

## Efficient black markets?

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Received 17 May 2005; received in revised form 9 October 2006; accepted 23 October 2006

Available online 3 February 2007

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### Abstract

This paper investigates analytically the welfare effects of black-market activities that firms undertake to evade taxes. The desirability of a black market is linked to the attributes of the goods supplied by black-market firms. The analysis identifies cases where a black market reduces (increases) the distortionary impact of taxation on the allocation of resources across the goods that the government is attempting to tax, leading to a welfare gain (loss).

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*JEL classification:* H21; H26

*Keywords:* Black market; Underground economy; Shadow economy; Tax evasion; Optimal taxation

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### 1. Introduction

By their nature, black-market activities are difficult to measure. Nevertheless, there is widespread agreement that black-market activities account for a significant portion of GDP in many countries.<sup>1</sup> Less clear, however, are the welfare effects of such activities, particularly those motivated by tax evasion. In his leading undergraduate text on public finance, Rosen (2005, p. 353) states a second-

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<sup>1</sup> Other terms for the “black market” are the “underground economy” and “shadow economy.” As reported by Schneider and Enste (2000), estimates of the size of the shadow economy as a percentage of GDP in the 1990–93 period ranged from between 8–10% for the U.S., Austria, and Switzerland to 24–30% for Greece, Italy, Spain, Portugal and Belgium. But fractions above two-thirds of GDP have been calculated for Nigeria, Egypt and Thailand. There are several reasons for the growth of the shadow economy, but the authors single out tax evasion as one of the most important. For recent reviews of the tax evasion literature, see, Andreoni et al. (1998), Slemrod and Yitzhaki (2002).

best argument for why a black market, or an “underground economy,” might be efficiency-enhancing in some cases: “Then under certain conditions, the existence of an underground economy raises social welfare. For example, if the supply of labor is more elastic to the underground economy than to the regular economy, optimal tax theory suggests that the former be taxed at a relatively low rate.” But Slemrod and Bakija (2004, p. 179) expound an alternative view: “...because tax evasion depends on opportunities that are tied to particular activities, it provides an incentive—which is inefficient from a social point of view—to engage in those activities for which it is relatively easy to evade taxes.”<sup>2</sup> The first view focuses on the potential for the black market to increase incentives to provide resources to taxed activities, whereas the latter view emphasizes the distorting effect of the tax system on the allocation of resources across different taxed activities.<sup>3</sup>

The relative merits of these two views might seem to be purely an empirical matter, but the current paper argues that surprisingly sharp results can be obtained by placing both views within a single model. Following Slemrod and Bakija, we model a set of activities that differ in the expected rewards from operating in the black market. In particular, our activities are distinguished by the levels of assets that the tax authority is able to seize in the event that tax evasion is discovered. Low-asset activities (per unit of output) self-select into the black market because the potential fine from detection is relatively low. For simplicity, the model abstracts from the myriad other considerations behind the decision to enter the black market; in particular, all firms are randomly audited for tax purposes. Following Rosen, we next assume that the tax system distorts the decision of whether to devote resources to any taxed activity. In particular, activities are ranked by a continuous parameter called “quality,” interpreted here as the attribute of a good produced by firms. Each consumer purchases at most a unit of a variable-quality good, with choices based on a heterogeneous “taste” parameter. Recognizing the costs involved in administering a quality-differentiated tax system, we assume that the government’s expenditure needs are met by taxing all variable-quality goods at a uniform statutory rate. Such a tax system causes consumers with low tastes for quality to drop out of the market — that is, they devote no resources to purchasing variable-quality goods, whereas those who remain reduce the qualities of the goods that they purchase.

With such a setup, we provide conditions that determine whether the black market consists of low- or high-quality goods. In the latter case, *neither* the Slemrod–Bakija nor Rosen arguments are relevant: a small black market (maintained through an appropriately low expected fine) does not distort consumption towards too much quality, because quality choices are already too low under a uniform tax; and it does not bring new consumers into the market for variable-quality goods. This case illustrates how a black market can be desirable, even when audits are costless, because it partially corrects the distorting effect that a uniform tax system has on the allocation of resources across taxed activities.

In stark contrast, *both* the Rosen and Slemrod–Bakija arguments appear relevant when the black market contains low-quality goods: allowing it to flourish brings some consumers back into the market for variable-quality goods, but it also distorts the choices of some existing consumers away from higher-quality “legal goods” and towards the lower-quality goods in the black market. But we demonstrate analytically that these conflicting welfare effects do not favor a black market.

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<sup>2</sup> Many other studies emphasize the efficiency losses from tax evasion. See, for example, Yitzhaki (1987), Usher (1994), Slemrod and Yitzhaki (1995), Feldstein (1995), Palda (1998).

<sup>3</sup> Using U.S. data from 1980, Alm (1985) estimated the efficiency losses from the diversion of resources into the underground economy to lie between 100 billion and 220 billion dollars per year, where the latter figure represented nine percent of GDP. Both Alm’s calculations and Kesselman’s (1989) qualitative results about the extent and incidence of tax evasion are based on general equilibrium models in which tax evasion is associated with the production of particular goods. In our model, such goods are determined endogenously.

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