# Economic Reforms and their Impacts on Informal Payments for Government Services in Transition Countries

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# Introduction

- In this paper I examine whether and how economic reforms that have been accomplished in transition countries have resulted in a reduced incidence of informal payments required for government services.

- Using the 2009 EBRD-World Bank Business Environment and Enterprise Performance Survey (BEEPS) data for business enterprises in transition economies of Europe and Central Asia, I empirically model how firm characteristics and country characteristics affect the likelihood that firms are asked to make informal payments (or gifts) for government services.

- In addition, eight measures of economic reform developed by the European Bank for Reconstruction and Development (EBRD) are included in the analysis to test whether reforms of various types have an impact on the likelihood or frequency of reported informal payments.

# Citizen model

- A basic theory of citizens' willingness to pay for public goods is presented and give insights regarding informal payments.
- In cases where the citizen's demand, or virtual, price of the public good is larger than the stated price, the citizen would presumably be willing to pay more in order to gain access to or receive more of the public good.
- The difference between the virtual price and the actual price charged officially is an indication of the amount the citizen may be willing to pay informally.
- Because the virtual price $\varphi(p_1, p_2, z, u)$ depends on the prices of the private goods it is possible that price liberalization in a transition country, raising these prices, will have the effect of reducing the virtual price of the public good.
- Hence, it is conceivable that price liberalizing reforms will have the effect of reducing the willingness to make informal payments.
- It is also possible that if economic reforms improve the economy and the government increases the amount of the public good provided to citizens, the willingness to make informal payments is reduced.

# Government official model

- The government official model is a basic labor-leisure choice model that indicates the official will choose to work the number of hours where the marginal rate of substitution between leisure and income (the left-hand-side) is equal to the expected hourly wage (the right-hand-side).

- The expected hourly wage is a combination of the probability he will not be terminated from his job and the gross hourly wage plus bribes he earns per hour.

- Implicit in this expression for the expected hourly wage is a trade-off with respect to $\beta$ and $\tau$. The higher the hourly bribe rate $\beta$ accepted or demanded by the official, the greater the probability of his termination $\tau$. An increase in $\beta$ reduces the probability that he will retain his job, $(1 - \tau)$.

- Hence, the official must decide not only how much to work, but also how high a bribe rate to charge, knowing that the higher his bribe rate the more likely he is to lose his job.

# Government official model

- In this setting, there are two policy levers the government can pull in order to discourage corruption on the part of its officials.

  - First, the government can be more vigorous in terminating officials found to be taking bribes, thus increasing the size of the derivative, $\tau'(\beta)$. In a principal-agent framework, this requires closer monitoring of officials' behavior and enforcement of termination rules.

  - The other policy option available to the government is to raise the wage of its officials, thereby encouraging them to take fewer informal payments in order to supplement their income. There is a direct trade-off between the government wage and the bribe rate in this model. But, an increase in the government wage w does not necessarily assure a proportionate reduction in $\beta$. The wage increase may simply result in a reduction in hours worked, or effort expended.

  - So far, the model has been cast in terms of hours worked, but it could be modified to incorporate effort combined with time.

# Implications for empirical estimation

- These simple models capture some of the basic elements of the situation common in transition countries, as we examine in the empirical estimations to follow.

- The primary insight provided by the models is that informal payments to government officials may follow quite predictable economic incentives common in such countries.

- The consumer model indicates that economic reforms may reduce the likelihood of making informal payments either due to price liberalization for private goods, or due to increasing GDP that stimulates greater provision of public goods.

- Economic reforms may also reduce the likelihood of making informal payments to government officials either in raising their wages or in encouraging more vigorous government oversight and monitoring of officials.

- While we do not have specific micro-level data available on citizen virtual prices for public goods, wages paid to government officials, or the vigor of monitoring programs, we will use the EBRD reform measures as proxies for the types of reform that may affect these factors.

