An Evaluation of the Impact of Corruption, Tax Burden, and Income on the Size of the Shadow Economy

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Abstract

The objective of this research is to examine the effect of corruption, tax burden, income, and tax administration efficiency on the size of the shadow economy. In this study, we have investigated the size of the shadow economy of 50countries. We provide empirical evidence and explanation for the vicious circleof tax evasion and political corruption in which many developing countries, and sometimes even developed countries, often fall into. Also, an important relation between the level of income and tax evasion is identified. In the end, recommendations are made for policy makers. We find that standard prevention policies, thatsometimes have a short-term effect, do not offer a real long-term solution for tax evasion and corruption; instead, policies and measures that impose a strong moral cost on corrupt politicians and on tax evaders can lead to a permanentreduction of both.

Keywords: Corruption, Tax administration, Tax Evasion

JEL: H26; D73; E62

I. Introduction

According to Litina&Palivos (2015), political corruption demonstrated by a sequence of scandals, together with substantial tax evasion and poor public services, has been a "Greek tragedy" for at least the last three decades.

Shadow economy and corruption are a problem for most of developing countries and also for some developed countries that are European Unionmembers. Shadow economy and tax evasion are closely related to each other.

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Tsakumis et. al (2007) mention that Greece's shadow economy is assessed to equal approximately 40% of its GDP and it is the largest in EU. Albanian financeauthorities claim that tax evasion is estimated at least 50% (Tirana, 2015). Schneider (2004) defines shadow economy as an estimate of all market based legal production of goods and services (not including illegal products) that are intentionallyhidden from public authorities.

Even though severe form of penalties, including harsh fines and imprisonment exist, tax evasion continues to thrive, especially in developing countries where also corruption is high. Moutos and Tsitsikas (2010), argue that corruption legitimizes the tax evasion since higher tax citizens are not provided with the public goods and services for which they are paying. Shadow economy and tax evasion have been analyzed using multidisciplinary perspective such as culture, economics, law, psychology, accounting and finance. Past studies have used mainly two schools of thoughts: the psychological approach and the economic approach.

The economy school relies on the idea of tax gap and offers economictheories and models to explain shadow economy and tax evasion, whereas the psychology school offers a psychology-based model in understanding tax evasion and shadow economy (Alley & James, 2006). These different approaches have lead researchers in shadow economy and tax evasion studies that explain them as either an economic problem or a behavioral issue of a certain society based on norms and culture. According to Jackson &Milliron (1986) and Richardson & Sawyer (2001), inthe psychology model, factors such as social norms, attitude, and tax moral are used to explain tax compliance and tax evasion. However, in the economic models, tax evasion is motivated by the trade-off between benefits and costs, as argued byAllingham &Sandmo(1972). Sandma (2005), defines tax evasion as a violation of fiscal law where the taxpayer refrains from reporting income which is taxable.

The aim of this paper is to analyze the relation that exists between tax evasion and corruption, level of income, tax administration efficiencyandtax burden.This study explores the role that corruption, among other factors,plays in explaining shadow economy and tax evasion behavior. The data for corruption, shadow economy, and tax burden of 50 countries in different regions of the world are considered for this study.The results of this paper have implications for both research and practice purposes. Policy makers should consider the impact of corruption level in minimizing the fiscal reforms effects.

This paper is organized in the following manner. Section 2 discusses past studies related to the research question, Section 3 describes the research methods used, Section 4 presents the findings and discusses the outcomes, and Section 5 provides some conclusions and recommendations.

Literature Review

Shadow economy and tax evasion

Several studies have analyzed tax evasion and shadow economy in an international setting. Porcano (1988) studied the effect of audit rates, penalties, and other variables on shadow economy and tax evasion. Alm et al. (1990) has tested tax behavior and income declaration using Jamaican data.Alm and Torgler (2006) have studied the tax declaration and tax morale differences between 15 European countries and the United States. The tax morale for these countries was evaluated based on responses of the World Values Survey questionnaire using the questions related to beliefs of participants if "cheating on tax is justified if you have the chance." They concluded that United States andNorthern European countries had higher tax morale than Spain and otherRomanic countries and the size of the shadow economy (as a percent of GDP) was negatively correlated to tax morale.

Riahi-Belkaoui (2004) studied the relation of tax moral and tax compliance with four variables in 30 countries. The views and perceptions of employees surveyed for the Global Competitiveness Report by the World Economic Forum (1996) were used to estimate the tax compliance behavior. The outcome of this study was that tax compliance and tax moral was related to economic freedom, competition laws, importance of equity market, and rate of violent crimes. The work of Riahi-Belkaoui's (2004) was extended by Picur and Riahi-Belkaoui (2006) that found that tax compliance behavior was also related to bureaucracy levelsand tax moral, in 30 countries.

