

# Taxability and Government Support of Business

## Activity: Testing Theories of Social-Contract Failure

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## **Abstract**

Much theory of the state assumes a contractual relationship between state and society, where the former provides services valued by the latter, typically in return for revenues. However, as emphasized by many scholars, various transaction costs endemic to state-society relations may prevent the negotiation of an efficient Coasian contract. This paper examines this proposition by exploring the nature of government support for business activity in postcommunist Europe and Asia, where many of the transaction costs that hinder efficient contracting between state and society – the state’s inability to commit, information asymmetries between state and society, and collective-action problems within society – are especially acute. Analysis of data from a sample of firms in 23 postcommunist countries demonstrates that the state provides more support along a variety of dimensions to firms which are more taxable, i.e. firms from which the state can extract a greater share of revenues. Further, firms which report less of their revenues to tax authorities are more likely to say they would pay more taxes to increase government support. Thus, state and society appear to be trapped by their failure to efficiently contract, with firms hiding as much of their revenues as they think they can get away with, knowing that the state will respond by undersupporting business activity.

## 1. Introduction

Modern political economy has revived and revised the theory of the state developed by the contract theorists of the seventeenth and eighteenth centuries. As in that earlier era, the state or sovereign is seen as providing security or some other public good that individuals cannot provide for themselves, and for which individuals are willing to enter into a social contract and surrender some portion of their property or liberties. North (1981, p. 23), for example, suggests in the modern theory's paradigmatic formulation that "the state trades a group of services, which we shall call protection and justice, for revenue."<sup>1</sup>

However, today's theorists - influenced by the vast literature on "transaction costs" inspired by Coase (1960) - are decidedly more skeptical than their forerunners of the scope for efficient bargaining between the state on the one hand, and individuals on the other. The inherent problem with a contract to which the state is a party, of course, is that there typically is no third party to enforce the contract. "A state with sufficient coercive power to [enforce contract and property rights and provide public goods] also has the power to withhold protection or confiscate private wealth" (Greif et al 1994). This potential for ex-post opportunism on the part of the state means that a "political Coase theorem" in which the state and private entities bargain to an efficient outcome will typically be impossible (Acemoglu 2002; see also Robinson 1998).

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<sup>1</sup>The revenue needs of the state have often motivated the assumption of state autonomy. See, e.g., Skocpol (1979), Tilly (1990), and various essays in Evans *et al* (1985).

In addition, information asymmetries between the state and individuals are likely to be large, especially in the context of revenue collection, where the cost to the state of fully ascertaining taxpayers' ability to pay and of monitoring compliance is prohibitive (Levi 1988). In particular, the state may not observe the tax behavior of individual enterprises, but only know generally that some types of firms are easier to collect revenues from than others. Further, collective-action problems may encourage free-riding at the contracting stage, meaning that theoretically feasible contracts may never get agreed to (Hardin 1982, Dixit and Olson 2000).

Together, these transaction costs suggest that the state will be inclined to favor sectors of the economy from which it is easier to extract rents, rather than agreeing with private actors on an efficient provision of support in exchange for revenues. In particular, the state will have an incentive to provide support *ex ante* based on the *taxability* of economic activity *ex post*. By "taxability," what I have in mind is the ability of the state to extract revenues from economic agents. Most obviously, these will be tax revenues, but the term is meant to include other revenues of importance to the state. Thus, for example, state firms will typically be more taxable than private firms in the sense that the state receives a share of the profits of state firms beyond what it would collect as taxes were the firm privately owned.

Segments of the economy differ in their taxability, and thus in their potential for state support. As just mentioned, private firms will generally be less taxable than state enterprises, a fact emphasized in the literature on municipal support for locally owned township-village

enterprises in China (e.g., Oi 1992, Che and Qian 1998). Large enterprises are typically more taxable than small firms – small firms are more likely to deal in cash (and thus find it easier to hide revenues), and tax inspectors avoid smaller firms to the extent that there are economies of scale in tax collection – and so tend to be favored by the state (Gordon and Wilson 1999).<sup>2</sup> Technological considerations also imply that some sectors will be especially easy to tax. For example, the ability of the government to control pipelines and other bottlenecks means that the natural-resource industry almost always provides a disproportionate share of government revenues, encouraging the state to pay particular attention to the needs of that sector (e.g., Shafer 1994).<sup>3</sup>

This paper empirically explores the proposition that the state will provide more support to firms which are more taxable by analyzing data from a survey of firms in 23 postcommunist countries in 1999. Postcommunist countries are a particularly apt environment in which to explore failures of efficient contracting between state and society, as many of the solutions to social-contract failures that have evolved in other political environments are absent in Eastern Europe and the former Soviet Union. Thus, for example, while in other contexts constitutions have served as coordination devices for individuals wanting to limit the ability of the state to act opportunistically (North and Weingast 1989, Weingast 1997), the consti-

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<sup>2</sup>Additionally, large firms may be favored because they provide politically important employment or because they find it easier to overcome the collective-action and observability problems that prevent small firms from negotiating an efficient social contract with the state. On the latter point, see the discussion in Orttung (2002) of the institutionalization of relations between large firms and regional governments in Russia, where the former are increasingly paying their taxes in return for support from the latter.

