

## TAX BRIBES IN TRANSITION COUNTRIES

*John E. Anderson, University of Nebraska-Lincoln*

**T**AX BRIBES ARE A VERY REAL PART OF THE TAX culture in transition countries. Tax officials may ask firms to make unofficial payments or gifts for the purpose of dealing with taxes and tax collection. If so, these unofficial payments or gifts are considered tax bribes. Economic transition, fiscal reforms, and efforts to strengthen public administration are changing the tax cultures of transition countries—all with the potential to affect the frequency of tax bribes. This paper examines firm-level survey data on the prevalence of firms being required to pay bribes to tax officials in transition countries in both 1999 and 2002. The purpose of this analysis is to identify elements of the tax culture of these countries that affect the likelihood of tax bribery. Empirical models of the likelihood of tax bribes being paid by firms are estimated and reported, with policy implications drawn for improvements in tax culture.

Business survey data has been collected at the firm level by the European Bank for Reconstruction and Development (EBRD) and the World Bank, enabling researchers to analyze the frequency and size of tax bribes. Three waves of the Business Environment and Enterprise Performance Survey (BEEPS) have been conducted in 1999 (BEEPS I), 2002 (BEEPS II), and most recently in 2005-06 (BEEPS III). The original BEEPS I survey covered approximately 3,000 firms in 20 transition countries and the BEEPS II survey covered approximately 6,000 firms in 27 countries. Table I provides a list of the countries included in both surveys. The BEEPS III data reporting is not yet complete so analysis in this paper employs the BEEPS I and II data.

Researchers have used the BEEPS data to analyze the prevalence of corruption, the extent of state capture of firms, and matters of governance. For an early overview on the use of BEEPS data, see Hellman et al. (2000), and Helman, Jones, and Kaufmann (2003). On the topic of tax bribes, Hellman et al. (2000) analyzed the BEEPS I data on both the frequency of firms admitting to paying bribes and, conditional on that admission, the percentage of revenues paid in bribes. Their analysis indicated that the percentage of firms admitting to ever paying bribes ranged from 45 percent in

Slovenia and Belarus, to a high of 90 percent in Kyrgyzstan, 85 percent in Azerbaijan, and 80 percent in both Romania and Uzbekistan. The bribes ranged from a low of 2 percent of revenues in Croatia and 3 percent in Poland and Estonia, to a high of 8 percent in Georgia, 7 percent in Armenia and Azerbaijan, and 6 percent in Kyrgyzstan, Moldova, Ukraine, and Uzbekistan.

Tanzi and Tsibouris (2000) analyzed both the frequency and extent of unofficial payments to tax officials. They reported the percentage of firms bribing frequently or more often ranged from a low of 7.7 percent in Slovenia to a high of 59.3 percent in Azerbaijan. The average tax bribe ranged from a low of 2.1 percent of revenues in Croatia to a high of 8.1 percent in Georgia. Furthermore, Tanzi and Davoodi (2000) found that tax bribes as a share of annual revenue fell with the size of the enterprise.

Analysis of tax bribery and the general tax culture of transition economies also has the potential to enhance our understanding of the nature and manifestations of corruption (see Shleifer and Vishny, 1993), and of the way politicians and firms behave (see Shleifer and Vishny, 1994). It also informs our understanding of the so-called virtual economy that has been prevalent in transition economies, as described in Gaddy and Ickes (1998a, 1998b, 1998c), Ericson and Ickes (2001), and Ericson (1991, 1999). Finally, this analysis can begin to inform policy assessment of fiscal reform efforts in transition economies, as in Tanzi and Tsibouris (2000).