The study of Riahi-Belkaoui's (2004) was expanded also by Richardson (2006) that analyzed the impact on tax evasionof noneconomicfactors, in 45 countries. Similarly toRiahi-Belkaoui (2004), tax evasion was measured using Global Competitiveness Reports (years 2002–2004).According to this study tax evasion across countries was related to tax morale, perceived fairness, general education level, tax lawcomplexity, and income source.

Tsakumis, Curatola, and Porcano (2007) used Hofstede's (1980) cultural dimensions, toinvestigate how tax evasion and shadow economy was influenced by the national culture.This study showed that culture has a significant influence on tax evasion. According to Tsakumis et al. (2007), actual tax evasion is very difficult to determine; so many studies on tax compliance behavior use substitute measures to evaluate the actual size of shadow economy and its related tax evaded. Some studies use government estimates on shadow economy to estimate tax evasion or vice versa. Similar Tsakumis et al. (2007), the terms 'tax evasion', 'and shadow economy', are used interchangeably throughout the study.

Corruption

According to Transparency International, corruption is defined as "the abuse of entrusted power for private gain" where the political decision makers manipulate policies, institutions and rules of procedure in the allocation of resources and financing, abusing so their position in order to maintain their power, status and wealth.According (Jain, 2001), there is a certain consensus that corruption refers to the act in which the power of public office is used for personal gain in a manner that contravenes the rules of the game. Corruption has been always a major issue for many developed and developing countries. Time after times many scandals have shaken governments in Albania, Greece, Belgium, Italy, Spain and Japan as well. No country is immune from its dangerous consequences.Corruption can significantly affect the efficiency, fairness, and legitimacy of the state activities. The studies related to corruption have considered a broad array of factors including cultural, political, economic, and psychological ones.

Rose-Ackerman (1978) sees corruption as a public choice,making widespread corruption a symptom instead of a disease per se. Eliminating corruption makes no sense if the result is a rigid, unresponsive autocratic government.A transaction-cost interpretation of corruption in the third world countries is provided by Husted (1994). Macre (1982) considers corruption under the game theoryapproach concluding that although different methods might limit corruption there is no real solution to eliminate this problem. According to Husted (1999), corruption is strongly related to the cultural dimension developed by Hofstede (1997). Alam, (1995) and Macrae, (1982) relate the level of economic development and level of governance based on that economic development as an important contributor to corruption.

Moutos and Tsitsikas (2010), argue that, in Greece, tax evasion is the answer to corruption considered that citizens are not provided with the public goods and services for which they have paid through taxes. Somekey conclusions of the literature review are that,taxpayers who live in a community where tax evasion is a norm, have the tendency to evade taxes even more (Alm et al., 2013),on the other hand, tax compliant individuals view tax evasion as highly immoral.Furthermore, past research finds that, in societies with a stronger social and moral cohesion, tax avoidance and shadow economyis lower, also social norms are a criticalfactor of tax compliance.

Tax burden and tax admiration efficiency

There are two measures related to tax burden and tax administration efficiency in the model that according to the study of Bame-Aldred, Cullen, Martin, and Parboteeah (2011), did not have significant influence on tax evasion in USA but should be considered on international level. The discussions on corruption, tax evasion, shadow economy, tax burden, and tax administration efficiency leads to the following hypotheses:

Hypothesis 1. The higher the corruption level (or the lower the quality of government in a country), the bigger is the size of the shadow economy (higher the level of tax evasion) in that country.

Hypothesis 2. The higher the tax burden in a country, the bigger is the size of the shadow economy (higher the level of tax evasion) in that country.

Hypothesis 3. The better (effective and efficient) tax administrations in a country, the smaller is the size of the shadow economy (lower the level of tax evasion) in that country.

Data and Methodology

Data

The data for this research are collected from different public sources such as:
OECD Tax Administration report for 2010; Transparency International (2010). Corruption Perceived Index.; Tax Justice Network (2011). A briefing paper on the cost of tax evasion worldwide. World BankData and Research.

Sample

The sample consists of 50 countries (see Table 1) including both developed and developing countries form different cultures and geography. The countries chosen, have all available scores for size of the shadow economy, corruption perception index (CPI), tax burden level, tax system evaluation by OECD and GDP per cap.