<sup>3</sup>Jones Luong and Weintal (2002) discuss the difference in taxability of state and privately owned natural-resource firms.

tutions of postcommunist states were typically adopted prior to the vast redistribution of wealth that accompanied privatization (Roeder 2001, Fish 2001), and thus do not represent any consensus on the part of today's economic agents on the appropriate limits of the state. Further, the information asymmetries that plague revenue collection in any corner of the world are particularly acute for postsocialist states, where privatization, liberalization, and growth of the traditionally underdeveloped service sector meant that tax-collection systems had to be recreated wholesale following the collapse of communism (Kodrzycki and Zolt 1994, Tanzi and Tsibouris 2000). Finally, institutions of interest mediation are poorly developed in postcommunist countries – I have witnessed first-hand the struggling attempts to develop chambers of commerce and the like in the Czech Republic and Russia – meaning that collective-action problems in negotiating a “social contract” are likely to be more severe.<sup>4</sup>

In short, it takes time for institutions to develop which minimize the transaction costs that hinder efficient contracting between state and society. Market and democracy in Eastern Europe and the former Soviet Union are too new, and the break with the previous system too sharp, to expect such institutions to have developed within a decade of the fall of communism. Thus, the emphasis of this paper differs substantially from much of the literature on institutions, which has typically focused on institutions which have evolved over time to minimize transaction costs, rather than the consequences of the failure of such

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<sup>4</sup>That said, it is interesting that since the Putin-backed reform of the Federation Council (the upper chamber of the Russian parliament), that institution has turned into a club for tycoons (Olcott 2002). Levi (1988) and North (1990) discuss the role of parliaments in facilitating bargaining between rulers and subjects.

institutions to have developed.<sup>5</sup>

This paper also differs in that the evidence presented is quantitative rather than qualitative in nature. While both methods of empirical inquiry are important, there has been little statistical evidence to date of the failure of state and society to efficiently bargain.<sup>6</sup> As will be seen, across the postcommunist world, firms which are less taxable – firms which say that “a typical firm in [their] area of activity” reports a smaller percentage of revenues to tax authorities, or firms which are private rather than state-owned – are more burdened by corruption and overregulation, are less able to appeal administrative violations to higher authorities, are less likely to have their contracts and property rights enforced, and are less likely to say that local governments are supportive in general. Further, firms which report less of their revenues to tax authorities are *more* likely to say that they would pay more in taxes to reduce corruption and overregulation, which would not be the case if firms paid less in taxes simply because they were less in need of government support and negotiated such an agreement with the state.

In operationalizing state support as less corruption, better contract enforcement, etc., this

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<sup>5</sup>In addition to the many sources discussed above, see, e.g., Spruyt (1994), who shows how over the course of three centuries the sovereign territorial state won out over other forms of political organization “because it proved more effective at preventing defection by its members, reducing internal transaction costs, and making credible commitments to other units” (p. 527).

<sup>6</sup>That evidence which does exist is largely based on data at the level of political units. For example, Jin and Qian (1998) demonstrate that the presence of TVEs (which are more “taxable” than private firms since they are municipally owned) helps governments to satisfy their objectives of increasing government revenues, employment, and rural income. Zhuravskaya (2000), in contrast, examines commitment failures between levels of government, showing that the failure of regional governments in Russia to commit to a fixed level of revenue sharing with local governments leads to weak incentives for the latter to increase the tax base or provide public goods.

paper abstracts from the web of agency relationships that make up any state. Perhaps the best way of thinking about state support as presented here is to picture a senior government official who cares about revenues, and who has some degree of control over the lower-level bureaucrats who come into contact with entrepreneurs on a daily basis. The nature and degree of control this senior official exercises over subordinates will depend on the revenue importance of the firm, or of the sector if the senior official is unable to observe the behavior of individual firms. Thus, “support” means discouraging bureaucrats from asking for bribes, encouraging them to enforce contracts, etc. Alternatively, it is possible that for larger firms it is the mayor or governor himself who interacts most often with firm managers, with “support” implying either direct action (as when a governor intervenes in a court case to support one party over the other) or opportunity cost (as when a mayor foregoes a bribe that he could have taken in return for a service he was obligated to provide).

The paper proceeds as follows. Section 2 describes the data, and motivates our two measures of taxability. Section 3 presents the main results of the empirical analysis. Section 4 discusses various alternative hypotheses and robustness checks. Section 5 concludes.

## **2. Data**

The empirical work in this paper is based on the Business Environment and Enterprise Performance Survey (BEEPS) carried out in 1999 by the World Bank and the European Bank for Reconstruction and Development. Through the BEEPS project, firms were surveyed on



various aspects of business-state relations, including the topics covered in this paper. In all, 4104 small and medium-sized enterprises were surveyed in 26 countries. This paper uses a subsample of the full BEEPS sample, restricting attention to firms located in the 23 post-communist countries listed in Table 1. Firms in Bosnia-Herzegovina and the Serb Republic in Bosnia were dropped due to the long war in those entities, while firms in Turkey were not included since Turkey is not a postcommunist country.<sup>7</sup> In the regression results reported below, we control for general institutional environment by including country dummies.

#### TABLE 1

Table 2 provides summary statistics for the data used in this paper. All variables listed in Table 2 are used as control variables or (in the case of state ownership) as a key independent variable in the empirical work presented in Section 3. The enterprises surveyed are not large, with a mean employment of 144, maximum employment of 1000, and employment of 500 or less for 97 percent of firms in the sample. Further, they are overwhelmingly private, though the percentage of state-owned firms is large enough to precisely estimate the impact of state ownership on government support in the regressions reported below. As mentioned in Section 1, we are interested in the possibility that firms which are state-owned receive more support from government officials, as the government may be able to extract more revenues *ex post* from state-owned enterprises than from private firms.

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<sup>7</sup>Details on the survey and its implementation can be found in Hellman *et al* (2000) or at <http://www.worldbank.org/wbi/governance/beeps/htm>. Note that while Hellman *et al* (2000) refers to a survey of firms in twenty countries interviewed in 1999, six countries (Albania, Turkey, Latvia, Bosnia, the Serb Republic in Bosnia, and Macedonia) were added to the original project late in that year. The data set available on the World Bank website is the full data set, with all 26 countries represented.

## TABLE 2

Firms in the sample generally face at least moderate competition, with 78 percent of respondents reporting that they have more than three competitors. For ease of presentation, the three levels of competition listed in Table 2 are collapsed into one variable taking on values 1 (no competitors), 2 (1-3 competitors), or 3 (more than 3 competitors) in the regressions reported in Section 3. All of the qualitative results are identical if instead we include two dummy variables for degree of competition.

