Social networks and occupational choice: The endogenous formation of attitudes and beliefs about tax compliance

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ABSTRACT

The paper analyses the emergence of group-specific attitudes and beliefs about tax compliance when individuals interact in a social network. It develops a model in which taxpayers possess a range of individual characteristics – including attitude to risk, potential for success in self-employment, and the weight attached to the social custom for honesty – and make an occupational choice based on these characteristics. Occupations differ in the possibility for evading tax. The social network determines which taxpayers are linked, and information about auditing and compliance is transmitted at meetings between linked taxpayers. Using agent-based simulations, the analysis demonstrates how attitudes and beliefs endogenously emerge that differ across sub-groups of the population. Compliance behaviour is different across occupational groups, and this is reinforced by the development of group-specific attitudes and beliefs. Taxpayers self-select into occupations according to the degree of risk aversion, the subjective probability of audit is sustained above the objective probability, and the weight attached to the social custom differs across occupations. These factors combine to lead to compliance levels that differ across occupations.

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1. Introduction

Tax evasion is the illegal concealment of a taxable activity. Measuring how much economic activity is concealed will always be difficult since those who engage in evasion have every motivation to hide their activities. Even so, the estimates that are available from official sources (such as Revenue & Customs, 2010) and from academic researchers (Schneider & Enste, 2000) are in agreement that evasion is an economically significant activity. This emphasises the importance of understanding the decision process of a taxpayer when choosing whether to comply with tax law or to engage in evasion. A good theory of the compliance decision is essential for designing an audit policy that deters evasion.

The initial analysis of the compliance decision by Allingham and Sandmo (1972) models the taxpayer as facing a decision under risk, with the extent of evasion chosen to maximise expected utility. The model provides precise comparative statics predictions, but these are not always in accord with data (Clotfelter, 1983; Crane & Nourzad, 1986) or intuition. In particular, when evaluated using levels of the audit probability and the fine rate close to those observed in practice, the model predicts

that all taxpayers should engage in evasion. This has motivated numerous extensions of the standard model – surveyed by Pyle (1991) and Sandmo (2005) – but these extensions do not address its fundamental limitations.

Two sets of issues have to be addressed in constructing an improved model. First, behavioural economics has demonstrated that individuals generally do not evaluate risky prospects using the objective probabilities of events. In practice, decisions are made using subjective probabilities that can differ significantly from the objective probabilities (Kahneman & Tversky, 1979). Contributions drawing on these ideas are made by al-Nowaihi and Dhami (2007), Arcand and Graziosi (2005), and Snow and Warren (2005). Second, there is now compelling empirical (Spicer & Lundstedt, 1976) and experimental (Baldry, 1986) evidence that the tax evasion decision is not simply an individualistic gamble. Instead, a wide range of social and psychological factors enter the compliance decision. Gordon (1989) analyses a psychic cost of evasion, Myles and Naylor (1996) introduce a social custom into compliance, and the concept of tax morale (Torgler, 2002) subsumes a range of social and equity factors. For reasonable parameter values these recent models can predict the levels of evasion that are consistent with empirical data.

An issue that has not been given much attention is the processes through which attitudes towards compliance are formed. Attitudes and beliefs are not exogenous but must result from interaction with other taxpayers and with the tax authority. The appropriate method for modelling such interaction is a social network that allows endogenous evolution of attitudes and beliefs. Placing appropriate structure on the social network can also permit investigation of how the degree of separation determines the divergence of attitudes and beliefs that can emerge among distinctive social groups in a heterogeneous society.

Attitudes and beliefs are not only important for how a taxpayer will act when confronted with an evasion opportunity: they are equally important in determining whether a taxpayer has such an opportunity in the first place. This is because opportunities for evasion are very limited in most forms of employment. The deduction of income tax at source and third-party reporting make evasion of employment income very difficult, if not impossible. In contrast, income earned in self-employment (or entrepreneurship) is not taxed at source and can have limited third-party reporting. This makes it possible to undertake evasion when in self-employment. When an individual makes a choice of occupation the possibility of evasion in self-employment must be taken into account, which makes occupational choice partly dependent on the perceived benefit of evasion.

This paper seeks to combine these ideas and to explore the endogenous emergence of group-specific attitudes and beliefs. We embed a behavioural model of the evasion decision into a social network, through which information on the activities of the revenue service is transmitted. Individual taxpayers are heterogenous in several dimensions, such as skill in employment, attitude to risk, and success in self-employment. We also include a choice between occupations that differ in the riskiness of reward and the opportunity to engage in evasion. The model is analysed by simulation, which permits us to trace the tax evasion dynamics that emerge from repeated taxpayer interaction within the network. The endogenous separation of taxpayers into occupations with differing evasion opportunities creates different behavioural types who comply to different degrees and can develop differing attitudes and beliefs.

The central result that emerges from the analysis is that risk aversion, occupational choice, compliance, and attitude to evasion are inter-related and mutually reinforcing. The true probability of audit is unknown, so taxpayers form a subjective probability through information transmission via social interaction. The simulations show, first, that interaction can sustain a subjective probability of audit that exceeds the objective probability. Thus, the model provides an illustration of how beliefs can be formed in subjective expected utility theory. Second, they demonstrate how taxpayers self-select into occupations in a way that maximises the amount of tax evasion. Self-employment is risky, so it is chosen by those with lower degrees of risk aversion. But it also opens the opportunity to evade, and those with a low risk aversion will evade the most when given the opportunity. Hence, we see a process of self-selection of those who will evade the most into a situation where they can evade. The self-selection is reflected in the levels of compliance of the different occupational groups: compliance in the most risky occupation is lowest. The endogenous choice of occupation results in different groups having markedly different rates of compliance. The attitude toward compliance also differs across the occupational groups. The information exchange between people in the same occupation reinforces group beliefs, and sustains different social customs across groups. Taxpayers in the riskier occupation comply less, and this is mutually reinforcing with a lower value of the social custom. In this sense the network can permit group-specific social attitudes to develop.

The paper is structured as follows. Section 2 describes the separate components that are built into the model. Section 3 provides analytical details on how these components are implemented. Section 4 describes the simulation results. Section 5 concludes.

2. Modelling

This section describes the separate elements that constitute the model. The intention is to place them into the context of the literature.

2.1. Subjective beliefs

The analysis of the evasion decision by Allingham and Sandmo (1972) applied expected utility theory. The standard interpretation is that the expectation is taken using the objective probability of an audit. One criticism of the model is that it over-