Table 1: List of sample countries (n=50) with Corruption Index Perception

Country	CPI	Country	CPI	Country	CPI
Albania	3.3	Italy	3.9	United States	7.1
Australia	8.7	Japan	7.8	Argentina	2.9
Austria	7.9	Korea (South)	5.4	Bulgaria	3.6
Belgium	7.1	Luxembourg	8.5	China	3.5
Canada	8.9	Mexico	3.1	Cyprus	6.3
Chile	7.2	Netherlands	8.8	India	3.3
Czech Republic	4.6	New Zealand	9.3	Indonesia	2.8
Denmark	9.3	Norway	8.6	Latvia	4.3
Estonia	6.5	Poland	5.3	Lithuania	5.0
Finland	9.2	Portugal	6.0	Malaysia	4.4
France	6.8	Slovakia	4.3	Malta	5.6
Germany	7.9	Slovenia	6.4	Romania	3.7
Greece	3.5	Spain	6.1	Russia	2.1
Hungary	4.7	Sweden	9.2	Saudi Arabia	4.7
Iceland	8.5	Switzerland	8.7	Singapore	9.3
Ireland	8.0	Turkey	4.4	South Africa	4.5
Israel	6.1	United Kingdom	7.6		
Max	**9.3**	**Max**	**9.3**	**Max**	**9.3**
Min	**3.3**	**Min**	**3.1**	**Min**	**2.1**

Source: http://www.transparency.org

The research design of Tsakumis et al. (2007) and Richardson (2008), that studied the relation between culture and tax evasion, were used as base models.

Independent Variables

The independent variables designated in this study are presented below:

Corruption level (**gl**): measured by the corruption perception index (CPI) provided by Transparency International since 1995. The data of 2010 for CPI was used as presented in the Table 1 above. The highest scores which show better governance level (the least corrupt countries) are Denmark, New Zealand, and Singapore. Russia, Indonesia, and Argentina are the most corrupt.

As independent variables are used tax burden **(tb)** measured by the report of Tax Justice Network (2011) and tax administration efficiency **(ts)** measured by the report of OECD (2011)

Control Variable

According to Tsakumis et al. (2007), the size of the shadow economy in a certain country is influenced by its level of economic development. Similar expectations were built also in this model for the level of income and tax evasion. GDP per capita was used similarly to Tsakumis et al. (2007), as a control variable.

Dependent Variable

Our hypotheses relate to the impact of corruption, tax burden, and tax system efficiency on the size of the shadow economy. In his study, Schneider (2004) defines the shadow economy, not including here the criminal activity, as all the legal production of goods and services that are intentionally hidden. The shadow economy measure for the countries being evaluated in this study is reported as a percentage of the gross domestic product (GDP). Countries with larger size of shadow economies are considered as less tax compliant countries. The estimations of Tax Justice Network (2011) for the shadow economies of each country were used.

Model Specification

The standard model consists of independent variables and control variables. According to the hypotheses, the following model was constructed:

shadowecon = a_0 + $a_1$gl + $a_2$tb + $a_3$ts + $a_4$gdpcap + e_i

Results and Discussion

Descriptive statistics

The data for the complete sample of the 50 countries was analyzed using SPSS and the results of the descriptive statistics are shown on Table 2. Significant diversity with regard to corruption levels exists between countries. Also, the other variables of primary interest show considerable variance.

Table 2: Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
GDP per capita	50	1,429	107,643	28,590	21,592
Shadow economy	50	.09	.51	.2194	.08856
Tax burden	50	.07	.49	.3186	.10073
Governance level	50	2.10	9.30	6.0940	2.17288
Tax system	50	40.00	140.00	100.0000	21.66536
Valid N (listwise)	50				

The results of the multiple regression analysis are shown in Table 3. Based on this analysis, the model is considered significant (F = 14.755, p < .0001), the independent variables such as corruption and tax burden are able to explaina relatively high percentage of variation (adjusted R2 of .529) in the dependent variable of shadow economy.

Hypothesis 1 predicted that higher corruption is related to bigger size of shadow economy (tax evasion) across countries. The regression coefficient for governance level is negative and significant (p = .002). Therefore, I conclude that higher corruption level is related to higher tax evasion or to a bigger size of shadow economy.

Table 3: Regression results

		Coefficients[a]				
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	.389	.052		7.486	.000
	Governance level	-.022	.006	-.538	-3.379	.002
	Tax system	-.001	.000	-.179	-1.777	.082
	Tax burden	.222	.101	.253	2.211	.032
	GDP per capita	-1.185E-06	.000	-.289	-1.798	.079

a. Dependent Variable: Shadow economy

Hypothesis 2 predicted that higher Tax burden is related to a bigger size of shadow economy (tax evasion) across countries. The regression coefficient for Tax burden is positive and moderately significant (p = .032). Results show that tax burden doesinfluence tax evasion especially in developing countries or simply as a response to oppressive tax rates (Cebula, 1997).