A plurality of firms (30 percent) operate in the manufacturing sector, though other sectors are well represented. Further, 29 percent of firms are located in the capital city, with the remainder spread out over localities ranging in size from rural communities to non-capital cities with more than a million residents. Since there is no coding for the exact location of the firm in the data set, and since it is possible that both taxability and government support are influenced by institutional environments finer-grained than mere country of residence, five dummy variables are included for the six town-size categories in all regressions to control for as much intra-country variation as possible.

Table 3a presents our other measure of taxability. Firms were asked, “What percentage of sales of a typical firm in your area of activity would you estimate is reported to the tax authorities, bearing in mind difficulties in complying with taxes and other regulations?”<sup>8</sup>

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<sup>8</sup>For this question, and the bribe and time-tax questions used as dependent variables in the OLS regressions, respondents were allowed to choose from a number of percentage ranges (e.g. “2-9.99 percent”) rather than asked to name a number between 0 and 100. These questions were reconstructed as continuous variables due to the large number of possible responses, the inherently continuous (and linear) nature of the

Wording such as “typical firm in your area of activity” is standard in survey research when questions touch on sensitive matters, and it is typically assumed that respondents answer based on their personal experience. In our case, we justify this assumption by showing that the covariation of this variable with sector and country of residence accords with publicly available data on tax collection by sector and country. That said, the wording of the question emphasizes in an unintended way one of the arguments of the previous section: states may find it difficult to observe the tax behavior of individual taxpayers, but may know in general that small firms are harder to tax than large firms, etc., and so may provide support based on group rather than individual characteristics.

#### TABLES 3A, 3B

As can be seen, variation in responses is quite large, with a mean of 80 percent and standard deviation of 25 percent, and only 33 percent of firms saying that they report 100 percent of revenues to tax authorities. Thus, despite possible *a priori* concern that firms would be afraid to admit to any revenue hiding (by firms like theirs), the modal response indicates some degree of tax evasion.

Table 4 presents results from two regressions of this measure of taxability on various firm characteristics, including (in the second regression) the percent of GDP collected as taxes by all levels of government in the country in which the firm resides. The results support our

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underlying variables, and the need to construct a variable that excluded bribe payments to tax and customs officials. Responses were coded as the midpoint of the range for the category chosen (e.g. “2-9.99 percent” is recorded as 6 percent), except for responses such as “more than 50 percent,” which were coded as the low end of the range (i.e. 50 percent).

assumption that there is no systematic bias in how respondents answered this question, and thus that this variable can be used as a rough measure of the degree to which firms are able to evade taxes. For example, small firms – which may find it easier to avoid tax payments if more of their transactions are in cash, or if tax authorities tend to overlook small firms because there is a fixed cost of investigating an enterprise whatever its size – do indeed say that they report substantially (and significantly) less of their revenues to tax authorities than do large firms.

#### TABLE 4

Similarly, firms in sectors in which a large volume of transactions are in cash also say that they report less to tax authorities. Thus, firms in personal service and transportation (taxis and the like) report less than do firms in manufacturing, which in turn report less than firms in banking. For purposes of comparison, Table 5 provides revenue-collection figures by sector for Russia in 1997. As can be seen, these aggregate statistics are roughly consistent with the micro-level evidence. While the services sector made up 16.1 percent of Russian GDP in 1997, it accounted for only 8.6 percent of tax revenues. Industrial production, in contrast, was overrepresented, as was the banking sector<sup>9</sup> Note that the substantial difference in results for the transportation sector can be explained by the fact that the transportation firms in the BEEPS survey are small, and thus do not include railroad, airline, or other such

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<sup>9</sup>Many analysts (e.g. Ponomareva and Zhuravskaya 2001, Treisman 1999) have noted that tax arrears in Russia tend to be concentrated in large, predominantly industrial enterprises. The report cited in Table 5 confirms this to be the case, but shows that the industrial sector is nonetheless a disproportionately large source of tax receipts. Apparently, the difficulty that industrial firms have in hiding revenues outweighs their political ability to avoid tax payments once revenues have been reported.

companies.

#### TABLE 5

In contrast, state-owned firms do not differ significantly from private firms in the percentage of revenues they report to tax authorities. Nonetheless, the state can typically expect more revenues from state-owned firms. Most obviously this will come in the form of dividends on the state's stake, but may also be realized as the provision of goods and services which would otherwise be paid for out of state funds.<sup>10</sup>

Finally, the second column in Table 4 shows that firms say that they report a smaller percentage of their revenues to tax authorities, the smaller is the percentage of GDP collected as taxes in the country in which the firm resides. Together with the previous results, this suggests that we can take firms' responses to this question as being a rough measure of their taxability.<sup>11</sup>

Tables 3a and 3b also provide summary statistics and frequency distributions for the various measures of government support used as dependent variables in our key regressions below. The first three variables are quantitative measures of the government burden on business, which we recode in the regressions below so that a higher response for the depen-

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<sup>10</sup>In this sense, the fact that state firms provide politically valuable excess employment (Shleifer and Vishny 1994) can be seen as merely another manifestation of their greater taxability, as presumably the state has the option of paying for employment out of its own revenues.

<sup>11</sup>While this question only refers to revenues, it is likely that firms which find it easier to hide revenues can also more easily hide expenses if they choose to do so, especially if it is the proportion of transactions in cash that primarily determines firms' responses. In particular, firms that operate largely in cash may be able to pay a substantial percentage of employee compensation in cash. Thus, this question likely captures the degree to which firms are able to collude with employees to avoid social taxes and withholding of income taxes, as well as their ability to evade profit taxes, VAT, and other taxes related to revenues.

dent variable consistently reflects more government support of business activity. Thus, for example, “bribe payments as a percent of revenues” is recoded as the percent of revenues *not* paid as bribes.

