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On the path dependence of tax compliance

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ABSTRACT

This paper presents experimental evidence that tax compliance is path dependent. For given values of the audit probability and the fine for tax evasion, we compare the income declaration of subjects who faced a change in one of the two parameters to that of subjects who experienced no such parameter change. We show that past tax enforcement regimes continue to have an impact on current income declarations. This finding may be explained by reference-dependent preferences and it has important policy implications. For instance, legal transplants cannot be expected to reliably yield similar behavior in countries with different legal histories.

1. Introduction

1.1. Motivation and main results

Tax evasion has existed for as long as taxation has.[1] While it is a concern in every kind of tax system and for all nations around the world, the extent to which tax evasion poses a major problem varies from country to country. This variety exists both in comparisons of developed countries and even more so when developed countries are compared to transition and developing countries (see, e.g., Alm, 2012; Andreoni et al., 1998; Fuest and Riedel, 2009; Gërxhani and Schram, 2006; Slemrod, 2007).[2] Greece is a case in point because it seems particularly plagued by tax evasion, a fact that has been attributed to complex regulation and insufficient enforcement (Katsios, 2006; Matsaganis et al., 2012). Such a country plagued by high tax evasion may seek to adopt the regulatory regime of a country with significantly less tax evasion, i.e., to opt for a legal transplant. For instance, Greece may implement tax enforcement similar to that of Northern European countries.[3] However, whether the transplanted legal regime will prove similarly effective in the adopting country is unclear. Garoupa (2012) argues that changes in enforcement due to the process of European harmonization may not quickly

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[1] See, for example, Plato's *Politeia*: "whenever there are taxes to be paid, the just man pays more from an equal estate and the unjust less" [343d].
[2] The estimates in Schneider and Enste (2000) on the related concept of the shadow economy are similarly of interest in this context.
[3] In this vein, Germany offered to send tax specialists to Greece (see, e.g., the newspaper article *Germany offers to send tax men to Greece* at www.thelocal.de; site last visited March 15, 2013).

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translate into changes in compliance behavior.[4] In other words, past experience with a different enforcement system may continue to influence taxcompliance, that is, produce a kind of *path dependence* of tax evasion.

Such path dependence cannot be explained by a standard expected utility setup, as we show in our section on behavioral predictions. However, expected utility theory has been criticized because, in many if not most circumstances, how the absolute level of the variable in question compares to a reference point is also important for individual wellbeing and decision-making (Kahneman and Tversky, 1979; Köszegi and Rabin, 2006; Schmidt et al., 2008). With regard to the reference point, it is argued that the subject will use either the status quo, the lagged status quo or expectations (see, e.g., Abeler et al., 2011; Sugden, 2003).[5] Transferred to the tax-evasion context we focus in the present contribution, subjects may use their experience with the old tax regime to benchmark the outcome under the new tax regime. Subjects with experience in different tax regimes will have diverging reference points, which may influence their marginal incentives to declare income. Indeed, using a framework with reference-dependent preferences, we derive our central hypothesis that there is path dependence of tax compliance behavior. Specifically, subjects who have experienced weak enforcement early on will tend to declare less income when faced with strict enforcement than subjects who have only experienced strict enforcement, whereas subjects who have experienced strict enforcement early on will tend to declare more income when faced with weak enforcement than subjects who have only experienced weak enforcement.

In order to empirically study whether or not tax compliance is indeed path dependent in the field, it would be necessary to have data from countries with the same current tax enforcement regime but dissimilar ones in the past, holding everything else constant. This is difficult because tax regimes are rarely easily compared and, most importantly, because tax evasion is by its very nature a hidden activity (Alm, 2012).[6] To circumvent such problems, we use an experiment to study the potential path dependence of tax compliance. In our experiment, there are 20 rounds. In each round, individuals first earn gross income in a real-effort task. Next, participants are asked to report their gross income, knowing that reported income is subject to income tax and that any tax evasion may be detected and, when detected, will be penalized. Our treatment variables are the level of the penalty multiplier and the audit probability, both of which may be either high or low. In terms of expected income, it pays off for a risk-neutral participant to declare an income of zero in all of our treatments. Our setup entails no behavioral interaction or payoff interdependence among participants, which helps us to keep other aspects out of the decision-making context, that is, to concentrate on the potential path dependence of compliance behavior.

Our empirical analysis of the experimental data yields the following results. Comparing groups with and without a parameter change after round 10, we find that past values of the penalty multiplier and the audit probability indeed have a persistent impact on declaration behavior after the parameter change, irrespective of whether the enforcement incentives became stricter or weaker. For example, individuals who experienced a low penalty multiplier in rounds 1–10 and a high penalty multiplier in rounds 11–20 declared less income in rounds 11–20 than individuals who had a high penalty multiplier in all 20 rounds.

Regarding the question raised earlier about whether a transplanted legal regime will prove similarly effective in the adopting country, our central result suggests a negative answer. Our findings dovetail nicely with results on legal transplants: the result that a legal transplant is more successful when the set of rules is adapted to the adopting country may be interpreted as implying that the transplanted set of rules should accommodate prevailing expectations about individual outcomes (see, e.g., Berkowitz et al., 2003).

1.2. Related literature

The use of experimental methods to study tax compliance has been well-established. Some examples include Becker et al. (1987), Alm et al. (1992a,b, 1999, 2009), Alm and McKee (2004, 2006), Coricelli et al. (2010), Cullis et al. (2012), and Gërxhani and Schram (2006). Regarding the comparative statics with respect to the level of the audit probability and the level of the fine that are the focus of our study, the experimental studies of tax compliance mostly find that tax compliance increases with both tax enforcement parameters (see, e.g., the recent survey by Alm, 2012). However, to the best of our knowledge, the question of whether present individual compliance is affected by past tax enforcement parameters has not yet been addressed in the literature.

Spillover effects have been studied in other domains than taxation. These contributions consider the effects of incentives once they are removed, that is, the behavioral spillovers of incentives provided at an earlier point in time. For example, a field experiment conducted by Meier (2007) establishes that matching donations in one time period can dampen charity contributions after the matching is phased out. Gneezy and Rustichini (2000) show that the introduction of fines for tardy parents at a childcare center increases tardiness even after the fines are abolished. Gächter et al. (2008) establish that the use of explicit incentives in an employment relationship can crowd out voluntary cooperation after the reliance on such incentives is discontinued, whereas Brandts and Cooper (2006) and Hamman et al. (2007) analyze behavioral repercussions

[4] Martinez-Vazquez and Torgler (2009) provide an empirical study for Spain, relying on European and World Values Survey data, that indicates that general institutional reforms, including tax policy and tax administration reforms, led to increases in reported tax morale over a long time horizon.

[5] A different source of reference points without bearing on our study is the outcome of others (e.g., Frank, 1985).

[6] The case of East and West Germany presents a scenario in which comparability after the reunification and heterogeneity before the reunification apply. Feld et al. (2008) study the German case focusing on the evolution of reported tax morale. They find a rather rapid convergence of attitudes in East and West Germany, attributable mainly to changes in East Germany.