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## Tax evasion and self-insurance

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## Abstract

This paper examines the effect of an increase in the tax rates on tax evasion in a model where taxpayers self-insure against possible penalties. The analysis shows that the effect depends on the marginal productivity of self-insurance. If the marginal productivity is not too small, an increase in the tax rates leads to greater tax evasion and less tax compliance. This result stands in contrast with the theoretical result in the literature but accords well with empirical findings. © 2001 Elsevier Science B.V. All rights reserved.

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## 1. Introduction

Rational taxpayers may engage in tax evasion by underreporting their income. Because they have to pay the penalties if tax evasion is detected, tax evasion has long been viewed as a risk- taking activity. Following this view, a large body of research has studied tax evasion since Allingham and Sandmo (1972) classic paper.<sup>1</sup> Taking this view one step further, the present paper argues that rational taxpayers may not only evade taxes by underreporting income but also invest in activities that reduce the risk involved in tax evasion. One obvious way to reduce the risk is to purchase insurance against possible penalties. However, no market

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<sup>&</sup>lt;sup>1</sup>For a survey of the literature, see Cowell (1990) or Andreoni et al. (1998).

insurance exists for the penalties on tax evasion. Nevertheless, rational individuals may invest in self-insurance (Ehrlich and Becker, 1972).

The literature commonly assumes that all of tax evasion is detected once tax returns are audited. However, as evidenced by Feinstein (1991), tax authorities typically detect only a fraction of the evasion.<sup>2</sup> Since the penalties increase with detected income, self-insurance would be an effort to make detection difficult and hence to reduce the penalties by concealing taxable income illegally. For instance, fireplaces were bricked up temporarily in 18th century England to evade the hearth tax (Skinner and Slemrod, 1985). Self-insurance also may take a form of avoidance (Stiglitz (1985)) that legally reduces taxable income and hence the penalties. The present paper thus studies tax evasion, or reporting behavior, in a model with illegal concealment of income or with tax avoidance.<sup>3,4,5</sup> However, the distinction between illegal concealment of income and legal avoidance may not be clear (Cowell (1990) and Cremer and Gahvari (1994)).<sup>6</sup> Moreover, the main results in the present paper do not depend on the interpretation of self-insurance.

With imperfect detection and self-insurance, the present paper analyzes one important aspect of tax evasion, the relationship between tax rates and tax evasion. Allingham and Sandmo show that an increase in tax rate may either increase or decrease tax evasion with DARA (decreasing absolute risk aversion) if the penalty is imposed on the undeclared income. Assuming that the penalty is imposed on the evaded tax, Yitzhaki (1974) shows that an increase in the tax rate leads to greater tax compliance with DARA. These theoretical results, however, are not consistent with empirical findings (Clotfelter, 1983; Crane and Nourzad, 1987; Poterba, 1987; Alm et al., 1991; Joulfaian and Rider, 1996). In the present model, an increase in the tax rate increases the penalties and hence the demand for

<sup>&</sup>lt;sup>2</sup>Detection rates vary with the IRS examiners. Feinstein estimates that the average examiner's detection rate is approximately 50% in both 1982 and 1985.

<sup>&</sup>lt;sup>3</sup>Some researchers consider a model with tax evasion and tax avoidance (for example, Cross and Shaw (1982)). However, that tax avoidance can serve as self-insurance does not appear to be analyzed or well understood.

<sup>&</sup>lt;sup>4</sup>We interpret tax evasion as underreporting of income, as in the literature. While concealment of income may also be considered as tax evasion, we call it self-insurance, as the focus of the paper is on reporting behavior.

<sup>&</sup>lt;sup>5</sup>While self-insurance can be in principle concealment of income or avoidance, it would be more likely to be avoidance in practice. As a referee pointed out, most revisions to a tax return by the tax authority are about legitimate disagreements on the tax code. Taxpayers thus spend efforts justifying some interpretation of the code that will be presented to an auditor. In essence, outright evasion is rare. Instead, taxpayers plan and do research evasion/avoidance in preparation for possible audits (Slemrod and Sorum (1984)).

<sup>&</sup>lt;sup>6</sup>In their study of the optimal linear income tax with tax evasion, Cremer and Gahvari also model taxpayers' effort to conceal their income. However, their focus totally differs from the present paper, and their analysis bears no relation to the present paper. In particular, the present paper considers the effects of an increase in the tax rate on tax evasion. More importantly, the efforts play as self-insurance that change risk-averse taxpayers' reporting behavior in the present paper while taxpayers are risk neutral and efforts do not alter the risk facing taxpayers in their model.

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