### TRANSITION AND TAXES

Fiscal reforms in transition countries have involved fundamental restructuring of both revenue and expenditure systems in order to facilitate transition to market-oriented resource allocation. On the expenditure side, fiscal reforms have rationalized public sector responsibilities, introduced hard budgets and modern budgeting processes, and established treasury functions. On the revenue side, fiscal reforms have developed comprehensive tax codes, established destination-based consumption-type VATs, implemented market-based corporate

*Table 1*  
**Transition Countries Represented in the BEEPS I and II Surveys**

Albania	Georgia	Romania
Armenia	Hungary	Russia
Azerbaijan	Kazakhstan	Serbia and Montenegro
Belarus	Kyrgyzstan	Slovakia
Bosnia and Herzegovina	Latvia	Slovenia
Bulgaria	Lithuania	Tajikistan
Croatia	Macedonia	Turkey
Czech Republic	Moldova	Ukraine
Estonia	Poland	Uzbekistan

income taxes, and eliminated various exemptions, preferences, and holidays. For an overview of the typical fiscal reforms recommended and implemented in transition countries, see Lorie (2003), Martinez-Vazquez and McNab (1997, 2000), Summers and Baer (2003), Stepanyan (2003), and Tanzi and Zee (2000).

Mitra and Stern (2002) identify opposing movements in key ratios that are often used to monitor fiscal reform: the level of taxation relative to GDP and the composition of tax revenue sources. First, there may be opposing effects at the beginning of transition and at the end of a decade of transition. Second, there are opposing effects in cross-section comparisons of transition countries after a decade of reform. For both reasons, Mitra and Stern suggest that there is a U-shaped temporal pattern of the share of tax revenues to GDP and the shares of major taxes in tax revenue.

Comparisons of fiscal reform across transition countries involve several factors that deserve consideration. Typically, there is a loss of revenue from traditional profit, turnover, and payroll taxes due to the noncompetitive nature of state enterprises. With the advent of price liberalization, hard budget constraints, and private competition, the potential for tax revenue from these entities is reduced. Additionally, fiscal reforms involve only a limited ability to quickly implement broad-based low-rate tax structures that are effectively administered. The challenge is to institute a new tax system that fosters compliance among new and restructured enterprises, before they are driven underground. For both reasons, it is difficult for transition governments accustomed to operating with a preemptive claim on the output of state enterprises to quickly establish an effective tax administration regime and foster a culture of compliance.

Mitra and Stern (2002) identify implications of this transition situation: (1) reduction in the ratio

of tax revenue to GDP (due to declining corporate income tax revenue), (2) reduction in the ratio of public expenditures to GDP (due to a macroeconomic need to reduce fiscal deficits to control inflation), (3) reduction in the importance of income taxes (due to the reduced corporate income tax revenue), (4) reduction in the importance of social insurance tax revenues in CIS countries, (5) increase in the share of individual income taxes, and (6) increase in the importance of indirect taxes such as VAT and excises taxes (reflecting the decline in direct taxes). Overall, they expect that with fiscal reform there will be: (1) an increase in the ratio of tax revenue to GDP, (2) an increase in the share of direct taxes in tax revenue, and an increase in the share of revenue from personal income taxes, (3) a reduction in the share of revenue from domestic forms of indirect taxation, and (4) a reduction in the role of trade taxes.

Tanzi and Tsiouris (2000) caution that many fiscal reforms are not immediately effective in generating revenues. In fact, they observe that some reforms are revenue-reducing. Furthermore, many tax policy reforms are hindered by problems with strengthening tax administration. Concern over tax evasion has been a particularly vexing issue in many transition countries. In one study of tax evasion Anderson and Carasciuc (2004) examined evidence from the Republic of Moldova and found quite predictable effects, with greater measured tax evasion in sectors of the economy where audit frequencies were lower and/or where the real value of fines and penalties were lower. Most recently, Joulfaian (2007) finds quite clear evidence supporting the conventional model of tax evasion for transition economies.

#### **Reform Measures**

Several measures of tax reform are used in this study in order to test whether fiscal reforms