## Table 2: Probit Models of GIFT YES and GIFT USUAL

| | GIFT-YES Model 1 | GIFT-YES Model 2 | GIFT-USUAL Model 1 | GIFT -USUAL Model 2 |
|---|---|---|---|---|
| Constant | -1.4137[a] | -0.2105 | -1.8674[a] | -2.8171[a] |
| | (0.2286) | (0.3239) | (0.3417) | (0.4863) |
| CIS country | | 0.5500[a] | | 0.1193 |
| | | (0.0605) | | (0.0824) |
| VAT rate | | -0.0815[a] | | -0.0061 |
| | | (0.1002) | | (0.0138) |
| Total corporate tax rate | | 0.0020 | | 0.0180[a] |
| | | (0.0014) | | (0.0012) |
| GDP (PPP) | | -2.60E-05[a] | | -2.82E-05[a] |
| | | (7.55E-06) | | (9.58E0-06) |
| Ag sector size | | -0.0030 | | -0.0048 |
| | | (0.0062) | | (0.0080) |
| Year established | -0.0001 | -0.0001[c] | 0.0002 | 0.0001 |
| | (8.60E-05) | (8.92E-05) | (0.0002) | (0.0002) |
| Managers experience | -0.0094[a] | -0.0024 | -0.0099[a] | -0.0036 |
| | (0.0020) | (0.0021) | (0.0027) | (0.0027) |
| Female manager | -0.0056 | -0.1088[b] | -0.0431 | 0.0184 |
| | (0.0520) | (0.0558) | (0.0670) | (0.0715) |
| International quality certification | -0.1674[a] | -0.0013 | -0.10775[c] | 0.0571 |
| | (0.0520) | (0.0562) | (0.0646) | (0.0696) |
| Subsidized | 0.0107 | 0.2203[a] | -0.3010[a] | -0.1556 |
| | (0.0745) | (0.0826) | (0.1143) | (0.1211) |
| Competes with informal firms | 0.2372[a] | 0.2274[a] | 0.2594[a] | 0.2772[a] |
| | (0.0410) | (0.0440) | (0.0510) | (0.0553) |
| Number of employees | -7.95E-05 | -3.98E-05 | -0.0001 | -8.05E-05 |
| | (5.96E-05) | (4.83E-05) | (0.0001) | (0.0001) |
| Change in number of employees | 0.0649[c] | 0.0677[c] | 2.79E-05 | 1.79E-05[a] |
| | (0.0372) | (0.0390) | (2.86E-05) | (6.35E-06) |
| Legal status 1 | 0.2335[c] | 0.0886 | 0.1994 | 0.3292[b] |
| | (0.1364) | (0.1457) | (0.1538) | (0.1773) |
| Legal status 2 | 0.1370 | 0.1338 | -0.0952 | 0.2690[c] |
| | (0.1262) | (0.1358) | (0.1369) | (0.1617) |
| Legal status 3 | 0.1125 | 0.1660 | 0.1265 | 0.2530 |
| | (0.1344) | (0.1431) | (0.1445) | (0.1676) |
| Legal status 4 | -0.4480[b] | -0.3278 | 0.1211 | 0.5197[b] |
| | (0.2314) | (0.2478) | (0.1946) | (0.2152) |
| Legal status 5 | 0.3738[a] | 0.2352 | 0.2534 | -0.0635 |
| | (0.1414) | (0.1494) | (0.1577) | (0.1848) |
| State owned enterprise | -0.4847 | -0.3740 | -0.3707 | -0.2723 |
| | (0.3194) | (0.3259) | (0.2767) | (0.3046) |
| Previously state owned enterprise | 0.0385 | 0.0116 | -0.2297[c] | -0.2589[b] |
| | (0.1238) | (0.1304) | (0.1317) | (0.1415) |
| Originally private enterprise | -0.0437 | 0.1014 | -0.3444[a] | -0.1183 |
| | (0.1191) | (0.1215) | (0.1241) | (0.1316) |
| Joint venture with foreign partner | 0.4279[a] | 0.4151[b] | 0.3664[b] | 0.2327 |
| | (0.1647) | (0.1768) | (0.1704) | (0.1818) |

