Country Morality and the Relative Size of the Shadow Economy

William R. DiPietro
Professor of Economics
Daemen College

Abstract

Using two different measures of national morality or national ethical character, this paper employs cross country regression analysis to test whether national morality reduces the relative size (relative to GDP) of the underground economy. The empirical analysis of the paper supports the contention that the relative size of the underground economy is negatively related to national morality, thereby suggesting that socializing individuals to internalize ethical behavior is one way to dampen the extent of the underground economy and potentially provide a more fertile environment for the growth and flourishing of the legitimate economy. Every country has limited resources that have to be used for the production of goods and services in order to provide a standard of living for the people of the country. Unfortunately, resources that are devoted to the shadow economy are not available for the legitimate economy. To the extent that the shadow economy absorbs resources and productive activity from legitimate activity, draining legitimate production, the tax base is lessened. This diminishes the ability of the government to collect taxes, taxes that are needed for the provision of essential collective goods, such as infrastructure, education, justice, defense, and other valuable services, thereby inhibiting the potential development of the national economy. Another major problem with the underground economy is that it is apt to undermine personal trust and cause a disintegration of social relationships. Trust is very foundation of exchange and provides the underpinning for the use of contracts in the legitimate economy. In the extreme, the breakdown in trust can even lead to a failed state. In the Mexican city of Juarez, in which the illegal drug trade dominates, people do not trust anyone, not the police, not the government, not the army, nor do they trust other individuals, as everyone is looking for drug money and using violence to get it. Thus, the controlling of the size of the underground economy is of real relevance for a nation in terms of a nation's current economic performance and for its future economic trajectory. In order to effectively curtail the size of the shadow economy, that is, to be able to design polices that keep the underground economy in check and within bounds, one must be able to identify the potential sources, causes, and reasons for the existence and thriving of the shadow economy. Although there are many other potential determinants of the size of the shadow economy, such as the level of economic development, one important potential determinant of the size of the shadow economy is the extent of national morality. Individuals face a choice of engaging in legitimate activity or of using their resources in the underground activity. Rationally, the higher costs of engaging in underground activity compared to the legitimate economy the lower will be the engagement in the shadow economy. Greater internalized national morality places a higher cost of engaging in underground activity, thereby lessening the chances of an individual deciding to engage in underground production. The remainder of the paper is broken down into five sections. The first section highlights some of the recent literature regarding the underground economy and its determinants. The second proposes a simple model of the underground economy highlighting national morality as a key determinant of the relative size of the underground economy. The third provides information on the sources of the variables used in the empirical analysis. The fourth section reports the findings of cross country regressions of the relative size of the underground economy on morality. Lastly, the fifth section concludes.

I. Some Recent Background Literature

Using a panel of thirty four countries for the years 2005 to 2007, Razmi and Jamalmanesh's regressions indicate that various political indices, such as political stability, property rights, and government effectiveness, have positive impact on the shadow economy (Razmi and Jamalmanesh 2014).

In their empirical analysis, Dreher, Kotsogiannis, and McCorriston find that institutional quality reduces both the size of the shadow economy and corruption, and that corruption is negatively related to the size of the shadow economy (Dreher, Kotsogiannis, and McCorriston 2009).

Using a data base consisting of thirty eight countries for the period 1991-2007, money cash holding to M2 as a measure of the size of the shadow economy, and general to specific modeling, Acosta-Gonzalez, Fernandez-Rodriguez, and Sosvilla-Rivero consider 294 potential determinants of the size of the shadow economy (Acosta-Gonzalez, Fernandez-Rodriguez and Sosvilla-Rivero 2014). They find that individual capital gains taxes, bank secrecy, ethnic fractionalization , and urbanization are negatively related to the size of the shadow economy, while corporate taxes on income, domestic credit , corruption, and socialistic country origin are positively related to shadow economy size.

Defining tax morale as intrinsic moral obligation or motivation to pay taxes, Schneider and Torgler estimate cross country regressions on variable means for the period 1990 to 1999 for fifty five countries to look at a possible relationship between the shadow economy, tax morale, and institutional quality (Schneider and Torgler 2007). They consider several different specifications and adjust for a number of control variables. In general, they find that greater tax morale and better institutional quality lead to a reduction in the size of the shadow economy as a percentage of GDP. In addition, from their findings, it looks as though economic development and government intervention also matter for the relative size of the shadow economy, with greater economic development lowering the relative size of the shadow economy, but greater government intervention increasing the relative size of the shadow economy.

