *Public Choice of an Education System and its Implications for Growth and Income Distribution*.
- 94-10 Peter Birch Sørensen, Lars Haagen Pedersen, and Søren Bo Nielsen: *Taxation, Pollution, Unemployment and Growth: Could there be a "Triple Dividend" from a Green Tax Reform?*
- 94-11 Peter Birch Sørensen and Søren Bo Nielsen: *On the Optimality of the Nordic System of Dual Income Taxation*.
- 94-12 Sajal Lahiri and Pascalis Raimondos: *Competition for Aid and Trade Policy*.
- 94-13 Niels Kleis Frederiksen, Peter Reinhard Hansen, Henrik Jacobsen, and Peter Birch Sørensen: *Consumer Services, Employment and the Informal Economy*.
- 94-14 Yoshiyasu Ono: *Market Segmentation and Effective Demand Shortage in a World with Dynamic Optimization*.

1993

- 93-01 Svend Erik Hougaard Jensen, Søren Bo Nielsen, Lars Haagen Petersen and Peter Birch Sørensen: *Tax Reform, Welfare, and Intergenerational Redistribution - An Intertemporal Simulation Approach*.

- 93-02 Bernd Genser, Andreas Haufler and Peter Birch Sørensen: *Indirect Taxation in an Integrated Europe. Is there a Way of Avoiding Trade Distortions Without Sacrificing National Tax Autonomy?*
- 93-03 Svend Erik Hougaard Jensen and Lars Grue Jensen: *Debt, Deficits and Transition to EMU: A Small Country Analysis.*
- 93-04 Torsten Persson and Guido Tabellini: *Federal Fiscal Constitutions. Part I: Risk Sharing and Moral Hazard.*
- 93-05 Martin Paldam: *The Political Economy of Stopping High Inflation.*
- 93-06 Roger H. Gordon and Jeffrey K. Mackie-Mason: *Why is There Corporate Taxation in a Small Open Economy? The Role of Transfer Pricing and Income Shifting.*
- 93-07 Peter Birch Sørensen: *From the Global Income Tax To the Dual Income Tax: Recent Tax Reforms in The Nordic Countries.*
- 93-08 Wilhelm Kohler: *Strategic Trade Policy and Integration.*
- 93-09 F. Gulcin Ozkan and Alan Sutherland: *A Model of the ERM Crisis.*