in recent years have affected the tax cultures of the countries engaged in those reforms. First, two reform measures developed in Martinez-Vazquez and McNab (1997) are used. They developed both a cumulative reform index (CRI) and an overall reform index (ORI). Their CRI measure is constructed using data from 24 transition countries over the period 1989-96. They use six measures of the effectiveness of reform, including: (1) timing of tax reform, (2) preparation for tax reform, (3) stability of the tax system, (4) high tax rates, (5) prevalence of tax holidays, and (6) complexity. CRI scores range from a low of 3 to a high of 17. A low score indicates more advanced reform. The most advanced reform indices are found in the Czech Republic, Estonia, Latvia, and Croatia. High intermediate reform indices are found in the Slovak Republic, Hungary, Lithuania, Poland, Kazakhstan, and Slovenia. Low intermediate reform indices are found in Bulgaria, Kyrgyz Republic, Turkmenistan, Ukraine, Albania, Romania, Russian Federation, and Tajikistan. Slow reform countries include Georgia, Azerbaijan, Armenia, Uzbekistan, Moldova, and Belarus. Martinez-Vazquez and McNab also constructed an overall reform index (ORI) by assigning an index value from 0 to 3 for countries in each of these groups. The lower the ORI index score, the more advanced the tax reform in the country. The CRI and ORI tax reform indices developed by Martinez-Vazquez and McNab are used here in preference to an alternative subjective index of tax reform progress developed by Ebrill and Havrylyshyn (1999).

Second, I use the share of tax revenue generated by direct taxes, including personal and corporate income taxes, as a measure of the extent of tax reform. This ratio is an indicator of the extent of fiscal reform in transition countries. In the initial stages of fiscal reform, the ratio is relatively low as countries rely heavily on excises, customs duties, and other forms of indirect taxation. As reform proceeds, however, the ratio typically rises. The direct tax measures used in the regression analysis to follow are taken from Mitra and Stern (2002).

#### MODEL ESTIMATES

The research in this paper is based on analysis of BEEPS I and II data augmented with country-specific information. Data on the extent of fiscal reforms are also included. We analyze firm-level

responses to survey questions on tax bribes. The tax bribe survey question provides a vector  $y$  of firm responses. The survey instrument provides a matrix  $x$  of observations of firm-specific characteristics. The survey data is augmented with country-specific economic data, described in a matrix  $z$ , and country-specific information on fiscal reform efforts, described in a matrix  $r$ . Hence, analysis of the tax bribe involves estimation of the model,

$$y = \beta'x + \gamma'z + \delta r + \varepsilon,$$

where the coefficient vectors  $\beta$ ,  $\gamma$  and  $\delta$  are estimated. Estimates of the coefficients in the vector  $\delta$  have the potential to inform analysis of the effects of fiscal reforms across transition countries.

#### BEEPS I (1999) Model Estimates

The BEEPS I data analysis focuses on a simple examination of the likelihood that firms say they are asked to make unofficial payments to tax officials. The dependent variable in the OLS regressions is a measure of the frequency of demands for tax bribes (unofficial payments to tax authorities) that firms report, ranging from a low of 1, indicating that tax bribes are never required, to a high of 6, indicating that tax bribes are always required. Observations for which there is no response or a response "don't know" are omitted from the sample. The mean reported frequency in the sample is 1.78, which corresponds most closely to the description that the firm is seldom asked for a tax bribe. Table 2 provides summary statistics for the variables used in both BEEPS I and II models. There is, of course, reason for concern that simply omitting this data may be problematic. For sample-selection treatments see Joulfaian (2007) and Anderson (2005).

Models 1-3 reported in Table 3 differ only in the tax reform measures that are included. Examining the pattern of signs and significance across the three models, we can identify factors that both reduced and increased the frequency of demands for tax bribes. Firm-specific factors that reduce the frequency of tax bribes include: (1) the number of full-time employees of the firm, (2) a practice of trading with the state by the firm, (3) urbanized population, (4) and a change in the amount of tax revenue earned in the country in which a firm is located. Firm-specific factors that increase the frequency of tax bribes include: (1) firm use of the Internet, and (2) firm adoption of international accounting standards. Country-specific factors

