Information processing in tax decisions: A MouselabWEB study on the Allingham and Sandmo model of income tax evasion

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Abstract

In the early 1970s, Allingham and Sandmo (1972) framed the decision whether to comply with tax laws or to evade taxes as a decision under uncertainty. Their model of income tax evasion is rooted in the economics-of-crime paradigm (Becker, 1968). Accordingly, the underlying rationale is that taxpayers are driven by utility-maximization, choosing evasion over compliance if it yields a higher expected profit. The actual compliance decision depends on the individual income, the respective tax rate, the probability of being audited, and the severity of fines for evasion and is exclusively determined by the economic consequences of detection and punishment. In simple terms, this model assumes taxpayers to compare their net earnings after paying tax with the expected earnings from evading tax, choosing the more attractive option.

In the present study, we focus exclusively on the factors explicitly considered in the Allingham and Sandmo model. The main aim of this study is to investigate whether implicit assumptions of the model concerning the cognitive processes underlying decision making are reflected in the acquisition of information in the lab. We apply MouselabWEB as a research tool that allows to track individuals' acquisition of information in combination with their actual decisions by analyzing the frequency, duration, and sequence of information search.

We test (1) to what extent participants' compliance decisions are in line with the predictions of the Allingham and Sandmo model. This is tested in terms of whether expected deterring effects of audit probability and fine level are observed and whether individuals' choices reflect stable preferences. Additionally, we test (2) whether participants acquire all relevant information provided. If participants do not attend all relevant information provided, this would offer a quite simple explanation for observed deviations from the predictions of the Allingham and Sandmo model. Furthermore, we investigate (3) whether decisions are more in line with the predictions of the model when people show (more) transitions which can be assumed to be prerequisites of expected value calculations (e.g., transitions between information on audit probability and fine level). Next, we test (4) whether choices are more in line with the predictions of the Allingham and Sandmo model when we provide participants with explicit information about expected values of their choice options (i.e., expected value of evasion vs.

sure outcome of compliance). Finally, we explore (5) information acquisition by analyzing frequency, duration, and sequence of information acquisition, and to what extent these measures relate to choosing evasion or compliance.

In an incentivized lab experiment (mean payoff = 7.20 Euro), 109 participants were tested in a repeated rounds design with the dependent variable tax compliance (dichotomous choice; full evasion of tax due (Evasion) vs. completely honest tax declaration (Compliance)). There were four within-subject factors which were fully permuted, resulting in 24 rounds: Income (1000 vs. 3000 Experimental Currency Units (ECU)), Tax Rate (30% vs. 50%), Audit Probability (10% vs. 25% vs. 40%), and Fine Level (paying back the evaded amount plus a fine of 100% vs. paying back the evaded amount plus a fine of 300%). The order of rounds was fixed between participants but randomly determined beforehand. We controlled for an order effect by including an additional reverse-order presentation for approx. half of the participants (starting with round 24 and ending with round 1). Furthermore, there was one between-subject factor manipulating the presence or absence of explicit expected value information (No Expected Value Condition vs. Expected Value Condition). In the Expected Value Condition, for each decision the sure outcome in case of compliance as well as the expected value of evasion were additionally indicated. Furthermore, participants in the Expected Value Condition were provided an explanation of the concept of expected value directly before beginning the experimental task.

As predicted by the Allingham and Sandmo model, choices were clearly influenced by audit probabilities and fine levels, but, in conflict with the assumptions of the model, these two parameters were not integrated adequately. This is manifested in the violation of the transitivity axiom. Specifically, the Allingham and Sandmo model expects stable preferences; thus, a linear (monotonic) decrease in relative tax compliance with increasing deterrence factors (i.e., higher audit probability and fine level). However, we observe deviations from this assumption which could be attributed to focusing on a low (or high) value of one of these parameters and neglecting the other relevant parameter. These instances cannot be explained by generally ignoring relevant information or lacking skills to calculate expected values. Monitoring the information acquisition process indicated that people attended to presented information on income, tax rate, audit probability, and fine level throughout the experiment. Moreover, we also observe transitions between audit probabilities and fine levels, indicating that they were considered simultaneously, but not according to expected values. Additionally, participants in a condition where expected values were presented explicitly (along with an explanation of the concept of expected value) showed the same inconsistent choice patterns contradicting the assumptions of the Allingham and Sandmo model.

We conclude that deviations from the Allingham and Sandmo model in tax compliance experiments cannot be explained by ignoring diagnostic information. Observed deviations from the predictions most likely are due to incorrect integration of relevant information. Surprisingly, when decisions in line with the assumptions of the Allingham and Sandmo model are facilitated, actual choices do not adjust to the respective predicted behavior.

References:

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