Substantial variation is evident in all three quantitative measures. On average, entrepreneurs in all three postcommunist countries report paying 2.6 percent of their revenues (not profits!) as “unofficial payments to government officials,” with the mean response in Eastern Europe and the Baltics (1.8 percent) substantially less than that in the former Soviet Union less the Baltics (3.4 percent). A similar pattern is noted for the variable “non-tax bribe payments as a percent of revenues,” in which bribe payments to tax and customs officials are subtracted out to control for the fact that firms may bribe tax officials to allow them to underreport revenues. (Recall that we are interested in the correlation between tax reporting and various measures of government support, including the degree of corruption.) Finally, an average of 9.9 percent of management time is spent dealing with government officials, with the mean percentage in Eastern Europe and the Baltics (7.2 percent) again substantially lower than that in the former Soviet Union less the Baltics (12.6 percent).<sup>12</sup>

Among our qualitative measures of government support, the first variable – “opportunity to appeal administrative violations” – captures in a fairly direct way the degree to which firms expect that higher-level government officials will protect them against arbitrary behavior

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<sup>12</sup>Much other empirical work has noted the sharp divide in the business environment between the two halves of the postcommunist world. See, e.g., Frye and Shleifer (1997), Johnson *et al* (2000), and EBRD (1999). The last report uses data from the BEEPS project.

by lower-level bureaucrats. The expectation that “contracts and property rights [will be] enforced” is obviously critically important for private investment to take place, and many scholars assume this to be one of the primary services the state can provide to the private sector. Finally, the variable “local government helpful” proxies for the general evaluation by entrepreneurs of the support provided by the state. All three qualitative measures exhibit considerable dispersion among the possible responses.

Last, Table 3b summarizes two variables used to test the proposition that firms which report a smaller proportion of their tax revenues do so for reasons of contract failure, and not because they merely have less need of government support. In the BEEPS questionnaire these questions read, “How many additional taxes would you be prepared to pay, as a percent of your revenues, if [corruption, excessive regulations] would be eliminated?” Due to confusion on the part of the respondents as to whether to report the increase in percentage points or the percent increase, the responses to this question were ultimately coded dichotomously, with a score of 1 indicating that the respondent was willing to pay some additional taxes and a score of 0 indicating unwillingness to pay more. For both variables, a majority of respondents indicate that they are willing to pay more taxes to increase government support.

### **3. Results**

In this section we empirically explore the proposition that the state will be inclined to support enterprises which are more taxable, rather than providing an efficient level of support in

exchange for revenues. If this proposition holds, we should observe two patterns in the data. First, it must be the case that firms which are more taxable indeed receive more support. In terms of the data at hand, this means that both a) firms which say they report more revenues to tax authorities, and b) state-owned enterprises receive more support, i.e. pay less in bribes, spend less time with government officials, are better able to appeal administrative violations to higher authorities, are more likely to have their contracts and property rights enforced, and are more likely to say that local government is helpful. Second, we must show that firms which report less of their revenues are not merely choosing a combination of support and tax payment which is optimal for their business environment. In other words, for the hypothesis of inefficient contracting to be true, it must be the case that firms which report less of their revenues to tax authorities would *prefer* to pay more in order to receive more support, but that they are trapped by the failure of state and society to negotiate an efficient social contract into hiding as much of their revenues as they think they can get away with, knowing the consequences of that decision for the degree of support they will receive.

The first of these two questions is addressed by the regressions reported in Table 6, where the six different measures of government support discussed in the previous section are dependent variables in regressions in which our two measures of taxability are the key independent variables. OLS regressions are run for the three quantitative measures of support, and ordered-probit regressions for the qualitative measures. For all six regressions, robust standard errors are reported, as the data exhibit substantial heteroskedasticity. In



all regressions, we control for log of firm employment, degree of competition, sector, country of residence, and community size. As noted earlier, we use two measures of corruption as dependent variables, where in the second measure we subtract out bribes paid to tax and customs officials since it is plausible that firms pay bribes in order to avoid reporting revenues to tax authorities. We want to control for this possibility since we are interested in the hypothesis that the state sees little interest in providing protection from bribe-seeking bureaucrats to firms which do not pay their taxes.

#### TABLE 6

As can be seen, for all six measures of government support, the proportion of revenues reported by the firm (more precisely, reported by “typical firms” in the respondent’s industry) is positively and significantly correlated with government support. The results are very precisely estimated – all estimated coefficients are significantly different from zero at the 1 percent level – and marginal effects are large. For example, an increase in the proportion of revenues reported from 50 percent to 100 percent, i.e. essentially from one standard deviation below to one standard deviation above the mean, increases the percentage of revenues not paid as bribes by 1.4 points. (Recall that mean bribe payment as a percent of revenues is 2.6 percent.) Similarly, the same increase in revenue reporting increases the probability that firms will answer that they “always” have the opportunity to appeal administrative violations by 6 percentage points, where the average probability of that response is 10 percent, and that they “mostly” have that opportunity by 5 percentage points, where the average probability

is 16 percent.<sup>13</sup>

Roughly the same results hold for state ownership, our other measure of taxability. For five of the six measures of government support, state ownership is positively correlated with government support, with the estimated coefficient not significantly different from zero only for the dependent variable “opportunity to appeal administrative violations.” Marginal effects for the four cases in which the estimated coefficient on state ownership is precisely estimated and positive are sizeable. State-owned firms pay a half percentage point less of their revenues as non-tax bribes than do private firms, and the likelihood that a state-owned firms will “fully agree” that its contracts and property rights can be enforced is 4 percentage points higher than that for private firms, where the average probability that any respondent will “fully agree” is 6 percent.

The one exception to this pattern is consistent with what we might surmise to be a constant feature of the relationship between owner and managers of an enterprise, whatever its ownership. State-owned firms report that they spend more, not less, time with government officials, while the reverse is true for our other measure of taxability. Presumably, the managers of a firm must spend time with the firms’ owners whoever they are, so that managers in state-owned enterprises find themselves spending a disproportionate amount of time with government officials.