Enste empirically investigates the potential impact of regulation on the shadow economy (Enste 2010). Controlling for tax burden, tax morale, per capita GDP, and the unemployment rate, he uses a random effects model on data for twenty five OECD countries for the years 1995 through 2005, and finds support for the notions that either higher overall regulation, greater product market regulation, or higher labor market regulation leads to an increase in the size of the shadow economy. He recommends deregulation as a way to reduce the shadow economy.

Putnins and Suuka develop and index of the shadow economy in order to study the reasons for the shadow economy in the Baltic States of Estonia, Latvia, and Lithuania (Putnins and Sauka 2011). Their regression analysis indicates that firm involvement in shadow activities is positively related to firm tolerance for tax evasion, and negatively related to firm satisfaction with the tax system and the government. In their questionnaires to entrepreneurs soliciting opinions about why entrepreneurs evade taxes , two frequent answers by the entrepreneurs in the cultural area are, first, a tradition in the society for avoiding taxes , and, second, low standards of ethics and morals.

Defining the shadow economy in a limited sense as only *legal* market goods and services production concealed from the authorities, Schneider, Buehn, and Montenegro use the Multiple Indicators Multiple Causes procedure to simultaneously estimate the size of the shadow economy for one hundred sixty -two countries for 1999 to 2007, and, at the same time, to investigate the causes of the shadow economy (Schneider, Buehn, and Montenegro 2010). They find that the size of the government, the unemployment rate, and GDP per capita have a positive and significant effect on the size of the shadow economy.

II. Formal Model of Underground Economy

The model is composed of a single equation. The model's equation is as follows.

$U=f(M, \mathbf{C})$ $\delta U/\delta M<0$

In the equation, U represents the size of the underground economy relative to the legitimate economy, M is national morality, and **C** is a set of control variables.

As indicated by the negative partial derivative on the relative size of the underground economy to national morality, higher levels of national morality are expected to reduce the relative size of the underground economy, while lower levels of national morality are predicted to increase it. The basic reasoning behind the proposed theoretical position is that greater morality imposes a higher cost on individuals in society of engaging in underground activities by making engaging in underground activates, or even the thought of engaging in underground production, more distasteful to people's conscience and sense of right and wrong.

Two variables are considered as control variables. The first is the level of economic development, and the second, is the degree of income inequality. While greater economic development is predicted to reduce the size of the shadow economy, greater income inequality is expected to increase the size of the shadow economy. As a general proposition, the better individuals can do in the legal economy, the less incentive there is to engage in the illegal economy, and, on the other hand, the worse people can fare in the legal economy, the greater is their incentive to engage in illegal activities. While greater development typically improves the lot for ordinary individuals from participating in the legal economy, greater inequality reduces the potential gains for a typical ordinary person from participating in the legal economy.

III. Sources

The numbers employed to capture the size of the shadow economy for the present study are Alm and Embaye's estimates for the year 2006 (Alm and Embaye 2013). Defining the shadow economy in a broad sense as both *legal* and *illegal* market goods and services not counted in the official accounts, Alm and Embaye, use a currency demand approach and dynamic panel methods to estimate the size of the shadow economy as a percentage of GDP for one hundred eleven developed and less developed countries around the world for the years 1984 through 2006.

Two measures of moral (ethical) character of countries are employed. The first is Crabtree' s comprehensive index of morality, conscience, and the good life for 2013 (Crabtree 2013). Higher values of the Crabtree index indicate higher levels of country morality. The Crabtree index for 2013 moves from a low country value of 27.4 to a high country value of 90.7. The second measure of national moral character is World Economic Forum's 2009-2010 ethical behavior of firms index (World Economic Forum 2011). The ethical behavior of firm's index is a weighted average of answers to the survey question, "How would you compare the corporate ethics (ethical behavior in interactions with public officials, politicians, and other enterprise) of firms in your country with those of other countries in the world?" The possible answer to the survey question can range from a low value of one (poor) to a high value of seven (excellent).

A commonly employed measure of income inequality is the Gini coefficient, and it is the Gini coefficient that is used here to quantify income inequality. The Gini coefficient ranges from a low value of zero to a high value of a hundred with higher values indicating greater income inequality. The data on the Gini coefficient is taken from the Quandl internet site (Quandl 2014). The year used for each country is the latest available year as of 2014.

IV. Empirical Findings

Table I shows regressions of the relative size of the shadow on the Crabtree morality index and other variables.