# Table 3: Probit Models of GIFT-YES with EBRD Reform Measures

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 | Model 8 |
|---|---|---|---|---|---|---|---|---|
| Firm characteristics | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Small scale privatization index | 0.0149 (0.0391) | | | | | | | |
| Large scale privatization index | | -0.3017[a] (0.0364) | | | | | | |
| Enterprise reform index | | | -0.8028[a] (0.0602) | | | | | |
| Price liberalization index | | | | 0.0214 (0.0490) | | | | |
| Foreign exchange and trade liberalization index | | | | | -0.0671[b] (0.0321) | | | |
| Competition policy reform index | | | | | | -0.7421[a] (0.0543) | | |
| Banking sector reform index | | | | | | | -0.5618[a] (0.0400) | |
| Infrastructure reform index | | | | | | | | -0.5123[a] (0.0408) |
| Observations | 9,788 | 9,788 | 9,788 | 9,788 | 9,788 | 9,788 | 9,788 | 9,788 |
| $R^2$ | 0.0263 | 0.0397 | 0.0825 | 0.0264 | 0.0271 | 0.0694 | 0.0647 | 0.0617 |
| Standard error of regression | 0.2342 | 0.2335 | 0.2316 | 0.2342 | 0.2342 | 0.2323 | 0.2328 | 0.2322 |
| Observations with Dep=1 | 577 | 577 | 577 | 577 | 577 | 577 | 577 | 577 |

## Table 4: Probit Models of GIFT-USUAL with EBRD Reform Measures

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 | Model 8 |
|---|---|---|---|---|---|---|---|---|
| **Firm characteristics** | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **Small scale privatization index** | -0.2585[a] (0.0424) | | | | | | | |
| **Large scale privatization index** | | -0.2059[a] (0.0370) | | | | | | |
| **Enterprise reform index** | | | -0.5944[a] (0.0800) | | | | | |
| **Price liberalization index** | | | | -0.6318[a] (0.0527) | | | | |
| **Foreign exchange and trade liberalization index** | | | | | -0.4382[a] (0.0381) | | | |
| **Competition policy reform index** | | | | | | -0.6207[a] (0.0738) | | |
| **Banking sector reform index** | | | | | | | -0.5943[a] (0.0607) | |
| **Infrastructure reform index** | | | | | | | | -0.3750[a] (0.0514) |
| **Observations** | 9,788 | 9,788 | 9,788 | 9,788 | 9,788 | 9,788 | 9,788 | 9,788 |
| **R²** | 0.0503 | 0.0506 | 0.0813 | 0.0889 | 0.0935 | 0.0773 | 0.0925 | 0.0656 |
| **Standard error of regression** | 0.1716 | 0.1717 | 0.1703 | 0.1691 | 0.1687 | 0.1705 | 0.1691 | 0.1711 |
| **Observations with Dep=1** | 303 | 303 | 303 | 303 | 303 | 303 | 303 | 303 |

# Table 5: Models of Tax Gift Frequency

| | Model 1 | Model 2 |
|---|---|---|
| **Constant** | 1.6723[a] | 1.8934[a] |
| | (0.1357) | (0.1775) |
| **CIS country** | | 0.2993[a] |
| | | (0.0359) |
| **VAT rate** | | -0.0339[a] |
| | | (0.0053) |
| **Total corporate tax rate** | | 0.0107[a] |
| | | (0.0010) |
| **GDP (PPP)** | | -3.57E-05[a] |
| | | (4.24E-06) |
| **Ag sector size** | | -0.0116[a] |
| | | (0.0038) |
| **Year established** | 1.60E-05 | 7.24E-06 |
| | (5.28E-05) | (5.29E-05) |
| **Managers experience** | -0.0102[a] | -0.0050[a] |
| | (0.0011) | (0.0012) |
| **Female manager** | -0.0145 | -0.01491 |
| | (0.0310) | (0.0313) |
| **International quality certification** | -0.12888[a] | 0.0184 |
| | (0.0285) | (0.0300) |
| **Subsidized** | -0.2124[a] | -0.0521 |
| | (0.0385) | (0.0412) |
| **Competes with informal firms** | 0.2728[a] | 0.2799[a] |
| | (0.0256) | (0.0262) |
| **Number of employees** | -3.06E-05[a] | -2.80E-05[b] |
| | (1.24E-05) | (1.34E-05) |
| **Change in number of employees** | 1.19E-05[a] | 5.15E-06[a] |
| | (5.46E-07) | (5.79E-07) |
| **Legal status 1** | 0.3233[a] | 0.2519[a] |
| | (0.0728) | (0.0714) |
| **Legal status 2** | 0.2062[a] | 0.3048[a] |
| | (0.0620) | (0.0602) |
| **Legal status 3** | 0.2013[a] | 0.3051[a] |
| | (0.0678) | (0.0673) |
| **Legal status 4** | 0.0897 | 0.3104[a] |
| | (0.0881) | (0.0856) |
| **Legal status 5** | 0.3689[a] | 0.1346[c] |
| | (0.0796) | (0.0785) |
| **State owned enterprise** | -0.1042 | 0.0257 |
| | (0.1256) | (0.1298) |
| **Previously state owned enterprise** | 0.0683 | 0.0684 |
| | (0.0777) | (0.0775) |
| **Originally private enterprise** | -0.0717 | 0.1055 |
| | (0.0736) | (0.0729) |
| **Joint venture with foreign partner** | 0.4885[a] | 0.4375[a] |
| | (0.1332) | (0.1265) |