*Table 2*  
**Variable Means in the BEEPS I and II Surveys**

<i>Variable</i>	<i>BEEPS I</i>	<i>BEEPS II</i>
Question 28 tax bribe frequency response (scale: 1-6)	1.7778	
Question 56g tax bribe frequency response (scale: 1-6)		1.9341
CIS country (0/1)	0.4669	0.2075
Full-time employees	3.9799	
Casual employees	1.8893	
Employment size category (1, 2, 3)		1.4427
Trade with state (0/1)	0.5008	0.2602
Internet (0/1)	0.3936	0.5528
International accounting standards (0/1)	0.3629	0.4837
Population	35,161,495	
GDP per capita (\$ppp)	6,403	8,640
Urban population	24,722,334	
Agricultural value added (% of GDP)	12.9485	9.0529
GDP growth rate (%)	2.1441	4.7392
Taxes as a share of GDP (%)	24.2745	15.1846
FDI	5.0277	
Direct tax share (%)	29.4489	25.1271
ORI overall tax reform measure (range 0-3, with lower score indicating more advanced reform)	1.5949	
CRI cumulative tax reform measure (range 3-17, with lower score indicating more advanced reform)	9.6564	

that increased the frequency of tax bribes for firms include: (1) the population of the country, (2) the agricultural value added of the country, (3) GDP growth of the country, (4) foreign direct investment in the country, and (5) measures of the extent of tax reform in the country.

Fiscal reform measures were also included in the models. The estimated coefficient estimate on the direct tax share variable is negative and highly significant in all three model estimations. As fiscal reform generates a greater share of tax revenue from direct taxes we see that the frequency of tax bribery is reduced. The Martinez-Vazquez and McNab indices of fiscal reform have estimated coefficients in Models 2 and 3 that are positive and significant. Recalling that index values are inversely related to the extent of reform, these estimated coefficients indicate that firms operating in countries with more advanced fiscal reforms are less frequently asked to pay tax bribes. Hence, we have evidence that the extent of fiscal reform, as measured by these indices of reform, have an impact on the frequency with which firms are asked to pay tax bribes.

#### **BEEPS II (2002) Model Estimates**

Firm responses to the BEEPS II survey question 56, which asked, "Thinking now of unofficial

payments/gifts that a firm like yours would make in a given year, could you please tell me how often they make payments/gifts for the following purposes." One purpose listed was, "To deal with taxes and tax collection." Firm responses were coded according to a scale with the value of 1 indicating the firm was never asked for a bribe, to a high of 6 indicating the firm was always asked for a bribe. The variable recording these responses was used as the dependent variable in estimating Models 1-3 reported in Table 4. The mean level of BEEPS II tax bribe frequency reported in Table 2 is 1.93, which is not statistically different from the mean from the BEEPS I sample.

Table 4 reports results of estimation for three models of tax bribe frequency. Model 1 is the basic model that includes variables controlling for economic conditions of the country in which firms operate, and characteristics of the firms. Models 2 and 3 add alternative measures to control for the stage of fiscal reform across the countries. Model 1 indicates that there are five factors that work to reduce the frequency of tax bribes: (1) higher GDP per capita, (2) a higher growth rate of GDP, (3) firm adoption of international accounting standards, (4) larger employment by the firm, and (5) trade with the state. Model 1 also identifies two factors that increase the likelihood of tax bribes: (1) increased

