Tax Compliance and Tax Morale  
An Agent-Based Model Approach  

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Abstract  

A generalization of the standard tax evasion model by Yitzhaki, Allingham and Sandmo is presented in a minimal agent-based setup to investigate how tax morale may explain a substantial part of tax compliance even in the extreme case scenario where the audits’ subjective probability is perceived to be null by agents. Three assumptions are contemplated inside the model: society is arranged in an Erdos-Renyi network allowing for information spreading; the individuals’ objective function belongs to the power utility family, and the agents have bounded rationality.  

The model can be analytically solved in some cases, particularly when the subjective probability is perceived to be either zero or one. Hence, conditions are derived on the tax rate and levels of individual tax morale and risk aversion under which agents will disclose some of their income or be fully compliant even though the audit probability is known to be null or audits are certain, respectively.  

Our model accounts for massive local interactions where agents, at the aggregate level, attempt to discover the true audit probability. We resort to simulation to analyze tax behavior in the presence of heterogeneous agents and see how compliance depends on individual values of tax morale and risk aversion as well as interactions with the perceived audit probability and structural parameters such as tax or fine rates.  

In particular, if utility is a power of (after tax and fines) personal income, the optimal fraction of declared income can be numerically characterized in terms of the agents’ willingness to pay, namely a tax-morale measure corrected for risk-aversion. We provide a robustness analysis and examine different values of individual memory span used by agents to estimate the unknown risk of inspection.  

Keywords: Tax Evasion, Agent-Based Models, Heterogeneous Agents.

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