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<sup>13</sup>Marginal effects for the ordered-probit regressions are calculated as the average derivative across individuals (rather than the derivative for an “average” individual) for proportion of revenues reported, and as the average discrete change for state ownership.

Thus, firms which report more of their revenues to tax authorities and which are state-owned receive more government support along a variety of dimensions. However, given that revenue reporting (as opposed to state ownership) is a choice variable of the firm, one might ask whether firms merely choose an optimal combination of tax payment and government support. In other words, were the state and firms able to efficiently contract, the firm would know what level of support would be provided for a given tax payment. Thus, firms in less need of government support would underreport revenues to tax authorities, knowing but not caring that the state would provide less support in response.

To examine this possibility, we exploit our measures of whether firms are willing to pay more taxes to eliminate corruption and excessive regulation. Table 7 presents the results of probit regressions of these two variables on the proportion of revenues reported, as well as on state ownership and the other covariates used in the regressions reported in Table 6.<sup>14</sup> For both questions, firms which report less of their revenues to tax authorities are significantly and substantially *more* likely to say that they would pay more to receive more government support. Marginal effects are large, with the probability of a respondent's saying it would pay more in taxes 12-13 points greater for a firm reporting 50 percent of its revenues than for a firm reporting 100 percent of its revenues.

#### TABLE 7

Presumably, then, these firms would be reporting more of their revenues to tax authorities

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<sup>14</sup>Firms in Albania were dropped from the sample in these regressions since all respondents in that country expressed a willingness to pay more.

if they thought they could receive more support and improve their net profitability. The various contracting problems discussed earlier suggest why they do not. First, it is possible that the state's inability to commit to only extracting the agreed-upon amount *ex post* discourages firms from reporting more and thus revealing their ability to pay. Such a "ratchet effect" (Weitzman 1980) seems to have discouraged attempts by the Russian government to bring firms "out of the shadows" by lowering the corporate profit tax rate.<sup>15</sup> Second, if the state does not observe the tax behavior of individual firms, but only knows the average tax behavior of various segments of the economy, then there will be no incentive for any individual firm to pay more to receive more support. Again, this possibility is inadvertently highlighted by the wording of the tax-reporting question, which refers to the behavior of "a typical firm in your area of activity." In principle, such a problem could be addressed through negotiation of a contract that covered all firms of similar type, with enforcement mechanisms in place to discourage free riding *ex post*, but in practice collective-action problems make negotiation of such contracts difficult *ex ante*.

In sum, firms which report less of their revenues to tax authorities and which are state-owned truly receive less support from government officials. Further, the fact that firms which report less are actually willing to pay more taxes in return for more government support demonstrates the failure of state and society to negotiate an efficient social contract. Both

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<sup>15</sup>On the state's commitment problem and its consequent inability to devise mechanisms to encourage agents to reveal private information, see Farrell (1987). Brennan and Buchanan (1980) argue that electoral competition is insufficient to constrain the state's desire for revenues.

state and economic actors would be better off if they could agree on a trade of revenues for support, but for various reasons they cannot.

#### 4. Alternative Hypotheses and Robustness Checks

This section considers six potential concerns with the interpretation given to the regression results in the previous section. Some of these concerns can be dismissed on theoretical grounds, while others suggest patterns in the data which are inconsistent with the results reported above and with alternative specifications of the regression model.

- **Direction of causality:** The previous section argues that firms receive less support if they are less taxable. Is it possible that firms instead choose to pay less taxes when they receive less support? Certainly the literature on tax evasion suggests that “quasi-voluntary compliance” (Levi 1988) with tax regimes is greater when individuals feel the government is providing something of value (e.g., Alm *et al* 1992, Lieberman 2001, Hanousek and Palda 2002) However, it seems far less likely that *firms* would hide revenues to a greater degree than they thought they could get away with, since the costs of noncompliance if detected can be substantial, and firms face the threat of exit if competitors’ costs are lower. Further, the regressions reported in Table 4 support the contention that enterprises which report less are precisely those which find it easier to hide revenues: small firms, firms operating in personal service and transportation, etc.

Nonetheless, the data do allow a test of the hypothesis that support determines revenue reporting rather than the reverse. Our sixth measure of government support – “local government helpful” – proxies for precisely the sort of attitude argued by some to be a determinant of tax compliance. In addition, this variable can be thought of as being determined in part by the other five measures of support. Thus, to see whether support might be determining revenue reporting rather than the reverse, we can run the following regression:

$$\text{Support} = \alpha_1 \text{Reporting} + \alpha_2 \text{State-owned} + \alpha_3 (\text{Local govt helpful}) + X\beta + \epsilon$$

where “Support” is one of the first five (latent, in the case of the ordered-probit regressions) dependent variables, and  $X$  is our vector of covariates. If perceptions of support determine revenue reporting, then we should see little correlation between revenue reporting and our remaining indicators of support after controlling for the belief that local government is helpful.

In fact, while the estimated coefficient on “local government helpful” is positive and significant in all five regressions, the estimated coefficients on “proportion of revenues reported” are virtually identical to those in the original regressions reported in Table 6. The largest change occurs in the regression in which “contracts and property rights enforced” is the dependent variable, but even here the difference is minimal: the coef-

ficient on “proportion of revenues reported” declines from 0.25 to 0.20, while marginal effects are more than three quarters their magnitude in the original regression.<sup>16</sup> Thus, the empirical evidence supports the theoretical contention that it is revenue reporting that determines government support, not the reverse.

Finally, it is worth noting that state ownership, our second measure of taxability, is typically not a choice variable of the firm in the way that revenue reporting is. Here, the direction of causality is especially clear: it is not that firms are state-owned because they receive more support, but that they receive more support because they are state-owned.

- **Institutional environment:** It is likely that the institutional environment in which a firm operates influences both the degree of support it receives and the ease with which it may hide revenues from tax authorities. If we have failed to properly control for institutional environment, then the correlation between support and revenue hiding could be spurious: firms located in entities with stronger state institutions would both receive more support and hide less of their revenues.