# Table 6: Models of Tax Gift Frequency with Firm Characteristics and EBRD Indices

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 | Model 8 |
|---|---|---|---|---|---|---|---|---|
| **Firm characteristics** | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **Small scale privatization index** | -0.2403[a] (0.0334) | | | | | | | |
| **Large scale privatization index** | | -0.2922[a] (0.0237) | | | | | | |
| **Enterprise reform index** | | | -0.5088[a] (0.0204) | | | | | |
| **Price liberalization index** | | | | -0.4051[a] (0.0403) | | | | |
| **Foreign exchange and trade liberalization index** | | | | | -0.3316[a] (0.0253) | | | |
| **Competition policy reform index** | | | | | | -0.5552[a] (0.0233) | | |
| **Banking sector reform index** | | | | | | | -0.5213[a] (0.0237) | |
| **Infrastructure reform index** | | | | | | | | -0.3900[a] (0.0244) |
| **Observations** | 8,798 | 8,798 | 8,798 | 8,978 | 8,798 | 8,798 | 8,798 | 8,798 |
| **R²** | 0.0388 | 0.0491 | 0.0857 | 0.0480 | 0.0576 | 0.0799 | 0.0837 | 0.0624 |
| **Standard error of regression** | 1.1793 | 1.1730 | 1.1502 | 1.1736 | 1.1677 | 1.1538 | 1.155 | 1.1648 |

# Summary and conclusions

- All eight EBRD reform indices are found to have a negative and significant effect on the likelihood and frequency of informal payments.
- The results indicate that the more advanced the reforms the lower the likelihood that firms report any informal payments, or that informal payments are usual. Furthermore, models of the frequency of reported informal payments reveal that economic reforms are significant in reducing those frequencies, other things being equal.
- In a policy sense, these are reassuring, giving confidence that vigorous reforms will pay off with reduced bribery and corruption. This strong set of results indicates that no matter the type or form of economic reform, enterprise reforms, markets and trade reform, financial sector reform, and infrastructure reform, the effect of the reform is to reduce the incidence of informal payments or gift-giving to tax officials.
- Given these results, the policy implications are direct.
  - Transition governments engaging in economic reforms of all types appear to benefit from reduced likelihood and frequency of informal payments to tax officials.
  - Enterprise reforms, market and trade reforms, financial sector reforms, and infrastructure reforms are all found to reduce informal payments.
  - Hence, if the policy objective is to reduce corruption in the form of informal payments to government officials, more vigorous economic reforms of all these types are apparently an effective policy tool to accomplish that objective.

# Summary and conclusions

- Of course, governments have multiple objectives, only one of which is the reduction of corruption in the form of informal payments to officials.

- Another objective is revenue maximization.

  o Reduction of informal payments does not assure that the government will receive greater revenue from tax and/or fee collection. Maximizing revenue collection is a distinct policy objective which may be consistent with the objective of reducing corruption, but is not necessarily coincident with that objective.

- In terms of the Schleifer and Vishny (1993) distinction between corruption with and without theft on the part of the government official, informal payments that may be extracted by the official on behalf of the government, without theft, may actually raise more direct revenue. The indirect effect of that corruption may be quite detrimental to the economy, however.