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Tax evasion, the underground economy and financial development[☆]

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ABSTRACT

We study the relationship between the underground economy and financial development in a model of tax evasion and bank intermediation. Agents with heterogeneous skills seek loans in order to undertake risky investment projects. Asymmetric information between borrowers and lenders implies a menu of loan contracts that induce self-selection in a separating equilibrium. Faced with these contracts, agents choose how much of their income to declare by trading off their incentives to offer collateral against their disincentives to comply with tax obligations. The key implication of the analysis is that the marginal net benefit of income disclosure increases with the level of financial development. Thus, in accordance with empirical observation, we establish the result that the lower is the stage of such development, the higher is the incidence of tax evasion and the greater is the size of the underground economy.

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1. Introduction

The underground economy is a pervasive feature of countries throughout the world. In one form or another, and to a lesser or greater degree, it has existed, and continues to exist, in all societies. Known by many other names (e.g., the hidden, shadow, unofficial, informal and black market economy), its effects on economic and social development can be significant and far-reaching as scarce resources are wasted or used inefficiently, as purposeful regulations are circumvented and undermined, as national accounts become inaccurate and incomplete, and as public finances deteriorate to the detriment of public policy. Of course, the presence of an underground sector is simply a reflection of individuals' incentives to conceal their economic activities, either because these activities would be less rewarding if practised in the formal sector, or else because the activities are illegal to begin with. Understanding what factors might influence such incentives is an important avenue of research which we pursue in this paper.[1]

☆ This paper is based on work during Niloy Bose's appointment at the National Science Foundation. Any opinions, conclusions and recommendations expressed in the paper are those of the authors and do not necessarily reflect the views of the National Science Foundation.

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[1] As indicated by these opening remarks, we use the term underground economy to refer to unreported activities that in one way or another contravene official rules and procedures. There are, of course, other activities that go unrecorded but that are perfectly legitimate (such as home production).

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By its nature, the underground economy is difficult to study empirically. Nevertheless, there has been a good deal of progress on ascertaining data and developing techniques for quantifying its size and importance. Whilst different approaches yield different estimates, the general conclusion is that the extent of informal economic activity is substantial. For example, Schneider and Enste (2002) report that, over the period 1988–2000, the average size of the shadow economy as a proportion of GDP ranged between 14–16 percent in OECD countries; the equivalent numbers for developing countries were much higher at 35–44 percent, and in some cases reached the staggering figure of 70 percent or more.[2]

For the most part, the key factors put forward as influencing underground activity have been related to aspects of public policy and public administration.[3] Included amongst these are the burdens of taxation and social security contributions, the complexity and arbitrariness of the tax system, the extent of bureaucracy and regulations, and the incidence of corruption and rent-seeking (e.g., Friedman et al., 2000; Johnson et al., 1998a,b; Loayza, 1996; Schneider and Enste, 2000, 2002; Schneider and Neck, 1993). Without undermining the importance of any of these, our focus in this paper is on another, quite different, factor that has received rather less consideration – namely, the level of financial development. By way of motivating this, we draw attention to two recent studies which provide compelling evidence that the functioning of financial markets has an important role to play in influencing informal behaviour. In La Porta and Shleifer (2008) the possible determinants of such behaviour are investigated using six measures of underground activity based on both survey data and observable variables for samples of between 57 and 145 countries. It is found that each of the measures displays a robust negative correlation with the availability of private credit and also with individuals' subjective assessment of their access to credit. In Dabla-Norris et al. (2008) a similar investigation is conducted using the survey responses of over 4000 registered (formal sector) firms in a sample of 41 countries. It is found that for a firm which views financing as a major obstacle, there is a 16 percent probability that 50 percent of its sales will not appear on its books, whilst for a firm which views financing as a minor obstacle, the same level of informality occurs with less than half this probability.

Generally speaking, there are two ways of thinking about the manner in which credit market conditions might affect the size of the shadow economy. The first is to view a lack of financial development as creating incentives for individuals to operate exclusively in the informal, rather than the formal, sector. Those who make this choice may be able to exempt themselves from official rules and regulations (e.g., red tape and tax obligations), but only at the cost of sacrificing all the benefits of operating legally. The second is to view a lack of financial development as giving similar encouragement to individuals to exploit the existence of an informal sector, but to do so whilst still conducting business in the formal sector. These different types of behaviour are based on different sets of trade-offs facing individuals. Both types are common in practice and it is important to understand each one.

As yet, there are relatively few theoretical analyses that provide fully worked-out examples of how the extent of underground activity might be connected to the functioning of financial markets. Moreover, of those that exist, most are primarily concerned with the first of the above mechanisms, whereby individuals make an all-or-nothing choice between formal and informal behaviour. Thus Straub (2005) develops a model in which agents decide whether to participate in the formal or informal credit market, where the former entails a higher cost of entry, a lower punitive penalty for defaulting and a lesser degree of informational asymmetry between borrowers and lenders. In partial contrast, Antunes and Cavalcanti (2007) present a framework in which agents choose to become either workers or entrepreneurs, where the latter involves a further choice of operating in the formal or informal sector, and where the former of these is now assumed to entail both higher entry costs and higher punitive penalties (together with tax obligations). Finally, Quintin (2008) constructs a model in which agents decide between formal and informal sector participation, where the latter allows the opportunity to evade taxes but excludes access to official means of contract enforcement. The distinction between formal and informal credit markets has also been utilised in other (related) contexts. For example, Gordon and Li (2005) have used it to provide an explanation for the tax structures in developing countries, where firms are able to avoid tax payments by shifting entirely to cash transactions and withdrawing from the formal financial sector in the process. Each of these analyses shows how the extent of underground activity can be influenced by credit market conditions that affect individuals' preferences for behaving one way or another.[4]

In the analysis that follows we depart from the assumption that individuals must strictly choose between formal and informal sector participation. We also move away from the idea that an individual who opts for informality must sacrifice all the benefits of behaving formally. Instead, we consider an alternative scenario in which agents confront a different type of trade-off. Assuming that everyone faces the same tax obligations and seeks access to the same credit market, we investigate

[2] Examples of the latter include Egypt, Thailand and Nigeria, for which the underground economy during 1998–1999 was estimated to be 69, 70 and 77 percent of official GDP, respectively. Amongst the developed countries, Greece and Italy share the distinction of having the largest shadow economies, estimated to be in the region of 27–29 percent of GDP during 1998–1999.

[3] For a comprehensive discussion of these (and other) factors, see Schneider and Enste (2000).

[4] One other related analysis is that of Dabla-Norris and Feltenstein (2005) who construct a computable dynamic general equilibrium model for the purpose of estimating the impact of taxes on underground activity (and other macroeconomic phenomena) in Pakistan. Their numerical results indicate that, in the presence of credit market imperfections, an increase in corporate taxation may not only cause firms to operate underground but, in doing so, may also lead to a reduction in the amount of collateral in the formal sector and, with this, a reduction in the volume of loans and subsequent investments in that sector.