Hypothesis 3 predicted that better (effective and efficient) Tax administration is related to a smaller size of shadow economy. The regression coefficient for Tax system is negative and not verysignificant (p = .082), showing that fiscal reforms and better fiscal tax administration will not drastically impact the shadow economy and tax behavior as long as also corruption behavior of government representativesremainsunchanged.

Control variable

Figure 1 below, reports a relatively significant relation (p<.079) between the level of income per person (GDP/cap) and the size ofthe shadow economy in different countries. The coefficient of the regression for GDP/cap is negative, which indicates that a higher level of income is associated with a lower size of the shadow economy.

Figure 1: Predictors effects
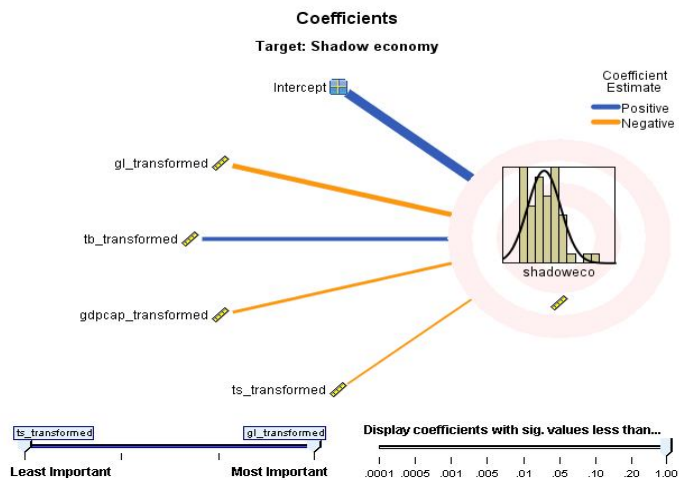
Discussion

Alm and Torgler (2011) recommend a comprehensive range of governmentalpolicies (including fiscal and anti-corruption) that can contribute to a change in the tax compliance attitude of the tax payers,reducing the shadow economy of a certain country.

These policies consist of the use of media in order to emphasize the ethical aspects of tax evasion and to increase the social and community pressure on tax evaders; putting an end to policies that send mixed signals on the acceptability of the tax evasion, such as tax amnesties; underlining thedirect link between the public services, tax revenue and tax compliance; the active use of a number of governmental agencies and organizations in the fight against corruption in order to further strengthen compliance based on tax moral and ethical behavior; and addressing perceived inequalitiesbetween politicians andcitizens.

These policies and measures have been implemented successfully in many countries. As mentioned by Lenter et al. (2003), in Norway, Sweden, and Finland personal tax filings are publicly available. In U.S., according to Gray(1999), the prosecutors issue a press release when a tax evader is convicted and sentenced in order to increase the awareness of the public for tax non-compliance. Additionally, in California,the names of the top 500 taxpayers that have been convicted for tax fraud are published online. Lenter et al. (2003), provide similar evidence from New Zealand, where the names of tax evaders are made publicon the regularpublications ofthe "Tax Evaders Gazette" by the Commissioner of Inland Revenue.

Torgler, (2004) bring evidence from India that in 1997engaged marketing companies to use moral appeal to decrease tax evasion.They also launched a web site to receive report for tax evasion or corruption cases that received approximately 22,500 reports from 2010 two 2012. This strategywas used to publicly reward honest officials and also increase arrests and convictions for non-compliant and corrupt behavior.In Philippines were recruited 1 million scouts to conduct inspections and report tax evaders. The purpose of policies described above is to establish moral norms and enforce moral cost, using social pressure, and ultimatelyteach a culture of fiscal compliance. Normally, building tax morale through similarmeasuresrequires time to produceeffects, but it will create lasting results, and it can also improve the effectiveness of standard enforcement practices.

Conclusion

This study investigated the influence of corruption on the size of the shadow economy across 50 countries. The results of this research support the general proposition that corruption is a significant factor in explaining shadow economy and tax evasion levels across countries. This research was motivated by difficulties that the Balkan Counties are experiencing with corruption and tax evasion problems.

It was provided empirical evidence and explanation for the vicious circle of tax evasion and political corruption in which many developing countries and sometimes even developed countries often fall into. To this extent, it was revealed that effective tax administration has a certain effect over the rates of evasion, but cannot eliminate the problem.

The results of this paper are in accordance with the arguments presented in literature by Alm (2012) that considers "trust" as one of the very important paradigms for governmental policies. Accordingly, individuals are more likely to respond either to enforcement or to tax services if they believe that the tax administration is honest; that is, "trust"in the authorities can have a positive impact on compliance. However, the process of establishing trust in countries with a high corruption level is very difficult in practice. Therefore, these results can explain the failure of standard polices in eliminating corruption and tax evasion and the difficulty that many governments meet when trying to face these issues.

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