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ANDREW YOUNG SCHOOL
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Falling Tax Evasion: How Much Can Tax Rates and Labor Regulation Explain?

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Abstract

The study examines if recent reforms in taxation and labor regulations in several transition and developing countries contributed to the observed decline in tax evasion. It uses the Business Environment and Economic Performance Survey, a unified firm survey in 33 countries conducted in 1999-2005. The paper finds a strong positive and statistically significant effect of various measures of taxation and regulation on sales underreporting.

Keywords: tax evasion, tax rate, flat tax, labor regulation, transition.

JEL Classification: H26, H3, J08

Introduction

High taxes and excessive regulation, especially of labor as the most costly input, are two very common explanations of tax evasion. Recently many countries implemented major tax and labor reforms to improve efficiency and combat widespread tax evasion. Previous studies of tax evasion are often confined to one country or to a cross-section of countries, and thus cannot estimate the effect of these policy changes across various institutional environments over time (see Andreoni et al., 1998 and Schneider and Enste, 2000 for the review of literature). This paper exploits not only within-country variation but also cross-country and inter-temporal variation to test the effect of tax rates and labor regulation on evasion. It uses the Business Environment and Economic Performance Survey (BEEPS), a unified firm survey in 33 countries conducted in 1999-2005. Of these countries, 27 are low and middle income countries (LMIC), mostly former socialist countries from Eastern Europe and Central Asia, and 6 are developed countries (Germany, Greece, Ireland, Portugal, Republic of Korea, and Spain).¹ The LMIC group is particularly interesting as many of these countries carried out major reforms of their tax and regulatory systems during the same period.

Measure of Tax Evasion

Tax evasion is difficult to quantify, especially in the absence of integral audit programs of randomly selected taxpayers, which most of the surveyed countries lack. It is also very unlikely that managers will reveal their true tax evasion activities in response to a direct question. The BEEPS get around these difficulties by asking managers an indirect question; “Recognizing the difficulties that many firms face in fully complying with taxes and regulations, what percentage of total annual sales would you estimate the typical firm in your area of business

¹ Bosnia and Herzegovina and its autonomous entity Republika Srpska are not in the estimation sample for the lack of external tax data.

reports for tax purposes?” Having the same question asked several times in so many countries provides a unique opportunity to examine how certain factors influence changes in tax evasion over time and across various institutional environments, controlling for firm and country characteristics.

This measure is not without limitations. Firstly, it is important to recognize that survey questions refer to underreporting of sales by employers in the formal sector only. Therefore, BEEPS does not capture other common modes of tax evasion, including income concealed by self-employed and employees, hidden corporate earnings, underground activities of unregistered or short-term registered companies, etc. Secondly, since evasion questions apply to “the typical firm in your area of business”, the underlying assumption is that characteristics of the typical firm should be broadly consistent with characteristics of a given firm (e.g., in terms of industry, firm size, and type of ownership).

Keeping these limitations in mind, Table 1 shows a considerable drop in sales underreporting over time in LMIC. By 2005, underreporting of sales remains high in LMIC relative to six developed countries but evasion is not as high as it used to be in the past.² Next, we examine if recent reforms in taxation and labor regulations in many transition economies contributed to this sizeable decline in tax evasion.

Measures of Taxation and Labor Regulation

The measures of corporate taxation and labor regulation are drawn directly from BEEPS as well as from several external sources. The internal BEEPS measures include mostly managers’ perceptions on whether tax rates, tax administration, or labor regulation represent an obstacle for doing business. Firm managers were asked “how problematic are these different

² The numbers from the 1999 survey should be interpreted cautiously because the answers were given within 8 categories as opposed to one number in other years.

factors for the operation and growth of your business,” on the scale from 1 to 4 (1=no obstacle).

The BEEPS also asks managers about the share of excess employment due to various government restrictions,³ which could be an excellent proxy for the costs of labor regulation. Since government restrictions can result in both over-employment and under-employment, the employment costs of labor regulation are measured as an absolute percentage deviation of the current employment from the optimal level of employment that would be achieved in the absence of labor regulation.