The most obvious source of institutional variation is country of residence, and all the regressions reported in Table 6 include country dummies. However, substantial

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<sup>16</sup>Virtually identical results obtain if we use the following alternative attitudinal measure from the BEEPS questionnaire: “How helpful do you find Central and National [vs. local/regional] Government towards businesses like yours?”

interregional variation in institutions exists in many countries,<sup>17</sup> so the same issues could exist at the subnational level. As mentioned in Section 2, the BEEPS data do not code for location of the firm within a country, but do code for size of the community in which the firm resides. As there are six town-size categories, a substantial amount of intra-country variation may be accounted for by controlling for community size, and so five town-size dummies are included in all regressions.

Nonetheless, it is still possible that not all intra-country variation has been accounted for. Ideally, we would find a third variable correlated with revenue reporting but uncorrelated with institutional environment, and instrument on that variable. Unfortunately, no appropriate instruments seem to exist in the BEEPS questionnaire. A second-best solution is to restrict the sample to firms located in capital cities, since we know that each country has only one capital. Doing so shrinks the sample size (before excluding cases with missing values) from 3762 to 1089. For all six regressions, the estimated coefficient on “proportion of revenues reported” remains positive, and for four of the six is significantly different from zero. Only for the dependent variables “percent of management time not spent with government officials” and “local government helpful” are the estimated coefficients insignificant, and even then the marginal effects are over half the magnitude of those in the original regressions. Thus, restricting the sample to that portion of firms for which we can fully control for institutional environ-

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<sup>17</sup>See, e.g., Stoner-Weiss (1997) and CEFIR and World Bank (2002) on Russia.



ment, the basic observation holds that revenue reporting and government support are positively correlated.

- **Profitability:** The BEEPS questionnaire contains no question that can be used to compare profitability of firms. Thus, one could question whether revenue reporting and government support of business activity are both correlated with profitability, in which case the estimated coefficients on revenue reporting would be biased. In particular, it is conceivable that more profitable firms are both more likely to be asked for bribes (if bureaucrats are at least partially able to observe profitability) and more likely to hide their revenues from tax inspectors. However, looking across all regressions, it is far from obvious why more profitable firms would receive less support along other dimensions. For example, in postcommunist countries there are often various means of contract enforcement available – bribing judges, hiring “debt-collection agencies,” etc. – and there is little reason to think that more profitable firms have less access to these alternative enforcement mechanisms. Further, all regressions control for sector at a fairly fine level, so much variation in profitability is likely accounted for. Most importantly, if one looks at the estimated coefficients on the “degree of competition” variable, it appears that it is *more* profitable firms (those with less competition) which receive more support, especially with respect to bribe payment.
- **Corruptibility:** One might argue that firm managers vary in their moral attitudes towards corruption, and that those who are inherently more corruptible are both more

likely to avoid tax payments and more likely to resort to a bribe payment when faced with a difficult situation. If true, the positive correlation between revenues reported and our two measures of bribe payment results from the omission of the unobserved variable “corruptibility,” and not from the tendency of the state to provide greater protection from rent-seeking bureaucrats to those firms which are more taxable.

However, if this hypothesis held, then one would also expect more corruptible managers to receive better support on average along other dimensions. In other words, the personal characteristic “corruptibility” should prove an advantage in getting one’s contracts enforced, receiving help from local government, etc. That implies that revenue hiding (positively correlated with corruptibility) should be positively correlated with our other measures of support. In fact, the opposite is the case, as the previous section showed. Firms that report less of their revenues to government authorities receive less support along all dimensions.

- **Political power:** As discussed earlier, firms typically have two means of tax avoidance. They may hide their tax obligations, or they may report their liability but then refuse to pay. The latter strategy is likely to be employed by politically powerful firms, which may also find it easier to acquire government support. Thus, if the variable “political power” is not completely captured by observable characteristics, the positive correlation between revenue reporting and government support could be spurious.

To check for this possibility, all regressions were rerun controlling for whether or not

the firm receives “subsidies (including tolerance of tax arrears) from local or national government.” In all, 11 percent of firms reported that they received such subsidies. While this variable is generally positively correlated with our various measures of government support, its inclusion has virtually no effect on the point estimates for the coefficient on “proportion of revenues reported.”

- **Functional form:** Assuming that efficient contracting is impossible, one can think of the state as facing the following decision problem:

$$\max_e T\pi(e) - c(e)$$

where  $e$  is the level of government support,  $T$  is a firm’s or sector’s taxability,  $\pi(e)$  is an increasing function of  $e$  representing profitability, and  $c(e)$  is an increasing function of  $e$  representing the (agency, opportunity, etc.) cost to the state of providing support. In reality, we do not know the shape of  $\pi(\cdot)$  and  $c(\cdot)$ , nor do we know precisely how  $e^*$  maps into our various measures of support. Thus, the specification of the model in Section 3, in which “support” is a linear function of a firm’s revenue reporting, may not be correct. To check for robustness, all regressions were rerun with various increasing transformations (log, square root, square) of “proportion of revenues reported.” In all regressions, the estimated coefficient on the taxability variable is positive and significantly different from zero (at the five percent level in all cases, at the one percent level

in all but one case), with sizeable marginal effects.

## 5. Conclusion

This paper has demonstrated the failure of state and society in postcommunist countries to negotiate an efficient trade of revenues from firms for government support of business activity. In so doing, it has suggested a number of avenues for future research. Most obviously, it would be interesting to explore the extent to which the findings here hold in other political-economic contexts. In particular, one might imagine that the issues discussed in this paper would be less salient in countries where for historical reasons the state is better able to commit, where the state has more experience in taxing private economic activity, and where economic agents have overcome their collective-action problems.

That in turn suggests that it would be fruitful to track changes over time in postcommunist countries. It is certainly within the spirit of the transactions-cost literature to expect that institutions will evolve to minimize the contract failures identified in this paper.