*Table 3*  
**Model Estimates for Tax Bribe Frequency, BEEPS I**

<i>Variable</i>	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>
Constant	1.8750 <sup>a</sup> (.3196)	2.0893 <sup>a</sup> (.3367)	1.9318 <sup>a</sup> (.3210)
Full-time employees	-0.9790E-01 <sup>a</sup> (.1545E-01)	-.9640E-01 <sup>a</sup> (.1545E-01)	-.9685E-01 <sup>a</sup> (.1545E-01)
Casual employees	0.1551E-01 (.1508E-01)	.1550E-01 (.1507E-01)	.1483E-01 (.1508E-01)
Trade with state	-0.1762 <sup>a</sup> (.4905E-01)	-.1738 <sup>a</sup> (.4904E-01)	-.1742 <sup>a</sup> (.4904E-01)
Internet (0/1)	0.1280 <sup>a</sup> (.5189E-01)	.1322 <sup>a</sup> (.5191E-01)	.1337 <sup>a</sup> (.5197E-01)
International accounting standards (0/1)	0.1247 <sup>b</sup> (.5489E-01)	.1359 <sup>a</sup> (.5413E-01)	.1323 <sup>b</sup> (.5503E-01)
CIS country (0/1)	.1271 (.9788E-01)	-.1811E-01 (.1216)	.9257 (.1183)
Population	.4119E-07 <sup>a</sup> (.1439E-07)	.3740E-07 <sup>a</sup> (.1451E-07)	.3765E-07 <sup>a</sup> (.1453E-07)
GDP per capita	-.1877E-04 (.1587E-04)	-.1943E-04 (.1587E-04)	-.1658E-04 (.1591E-04)
GDP growth rate	.1655E-01 <sup>a</sup> (.6315E-02)	.9948E-02 (.7114E-02)	.1124E-01 <sup>a</sup> (.6988E-02)
Urban population	-.5055E-07 <sup>a</sup> (.1942E-06)	-.4600E-07 <sup>b</sup> (.1953E-07)	-.4655E-07 <sup>b</sup> (.1954E-07)
Agricultural value added	.2145E-01 <sup>a</sup> (.4550E-01)	.1557E-01 <sup>a</sup> (.5405E-02)	.1759E-01 <sup>a</sup> (.5043E-02)
FDI	.3385E-01E-01 <sup>a</sup> (.6150E-02)	.3615E-01 <sup>a</sup> (.6251E-02)	.3741E-01 <sup>a</sup> (.6467E-02)
Taxes as a share of GDP	-.4820E-02 (.5152E-02)	-.8431E-02 (.5454E-02)	-.7832E-02 (.5424E-02)
Direct tax share of total taxes (%)	-.8436E-02 <sup>c</sup> (.4455E-02)	-.1250E-01 <sup>a</sup> (.4883E-02)	-.1108E-01 <sup>b</sup> (.4697E-02)
ORI overall tax reform measure (range 0-3, with lower score indicating more advanced reform)		.9875E-01 <sup>b</sup> (.4911E-01)	
CRI cumulative tax reform measure (range 3-17, with lower score indicating more advanced reform)			.2022E-01 <sup>c</sup> (.1141E-01)
Adjusted R <sup>2</sup>	.1267	.1278	.1275
F	27.29 <sup>a</sup>	25.77 <sup>a</sup>	25.70 <sup>a</sup>
N	2,538	2,538	2,538

Notes: (1) Standard errors are reported in parentheses with coefficient superscripts *a*, *b*, and *c* indicating significance at the 1 percent, 5 percent, and 10 percent levels, respectively. (2) The dependent variable is a measure of frequency that ranges from a low of 1 indicating that bribes are never required to a high of 6 indicating that bribes are always required. (3) E+nn or E-nn means multiply by 10 to the +/- nn power.

Table 4  
Model Estimates for Tax Bribe Frequency, BEEPS II

Variable	Model 1	Model 2	Model 3
Constant	2.4284 <sup>a</sup> (0.1462)	2.7774 <sup>a</sup> (.2481)	2.2762 <sup>a</sup> (.3069)
International accounting standards (0/1)	-.5011E-01 <sup>c</sup> (.2838E-01)	.5340E-02 (.3560E-01)	.1020E-01 (.3561E-01)
Internet (0/1)	.2321E-01 (.3879E-01)	.1615E-01 (.4681)	.1025E-01 (.4681E-01)
Employment size category (1, 2, 3)	-.1279 <sup>a</sup> (.2546E-01)	-.1110 <sup>a</sup> (.3126E-01)	-.1123 <sup>a</sup> (.3123E-01)
Trade with state (0/1)	-.7840E-01 <sup>b</sup> (.4102E-01)	-.5195E-05 (.5178E-01)	-.5313E-01 (.5173E-01)
CIS country (0/1)	.2890 <sup>a</sup> (.4673E-01)	.2039 <sup>a</sup> (.7502E-01)	.2075 <sup>a</sup> (.7496E-01)
GDP per capita	-.5228E-04 <sup>a</sup> (.9491E-05)	.4823E-05 (.1203E-04)	.1442E-04 (.1250E-04)
GDP growth rate	-.2135E-01 <sup>a</sup> (.7214E-02)	-.8556E-02 (.1244E-01)	-.2802E-01 <sup>b</sup> (.1428E-01)
Agricultural value added	.1580E-01 <sup>a</sup> (.3534E-02)	.3405E-01 <sup>a</sup> (.6508E-02)	.4635E-01 <sup>a</sup> (.7872E-02)
Taxes as a share of GDP (%)		-.7212E-01 <sup>a</sup> (.1240E-01)	-.7270E-01 <sup>a</sup> (.1239E-01)
Direct tax share of total taxes (%)			.1628E-01 <sup>a</sup> (.5879E-02)
Adjusted R <sup>2</sup>	.0978	.1065	.1083
F	78.96 <sup>a</sup>	45.98 <sup>a</sup>	42.23 <sup>a</sup>
N	5,753	3,397	3,397