Several tax measures are collected from external data sources, including OECD Tax Database, PricewaterhouseCoopers Worldwide Tax Summaries, IBFD European Tax Handbook, EIU Country Commerce, IMF Staff Country Reports; etc. These measures include the top corporate income tax (CIT) rate, the value added tax (VAT) rate, the top personal income tax (PIT) rate, and the social security contribution (SSC) rate. The top CIT rate is the maximum legal statutory tax rate that applies to retained earnings of resident non-financial corporations. The VAT rate is the standard rate applied to most of the goods and services (exceptions are the FY Republic of Macedonia in 1999 and Serbia and Montenegro in 2002, where the general sale tax rate is used). The top PIT rate is a legally determined marginal tax rate applicable to the top bracket of the personal income tax schedule. The SSC rate is the aggregate over different rates for various social security contributions from both employers and employees (e.g., for unemployment, health, etc.). Where a progressive rate structure applies, the maximum contribution rate is used. Except for Bosnia and Herzegovina, the external tax data are available for all countries and all years.

³ The full question is “If you could change the number of regular full-time workers your firm currently employs without any restrictions (i.e. without seeking permission, making severance payments etc.), what would be your optimal level of employment as a percent of your existing workforce?” The question was not asked in 1999.

Table 1 shows a considerable 9 pct point drop in both CIT and PIT rates, a moderate 4 pct point decrease in the average SSC rate, and a slight 1.5 pct point decline in the average VAT rate in LMIC from 1999 to 2005. While VAT and SSC rates continue to be relatively high, both CIT and PIT rates fell significantly below the corresponding rates in developed economies as of 2004-2005. By 2005, about a third of all countries in our LMIC sample adopted the flat rate PIT while none chose to do so among surveyed developed countries. These sizeable changes in statutory rates are reflected in corresponding changes in managerial perceptions of high taxes. Over time, fewer and fewer managers considered high taxes and tax regulation as obstacles for doing business. The average scores of these factors in LMIC are steadily approaching the scores in high income countries. However, the trends in labor regulation are less clear. The managerial assessment score for labor regulation as an obstacle for doing business was first declining and then increasing in LMIC, reaching the average score in high income countries. Yet, the employment costs of labor regulation remain higher than the costs in developed economies.

Findings

Table 2 reports estimates of tax evasion functions for three different samples: (1) the LMIC sample for 2002 and 2005 with country and year fixed effects, using percent of sales underreported for tax purposes as dependent variable; (2) the 3-year LMIC sample (adding 1999) with country and year fixed effects but limited dependent variable – a dummy variable indicating if at least 25% of sales underreported; (3) a cross-section of firms in LMIC and high income countries in 2004-2005 using the same dependent variable as in (1). The FE estimates are performed on the sample of 26 countries with repeated surveys. The estimates suggest that tax evasion is more common in smaller, newly created, and privately-owned companies, operating in

hotels and restaurants business, and located in less developed economies. No significant evasion effect of firm employment growth is estimated with these data.

The estimates strongly indicate a positive and statistically significant effect of corporate income taxes on tax evasion. A similar positive effect is found with respect to other objective and subjective measures of taxation and labor regulation, as shown in Table 3 (with the exception of VAT in two specifications and PIT in one specification). Interestingly, the transition countries that adopted the flat rate PIT experienced a significant decline in tax evasion after the tax reform.

Thus, our empirical analysis provides strong evidence of a positive relationship between tax evasion, on one hand, and tax rates and labor regulation, on the other hand. The costs of labor regulation hardly vary over time and, therefore, cannot explain a recent considerable decline in tax evasion in many transition economies. At the same time, lower and less progressive tax rates introduced in most of these countries can potentially explain some of the recent decline in underreporting of sales in the formal sector. Yet, a significant share of the decline remains unexplained, which leaves room for other potential factors to be examined in the future.

