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Time delay, complexity and support for taxation

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ABSTRACT

People often experience the benefits of taxation over time. We design an intertemporal market experiment with negative externalities to examine how delaying the benefits of taxation affects support for taxes. We find that when negative externalities occur immediately, people learn to adopt Pigouvian taxes, which are aimed at reducing negative externalities and restoring market efficiency. By contrast, when negative externalities are delayed, people are less receptive to taxation. This effect persists over time. Our data reveal that the strong negative delay effect can be explained in large part by narrow bracketing and the increased perceived complexity of the environment, rather than by time discounting per-se. We argue and demonstrate that increasing the transparency of intertemporal tradeoffs can effectively promote support for taxation.

Introduction

Taxation, as an incentive-based instrument, is a core policy tool used to address negative externalities, such as pollution. Taxes can improve social welfare and regulate undesirable activities by increasing the price of the targeted undesirable activity. When the tax amount is equal to the external cost at the optimal level of the targeted activity, as in Pigouvian taxation, the social optimum can be restored if externalities are the only deviations from optimality. Even though standard welfare economics has shown that incentive-based instruments like taxation are ultimately beneficial, there are often obstacles to implementing taxation, due to low public support.

One example is climate change. In the United States, political opinion is now shifting to support taking action on climate change. There appears to be substantial agreement among U.S. economists spanning the political and academic spectrum (Hsu, 2009) that carbon taxes are the most efficient means of reducing large-scale pollution problems. The carbon tax approach would complement European action on carbon emissions through the European Union (EU) Emission Trading Scheme (ETS). Nonetheless, support for efficiency-enhancing policies is fragile. The lack of public support can impede fiscal interventions to change behavior and improve social welfare.[1] Therefore, it is important to understand the reasons for public reactions to different tax proposals.

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[1] The lack of public support for taxes can also be an impediment to choosing the most cost-effective policy instrument. For example, Goulder and Schein (2013) noticed that quantity-controls like Cap-and-Trade systems are often preferred to taxes by policy makers to address the Climate Change problem, due to their higher political palatability. Cap-and-Trade systems, however, can be less cost-effective than taxes if the allowances are allocated for free.

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In this paper, we draw attention to the fact that many consumption or production activities produce negative externalities only over time. Stock externalities are a typical example of such time-delayed externalities. Consumers obtain the benefit of consuming gasoline immediately, but pollution only accumulates over time. When externalities are caused by a stock of pollution rather than a flow, and when stocks decay slowly, as with greenhouse gases, the problem is dynamic and current emissions can cause future environmental damage. Stock externalities imply that costs and benefits of policy measures, such as Pigouvian taxation, occur at different times. When people cannot readily see the benefits of certain taxes, they can be less likely to support them. This is particularly true for Pigouvian taxes.

Previous research on public support for taxes (Kallbekken et al., 2011; Cherry et al., 2012; Blaufus and Möhlmann, 2014; Cherry et al., 2014) has neglected this dynamic aspect of the problem, even though research on intertemporal choice has shown that people are less willing to take preventive costly actions now if the predicted losses occur only in the future (Frederick et al., 2002).

To understand the role of intertemporal trade-offs in public support for taxation, we design an intertemporal market experiment with consumption externalities, a variation of previous experiments on public support for taxes (Kallbekken et al., 2011; Sausgruber and Tyran, 2005). We manipulate the timing of the externality and introduce opportunities for the participants to vote on whether to introduce a tax on consumption. We first compare voting results when the external costs of consumption happen in the present (No Delay treatment) and when the external costs occur one week later (Delay treatment). In both treatments, participants first purchase units of a consumption good for ten periods, then vote on whether to introduce a tax on the purchased items in the following trading periods. The voting outcome is applied to the next five periods. Participants are then given another opportunity to vote on taxation for the last five periods.

In addition to testing the delay effect, studying tax attitudes in a controlled laboratory experiment sheds light on the mechanisms underlying the negative delay effect. Previous research on intertemporal choices suggests that time discounting may not be the only reason for the delay effect. In particular, we hypothesize that the intertemporal structure of the externalities largely increases the perceived complexity of decision-making in the market and leads to narrow bracketing, i.e. basing today's decisions mainly on today's payoffs with little regard for future payoffs (Read et al., 1999; Rabin and Weizsäcker, 2009). The reason is that in our Delay treatment, decision-makers' current consumption choices affect each other's current and future payoffs. This is in contrast to simple individual intertemporal decision-making, where one's future payoffs are affected by her own decisions only.

Understanding whether complexity and narrow bracketing lead to the potential delay effect can have important policy implications, e.g., for designing institutions to help deal with complexity. To understand the role of complexity, we design the parameters in such a way that time discounting alone could not account for the lower support for taxation in the Delay treatment compared to the No Delay treatment, unless there were an extremely high one-week discount rate according to a simple exponential time discounting model. Interestingly, even in this setting, we observe a much lower support for taxation in the Delay treatment. Inspired by previous research on default effects (e.g., Thaler and Benartzi, 2004), we also test whether framing the tax as a default might mitigate the negative delay effect (Remove treatment). We find, however, that support remains low (and unchanged) in the Remove treatment.[2] Supporting the hypothesis of complexity and narrow bracketing, data from the Delay_Transparency treatment show that we can eliminate the detrimental delay effect by providing participants explicit information about the intertemporal tradeoffs involved in the tax voting decision. We discuss the implications of our findings for the design of tax policies.

The remainder of the paper is organized as follows. Section 2 discusses the related literature. Section 3 describes the experiment design, the predicted outcomes, and procedures. Section 4 presents the results. Section 5 describes and reports results from the Delay_Transparency treatment. Section 6 concludes.

Related literature

Much research, both experimental and non-experimental, has focused on identifying the determinants of people's attitudes toward taxes.[3] A few non-experimental papers (Rivlin, 1989; Dresner et al., 2006) have stressed the role of trust toward the government collecting tax revenues. Experimental research has focused on other determinants, such as the perceived fairness of the instrument (Feher and Schmidt, 1999) and equity considerations (Durante and Putterman, 2014). In a study particularly relevant to our paper, Sausgruber and Tyran (2005) and Kallbekken et al. (2011) designed a market experiment to test the framing of taxation as a factor affecting public support. They found that the framing of taxation affects the perception of the tax burden. Likewise, they explored how earmarking tax revenues affects public support.

Other researchers have explored a phenomenon called tax aversion, in which people perceive the burden of tax payments to be greater than other differently-labeled but economically equivalent payments (Small et al., 2006; McCaffery and Baron, 2006; Kallbekken et al., 2010; Blaufus and Möhlmann, 2014). More recently, Blumkin et al. (2012) added experimental

[2] The absence of a default effect contrasts with previous findings on the power of default options in the take-up rate of policies such as organ donation or saving (Thaler and Benartzi, 2004; Johnson and Goldstein, 2003).

[3] Researchers have also conducted experiments to study other related questions, such as tax compliance (Alm et al., 1999); the role of communication in the diffusion of policy innovations (Tyran and Sausgruber, 2005); and whether a voting rule with and without a punishment mechanism increases contributions to a public good (Kroll et al., 2007).