Finally, it is worth noting that this paper has abstracted from what are in reality substantial differences across countries in the nature of tax systems and revenue sharing among different levels of government. The latter point is likely to be especially important to the degree that it is local officials who are largely responsible for creating a more or less positive business environment, and for whom the tax return to support of business activity is consequently important. For example, while local governments in the Czech Republic, Hungary,

and Poland all retain some tax revenues collected locally, the nature of their revenue base differs substantially, with personal income taxes relatively more important in the first two countries and real estate taxes more important in the third.<sup>18</sup> Similarly, empirical research has found substantial variation *within* Russia in the degree to which local governments retain any marginal increase in tax revenues (Makrushin *et al* 2002). The implication is that the effects identified here may interact in interesting ways with local fiscal incentives. In other words, there appear to be unrealized gains from trade between the literature on state-society contracts to which this paper speaks, and that on fiscal federalism, which emphasizes instead contracts between levels of government.

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<sup>18</sup>See, e.g., the country reports in Horvath (2000). As discussed above, the measure of revenue reporting used in this paper likely captures to a considerable extent the evasion of many taxes not directly calculated from firm revenues.

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**Table 1: Countries Represented in Sample**

	<b>Firms in BEEPS Sample</b>	<b>1999 General Government Revenue as Percent of GDP</b>
Albania	163	21.3
Armenia	125	20.3
Azerbaijan	137	18.9
Belarus	132	45.7
Bulgaria	130	39.8
Croatia	127	42.8
Czech Republic	149	38.7
Estonia	132	36.4
Georgia	129	15.4
Hungary	147	39.1
Kazakhstan	147	17.4
Kyrgyzstan	132	24.0
Latvia	166	40.1
Lithuania	112	31.7
Macedonia	136	38.0
Moldova	139	27.4
Poland	246	40.2
Romania	125	33.3
Russia	552	35.1
Slovakia	138	39.7
Slovenia	125	43.6
Ukraine	247	33.7
Uzbekistan	126	30.4

Note: Government revenue figures are imputed from expenditure and balance data in EBRD (2001).

**Table 2: Firm Characteristics**

<u>Variable</u>	<u>Mean/proportion</u>
Employment	144 (174)
State	0.13
Private	0.87
Number of competitors	
- None	0.10
- 1-3	0.13
- More than 3	0.78
Personal-service sector	0.06
Transportation sector	0.06
Wholesale sector	0.14
Retail sector	0.14
Manufacturing sector	0.30
Construction sector	0.09
Business-service sector	0.06
Resource sector	0.13
Other sector	0.02
Finance sector	0.02
Capital city	0.29
Other, over 1 million	0.06
Other, 250,000 – 1 million	0.13
Other, 50,000 – 250,000	0.19
Other, under 50,000	0.24
Rural	0.09

Note: Standard deviation of employment reported in parentheses.

**Table 3a: Revenue Reporting and Dependent Variables**

Variable Name	Question on Survey	Responses					
<b>A. Revenue Reporting</b>		Mean	Standard deviation				
Percent of revenues reported	“What percentage of sales of a typical firm in your area of activity would you estimate is reported to the tax authorities, bearing in mind difficulties in complying with taxes and other regulations?”	80.0	24.8				
<b>B. Dependent Variables in OLS Regressions</b>		Mean	Standard deviation				
Bribe payments as percent of revenues	“On average, what percent of revenues do firms like yours typically pay per annum in unofficial payments to public officials?”	2.6	4.8				
Non-tax bribe payments as percent of revenues	Previous question, subtracting out that proportion of unofficial payments spent “to deal with taxes and tax collection” and “to deal with customs/imports.”	1.7	3.3				
Percent of management time spent with government officials	“What percentage of senior management’s time per year is spent dealing with government officials about the application and interpretation of laws and regulations?”	9.9	12.7				

Notes: In regressions reported in Table 4, the dependent variables in the OLS regressions are recoded so that a higher response consistently reflects more government support of business activity, e.g. “Percent of revenues *not* paid as bribes” is equal to 100 minus “Bribe payments as percent of revenues.”

**Table 3b: Revenue Reporting and Dependent Variables, cont.**

<b>C. Dependent Variables in Ordered-Probit Regressions</b>		Never	Seldom	Sometimes	Frequently	Mostly	Always
Opportunity to appeal administrative violations	“If a government agent acts against the rules I can usually go to another official or to his superior and get the correct treatment without recourse to unofficial payments.”	602 18.9%	700 22.0%	762 24.0%	266 8.4%	503 15.8%	345 10.9%
		Strongly disagree	Disagree in most cases	Tend to disagree	Tend to agree	Agree in most cases	Fully agree
Contracts and property rights enforced	“To what degree do you agree with this statement? ‘I am confident the legal system will uphold my contract and property rights in business disputes.’”	366 9.8%	568 15.2%	929 24.9%	1057 28.3%	577 15.5%	237 6.4%
		Very unhelpful	Mildly unhelpful	Neutral	Mildly helpful	Very helpful	
Local government helpful	“How helpful do you find local/regional governments towards businesses like yours?”	1132 30.9%	646 17.7%	1040 28.4%	677 18.5%	165 4.5%	
<b>D. Dependent Variables in Probit Regressions</b>		Yes	No				
Willing to pay more taxes to eliminate corruption	See text.	1623 54.7%	1347 45.4%				
Willing to pay more taxes to eliminate excessive regulations	See text.	1743 58.6%	1230 41.4%				

**Table 4: Determinants of Revenue Reporting - OLS Regressions**  
 (Significance levels: 10% - \*; 5% - \*\*; 1% - \*\*\*)