Notes: (1) Standard errors are reported in parentheses with coefficient superscripts *a*, *b*, and *c* indicating significance at the 1 percent, 5 percent, and 10 percent levels, respectively. (2) The dependent variable is a measure of frequency that ranges from a low of 1 indicating that bribes are never required to a high of 6 indicating that bribes are always required. (3) E+nn or E-nn means multiply by 10 to the +/- nn power.

importance of agriculture in the economy, and (2) location in a CIS country.

Models 2 and 3 include controls for the stage of fiscal reform across countries. In both models the variable controlling for tax revenue as a share of GDP enters with a negative coefficient indicating that the higher the tax ratio the lower the frequency of tax bribery. Furthermore, Model 3 indicates that controlling for the overall level of taxation relative to GDP, the share of taxes derived from direct taxes (as opposed to indirect taxes) has a positive effect on the frequency of bribery.

Comparing the results in Tables 3 and 4 indicates both consistent and inconsistent effects from the two samples. Employment size is consistently

negative, indicating that larger firms are less likely to be asked for tax bribes. Trade with the state has a weaker negative effect on tax bribe frequency in BEEPS II than in BEEPS I. This difference is likely to be a result of the fact that nearly half as many firms are trading with the state in BEEPS II as compared to BEEPS I. The effect of operating in a CIS country has a stronger positive effect on the frequency of tax bribes in BEEPS II. Here again, the fact that about half as many firms in BEEPS II operate in CIS countries is likely to affect the result. The effect of the GDP growth rate is reversed in BEEPS II as compared to BEEPS I, turning negative and indicating that tax bribe frequency is lower for firms in faster growing countries. The

sign on agricultural value added is consistently positive in both sets of estimations, indicating that firms operating in more heavily agricultural economies are subjected to more frequent requests for tax bribes. Finally, contrasting results on the effect of the direct tax share (negative in BEEPS I, but positive in BEEPS II) may be understood in the context of the tax reform processes that took place during the time period between the surveys. Means reported in Table 2 indicate that the direct tax share of total taxes fell overall from BEEPS I to BEEPS II. Apparently, there were more BEEPS II sample firms in countries whose fiscal reforms were still in relatively early stages where indirect taxes were being strengthened and whose direct taxes had not yet been reformed.

### SUMMARY AND CONCLUSIONS

The evidence presented in this paper indicates that there are predictable factors that affect the frequency of tax bribes in transition countries. Firms with larger employment size are less likely to be asked for tax bribes. Firms that engage in trade with the state are also less likely to be asked for bribes, although the importance of this effect is diminished over time. Characteristics of the countries in which firms operate also matter. Firms in CIS countries are more likely to be asked for bribes. Firms in countries whose economies are growing faster are less likely to be asked for bribes. Firms operating in countries with larger agricultural sectors are more likely to be asked to pay bribes. Finally, we have evidence that firms in countries having made more progress in fiscal reform are less likely to be asked to pay bribes.

With this evidence it is natural to ask what a country can do to foster the development of a positive tax culture and reduce the frequency of tax bribery. Some factors identified as influential are within the control of the leadership of a country while other factors are beyond their immediate control. Since we have evidence that faster economic growth and fiscal reforms both help reduce tax bribery, the appropriate policy direction for a country wishing to develop a positive tax culture is to implement economic and fiscal reforms. Indeed, this result is reassuring as it provides evidence in support of economic and fiscal reforms in transition countries.

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