The table is set up in the following fashion. The regressions are numbered in the first row, with the last two rows providing their r-squared values and their number of observations. The first column provides a list of the potential explanatory variables that can enter an equation. The second through fourth columns contain, for each column, the estimated results for a single regression run. For any given variable entering a regression equation, the top value in the appropriate place in the body of the table is the estimated coefficient for the variable in the equation. In parenthesis, right below the estimated coefficients, are the individual t-statistics. A single asterisk under a t-statistic indicates that the variable is significant at the one percent level of significance or better in that equation, while two asterisks under an individual t-statistic means that the variable is significant at the five percent level of significance or better.

The table contains three equations. The first is the regression of the percentage share of the shadow economy using the morality index alone as the sole explanatory variable. The second regression uses both the morality index and per capita GDP, the measure of economic development, as explanatory variables. Finally, the third equation adds the Gini coefficient as an additional explanatory variable.

Table I: Cross Country Regressions of the Percentage of the Shadow Economy to GDP on Crabtree's Morality Index and Other Variables

	(1)	(2)	(3)
CONSTANT	56.54 (18.30) *	48.24 (14.15) *	39.63 (7.42) *
MORALITY	-.4150 (-8.52) *	-.2064 (-3.20) *	-.1905 (-2.83) *
PCGDP		-.00026 (-4.67) *	-.00023 (-3.98) *
GINI			.1816 (2.28) **
RSQ	.409	.519	.540
N	105	105	100

The results are quite impressive. The morality index is significant at the one percent level of significance or better in every one of the three equations, and , just as theoretically anticipated, in each of the three equations, it's estimated coefficient is negative. Looking at the r-squared value for the first equation, shows that the morality index on its own accounts for over forty percent of the cross country variation in the relative size of the shadow economy in a sample consisting of a hundred and fifty six countries. Morality appears to be an important determinant of the relative size of the shadow economy when it is used alone (equation (1)), when adjusting for the level of economic development (equation (2)), or when adjusting for both the level of economic development and the amount of income inequality (equation (3)).

The other variables also behave as theoretically expected, and, from analyzing the results, they also appear to be statistically relevant with regard to the relative size of the shadow economy. In the two equations that GDP per capita appears, equations two and three, per capita GDP is negative and significant at the one percent level of significance or better, suggesting, as theoretically anticipated, that economic development lowers the relative share of the shadow economy in total economic activity. The Gini coefficient is positive and significant at the five percent level of significance or better in third equation, indicating, in line with theory, that greater income inequality increases the relative size of the shadow economy.

Table II repeats the three regressions of table I using the World Economic Forum's ethical behavior of firms index in place of Crabtree morality index as an alternative measure of societal morality. The results are even better. Once again, the morality variable, in this case the ethical behavior of firms index, is negative and significant at the one percent level of significance or better in all of the equations. Once again, per capita GDP is negative and significant in the two equations that it enters. And, still again, the Gini coefficient has a positive estimated coefficient. However, now the Gini coefficient has an even greater statistical significance than it did before. In table II, the Gini coefficient is significant at the one percent level of significance or better, whereas, it is only significant at the five percent level or better in table I. Of even greater import, is the finding that the ethical behavior of firms index on its own (table II, equation (1)) explains even more of the cross country variation than does the Crabtree morality index on its own (table 1, equation (1)). Looking at the first equation in table II, shows that the alternative morality variable, the ethical behavior of firms index, accounts for over forty eight percent of the variation in the relative share of the shadow economy.

Table II : Cross Country Regressions of the Percentage of the Shadow Economy to GDP on the World Economic Forum's Ethical Behavior of Firm's Index and other Variables

	(1)	(2)	(3)
CONSTANT	55.63 (20.30) *	50.16 (16.91) *	38.06 (9.35) *
BUSETHICS	-5.99 (-9.58) *	-3.79 (-4.62) *	-3.96 (-5.13) *
PCGDP		-.00021 (-3.95) *	-.00014 (-2.63) *
GINI			.2942 (4.14) *
RSQ	.489	.563	.631
N	98	96	91

Conclusion

The empirical analysis of the paper tends to lend support to the hypothesis that national morality reduces the relative size of the underground economy. In cross country regressions, regardless of which of the two measures of morality employed , whether Crabtree's morality measure or the World Economic Forum's Business ethics index, morality has a negative and significant effect on the relative size of the underground economy. This holds true when one of the morality variables are used alone as the sole explanatory variable in a regression, or when controlling for other variables, such as the level of economic development and income inequality.

The findings of the paper suggest, policy wise, that developing programs designed to inculcate higher levels of morality in the population of a country, through education, the socialization process in the family and society, or through religious institutions, would, in the long run, be favorable for the thriving of the legitimate economy by undermining the use and employment of resources in the underground economy.

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