	<b>Percent of Revenues Reported (Country Dummies)</b>		<b><u>Percent of Revenues Reported</u></b>	
	<b><u>Estimated coefficient</u></b>	<b><u>Robust std. error</u></b>	<b><u>Estimated coefficient</u></b>	<b><u>Robust std. error</u></b>
General government revenue as % of GDP			0.42***	0.05
Log employment	2.50***	0.31	2.33***	0.31
State-owned enterprise	-0.11	1.28	1.40	1.32
Degree of competition	-4.29***	0.65	-4.01***	0.64
Personal-service sector	-3.93*	2.06	-3.67*	2.12
Transportation sector	-3.43*	2.00	-4.11**	2.07
Wholesale sector	-1.74	1.43	-2.64*	1.45
Retail sector	-0.93	1.42	0.16	1.43
Construction sector	0.00	1.54	-0.47	1.54
Business-service sector	0.77	1.96	1.37	1.99
Resource sector	0.99	1.52	0.06	1.48
Other sector	1.31	3.30	0.47	3.43
Finance sector	8.58***	2.35	9.61***	2.43
N		3415		3415
R <sup>2</sup>		.128		.070

Notes: Private and manufacturing firms omitted categories. Country dummies included in first but not second regression. Constant and town-size dummies included in both regressions.



**Table 5: Tax Receipts by Sector in Russia, 1997**

	<u>Percent of GDP (1)</u>	<u>Percent of Tax Receipts (2)</u>	<u>Column (2) / Column (1)</u>
Agriculture	7.2	1.0	0.1
Services	16.1	8.6	0.5
Construction	8.7	6.5	0.7
Other	28.9	26.8	0.9
Transport	10.8	15.1	1.4
Industry	28.1	39.7	1.4
Banking	0.3	2.4	8.0

Source: M.P. Afanas'ev and P.V. Kuznetsov, *Nalogi v Rossii i v mire [Taxes in Russia and the World]*, 1997, Rabochii Tsentr Ekonomicheskikh Reform pri Pravitel'stvo Rossii [Working Center for Economic Reforms – Russian Government], p. 24.

**Table 6: Effect of Revenue Reporting and Ownership on Government Support**  
(Significance levels: 10% - \*; 5% - \*\*; 1% - \*\*\*)

**OLS Regressions**

	<b>Percent of Revenues <u>Not Paid as Bribes</u></b>		<b>Percent of Revenues <u>Not Paid as Non-Tax Bribes</u></b>		<b>Percent of Management Time <u>Not Spent with Government Officials</u></b>	
	<b><u>Estimated coefficient</u></b>	<b><u>Robust std. error</u></b>	<b><u>Estimated coefficient</u></b>	<b><u>Robust std. error</u></b>	<b><u>Estimated coefficient</u></b>	<b><u>Robust std. error</u></b>
<b>Proportion of revenues reported</b>	2.72***	0.43	1.98***	0.32	3.15***	1.01
<b>State-owned enterprise</b>	0.53**	0.22	0.46***	0.15	-3.30***	0.80
Log employment	0.37***	0.07	0.28***	0.05	-0.20	0.17
Degree of competition	-0.26*	0.14	-0.17*	0.10	0.49	0.40
N	2685		2416		3114	
R <sup>2</sup>	.128		.108		.101	

**Ordered-Probit Regressions**

	<b>Opportunity to Appeal <u>Administrative Violations</u></b>		<b>Contracts and Property <u>Rights Enforced</u></b>		<b>Local Government <u>Helpful</u></b>	
	<b><u>Estimated coefficient</u></b>	<b><u>Robust std. error</u></b>	<b><u>Estimated coefficient</u></b>	<b><u>Robust std. error</u></b>	<b><u>Estimated coefficient</u></b>	<b><u>Robust std. error</u></b>
<b>Proportion of revenues reported</b>	0.36***	0.09	0.25***	0.08	0.26***	0.08
<b>State-owned enterprise</b>	0.06	0.07	0.32***	0.06	0.27***	0.06
Log employment	0.05***	0.02	0.07***	0.01	0.11***	0.01
Degree of competition	-0.02	0.04	-0.02	0.03	-0.06*	0.04
N	2903		3401		3329	
Maximized log likelihood	-4935.3		-5370.8		-4658.5	
Marginal effects	Always (Pr = .10)	Mostly (Pr = .16)	Fully Agree (Pr = .06)	Agree in Most Cases (Pr = .15)	Very Helpful (Pr = .04)	Mildly Helpful (Pr = .18)
- Prop. of revenues reported	.06	.05	.03	.04	.02	.05
- State ownership	.01	.01	.04	.05	.03	.05

Notes: Wording of dependent variables in OLS regressions reflects coding so that a higher response consistently reflects more government support of business activity; see Table 3 for details. Private firms omitted category. Constant and sector, country, and town-size dummies included in all regressions. For ordered-probit regressions, probability is predicted probability averaged across all individuals, and marginal effect is average derivative for proportion of revenues reported and average discrete change for state ownership.

**Table 7: Revenue Reporting as Determinant of Willingness to Pay More Taxes to Receive More Support  
(Probit Regressions)**

(Significance levels: 10% - \*; 5% - \*\*; 1% - \*\*\*)

	<b>Willing to Pay More Taxes To Eliminate Corruption</b>		<b>Willing to Pay More Taxes To Eliminate Excessive Regulations</b>	
	<b><u>Estimated coefficient</u></b>	<b><u>Robust std. error</u></b>	<b><u>Estimated coefficient</u></b>	<b><u>Robust std. error</u></b>
<b>Proportion of Revenues Reported</b>				
State-owned enterprise	-0.76***	0.12	-0.69***	0.12
Log employment	-0.14	0.09	-0.10	0.09
Degree of competition	-0.01	0.02	-0.02	0.02
	-0.02	0.04	-0.08*	0.04
N	2646		2709	
Maximized log likelihood	-1624.2		-1643.2	
Marginal effects	Pr(Yes) = .54		Pr(Yes) = .59	
- Prop. of revenues reported	-.27		-.24	

Notes: Private firms omitted category. Constant and sector, country, and town-size dummies included in all regressions. Probability is predicted probability averaged across all individuals; marginal effect is average derivative. Firms in Albania dropped since all respondents in that country expressed willingness to pay more.