A contest with the taxman – the impact of tax rates on tax evasion and wastefully invested resources

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Abstract

We develop a moral hazard model with auditing where both the principal and the agent can influence the probability that the true state of nature is verified. This setting is widely applicable for situations where fraudulent reporting with costly state verification takes place. However, we use the framework to investigate tax evasion. We model tax evasion as a concealment-detection contest between the taxpayer and the authority. We show that higher tax rates cause more evasion and increase the resources wasted in the contest. Additionally, we find conditions under which a government should enforce incentive compatible auditing in order to reduce wasted resources.
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1. Introduction

The purpose of this paper is to develop a moral hazard model with auditing where both the principal and the agent can influence the probability that the true state of

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nature is verified. We do not allow the principal to commit to an audit strategy before observing the signal from the agent. Such a setting is widely applicable to situations of fraud. Fraudulent claims for benefits, insurance payments, or loans are examples. It even could be applied to the broad range of situations where bilateral trade of goods takes place. Whenever it is hard and expensive to verify the value of a good for a potential buyer (antiques, paintings), while the seller has private information about this value, such a moral-hazard situation may arise. However, the application we choose is the case of tax evasion. This will enable us to draw conclusions about the impact of tax rates on tax evasion and the resources wasted by the agents' attempts to influence the detection probability.

The early neoclassical approach to income tax evasion (e.g. Allingham and Sandmo, 1972; Yitzhaki, 1974) treats the detection probability as an exogenous parameter.[1] In later contributions the audit probability was endogenized in two different ways. Reinganum and Wilde (1985) derive an optimal audit rule under the assumption that the authority has to invest in the audit probability.[2] In a neoclassical optimal taxation framework Cremer and Gahvari (1994) allow for the taxpayer to influence the audit probability by spending some resources on covering actions. In this paper, we explicitly model both the tax authority investing in detection and the taxpayer spending some income to cover evasion activity. The detection probability is determined by the effort exerted by both parties. We believe that for many countries the relationship between taxpayer and tax authority is quite competitive, and accordingly is accurately described by such a contest.

Furthermore, in the real world we observe that different sources of income lead to different evasion and concealment opportunities.[3] We include this fact in our model by just focusing on single components of income with different marginal coverage and fixed evasion costs. So we end up with separate evasion, coverage and detection decisions for different possible income components. The sum of all these decisions determines the over all income after tax – including possible fines.[4] We think that this approach, that allows for income structures with distinct income parts, is more realistic than the widely used framework where the aggregate income is considered to be homogeneous and evasion decisions are modelled as continuous choices. This approach is related to Macho-Stadler and Perez-Castrillo (1997). There taxpayers are heterogeneous in income and income sources are heterogeneous in the (exogenous) probability of verification if an audit takes place. We endogenize the verification probability by introducing a contest. Furthermore, we do not assume that the tax authority can commit to an audit strategy. This reflects our aim to analyze the interaction between tax authority and taxpayer positively instead of characterizing an optimal, committable audit, penalty, and tax structure. We think that the normative approaches in the latter tradition suffer the problem that

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[1]For a detailed survey and many extensions to the basic neoclassical model see Cowell (1990).

[2]For a more general characterisation of optimal enforcement schemes see Chander and Wilde (1998).

[3]The Taxpayer Compliance Measurement Program of the U.S. (IRS, 1983) e.g. estimates for 1981 that tax compliance for wages and salaries was 93.9%, 59.4% for capital gains, and only 37.2% for rents.

[4]By restricting our analysis to uncorrelated earnings probabilities, a linear tax system, and a penalty that does not depend on the over-all income, we can treat these decisions as independent.