References

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Table 1: Summary of Key Variables

	Low and Middle Income Countries			High Income
	1999-2000	2002	2004-2005	2004-2005
Tax Evasion				
At least ¼ of sales underreported, % firms	0.335 (0.472)	0.276 (0.447)	0.187 (0.390)	0.109 (0.312)
Average % of sales underreported	20.027 (25.133)	17.056 (24.554)	11.304 (19.435)	7.009 (11.788)
Taxes and Regulation				
Top CIT rate, %	29.083 (5.838)	23.577 (6.600)	19.889 (6.368)	26.583 (7.586)
Obstacle – high taxes (1 to 4)	3.451 (0.894)	2.730 (1.104)	2.629 (1.123)	2.365 (1.136)
Obstacle – tax regulation (1 to 4)	2.912 (1.064)	2.505 (1.134)	2.385 (1.124)	2.170 (1.111)
Standard VAT rate, %	20.458 (2.160)	20.077 (1.616)	18.963 (2.516)	16.667 (3.448)
Top PIT rate, %	36.208 (7.355)	29.885 (8.903)	27.259 (12.643)	41.833 (3.848)
Flat PIT rate (dummy)	0.125 (0.331)	0.154 (0.361)	0.333 (0.471)	0.000
Maximum SSC rate, %	40.024 (7.681)	38.275 (8.679)	35.685 (9.339)	31.708 (11.306)
Employment cost of labor regulation, %	...	14.792 (25.537)	14.790 (27.726)	9.847 (15.526)
Obstacle – labor regulation (1 to 4)	1.867 (0.947)	1.697 (0.910)	1.813 (0.957)	1.899 (1.032)
Number of countries	24	26	27	6

Notes: Reported are simple cross-country averages obtained as sample means weighted by $1/nf$, where nf is the number of firms per country-year. The trends in unweighted sample means are similar and thus not reported. Standard deviations are in parentheses.

Table 2: Tax Evasion Function

	OLS with FE 2- Year Panel	LPM with FE 3- Year Panel	OLS 2004-2005
Top CIT rate, %	0.481*** (0.106)	0.006*** (0.001)	0.145*** (0.021)
Firm age (years)	-0.053*** (0.010)	-0.001*** (0.000)	-0.032*** (0.009)
Foreign-owned (dummy)	-3.516*** (0.490)	-0.050*** (0.009)	-2.588*** (0.452)
State-owned (dummy)	-4.490*** (0.599)	-0.064*** (0.010)	-3.086*** (0.626)
Medium-sized (dummy)	-3.072*** (0.443)	-0.061*** (0.008)	-2.716*** (0.407)
Large-sized (dummy)	-4.253*** (0.587)	-0.106*** (0.010)	-3.480*** (0.510)
Firm employment growth (3yr)	0.038 (0.028)	0.000 (0.000)	0.045 (0.028)
Lagged log of GDP per capita	-20.214*** (5.386)	-0.221*** (0.058)	-2.208*** (0.248)
N(observations/countries)	14537/26	17956/26	13205/33
R ²	0.10	0.09	0.04

Notes: Robust standard errors are in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%. Each specification also includes industry and year dummies, country's GDP growth rate and 3-year average annual inflation rate. LPM=linear probability model.

Table 3: The Effect of Alternative Regulation Measures on Tax Evasion

	OLS with FE 2-Year Panel	LPM with FE 3-Year Panel	OLS 2004-2005
Obstacle – high taxes	1.650*** (0.167)	0.031*** (0.003)	1.399*** (0.131)
Obstacle – tax regulation	1.941*** (0.162)	0.035*** (0.003)	1.607*** (0.137)
Standard VAT rate	1.487*** (0.292)	-0.004 (0.004)	-0.032 (0.042)
Top PIT rate	0.098** (0.047)	0.000 (0.001)	0.055*** (0.015)
Flat rate PIT reform	-6.221*** (1.026)	-0.057*** (0.015)	-0.990** (0.441)
Total SSC rate	0.485*** (0.106)	0.004*** (0.002)	0.029* (0.015)
Employment cost of labor regulation	0.035*** (0.007)	0.001*** (0.000)	0.035*** (0.008)
Obstacle – labor regulation	1.563*** (0.192)	0.033*** (0.003)	1.385*** (0.158)

Notes: Robust standard errors are in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%. Reported are the estimated coefficients on alternative regulation measures in tax evasion functions. All specifications include the same set of variables as in Table 2.