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Nudging for Tax Compliance

KEY MESSAGES

- **Governments around the world increasingly use nudges to improve tax collection**
- **Our meta-analysis evaluates the evidence gained from around 70 recent randomized trials**
- **We find that simple reminders, tax morale, and deterrence nudges all increase tax compliance**
- **The effectiveness of these interventions varies by nudge type and also depends on the context**
- **We formulate policy recommendations as to who, when, and how to nudge**

THE DEFINITION OF A NUDGE AND ITS APPLICATIONS

Policymakers are increasingly relying on nudging interventions with the aim of improving individual decisions. These are interventions that respect freedom of choice, leave economic incentives intact, are easy and cheap to implement, and can be easily avoided by nudge recipients (Thaler and Sunstein 2009).

Nudges have become widespread in the last decade across many policy areas. For instance, automatic or default enrollment in retirement savings plans can help save more (Thaler and Benartzi 2004). Reminders sent by health authorities can increase the uptake of health screening programs (Antinyan et al. 2021b). Informing consumers that their water or electricity consumption exceeds that of their neighbors can reduce consumption (Allcott and Rogers 2014).

Nudging has also been applied to increase the compliance of individuals and firms in paying taxes. This is not surprising given that tax collection is a central task of any government. Tax compliance is relevant not only for ensuring efficient and fair taxation but also for safeguarding appropriate levels of public goods provision.

How effective are these interventions in reality? The recent review paper by Antinyan and Asatryan (2024) answers this question.

RATIONAL AND BEHAVIORAL MOTIVES OF TAX COMPLIANCE

The starting point behind these interventions is the presumption that tax compliance depends on rational considerations, such as the fear of being caught and punished, moral considerations, such as concerns for fairness or public good provision, and behavioral fallacies, such as limited attention.

The proposition of moral considerations for compliance is needed to address the observation that agents in practice comply with taxes much more than what the workhorse model of income tax evasion in economics would predict (Allingham and Sandmo 1972). This is driven by the fact that the observed audit rates in practice are much less frequent than the level one would need for a rational agent with a reasonable level of risk aversion to have the same expected payoff to reach the observed levels of compliance. To justify the model without moral considerations, one would need that either the taxpayers are extremely risk averse (such that they care very much even about very unlikely audits), or that the audits are ineffective (such that audits do not increase the probability of being caught by too much), or that the taxpayers do not have opportunities to evade even if it is rational to do so.

The last explanation, that of the inability to cheat, has been documented by Kleven et al. (2011) and Pomeranz (2015). The main argument is that third-party reporting – such as of workers' wages by employers or of firms' revenues by the downstream firms who want to deduct those revenues as their costs – has substantially reduced the ability of agents to under-declare their true tax liability because the tax authority has reliable information about true liabilities anyway. While technological developments and policy initiatives that reduce such information asymmetries are promising avenues in increasing tax compliance even further, self-reporting is still prevalent for certain activities, leaving the opportunities to cheat open.

NUDGES IN THE CONTEXT OF TAX COMPLIANCE

A typical nudge in the context of tax compliance is communication sent on behalf of tax authorities through various physical channels, such as letters, tax bills, and in-person visits, and digital channels. Nudges complement rather than substitute the usual enforcement activities implemented by tax authorities.

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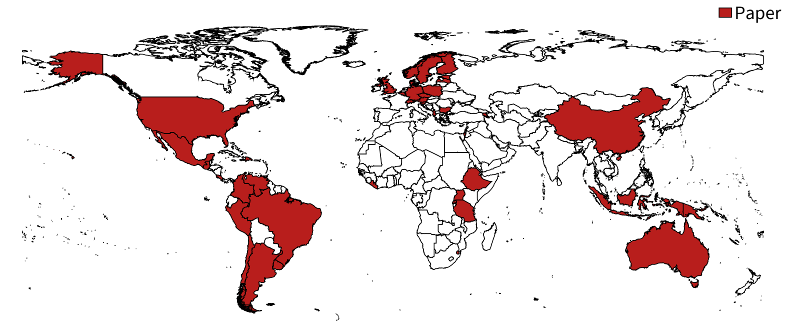
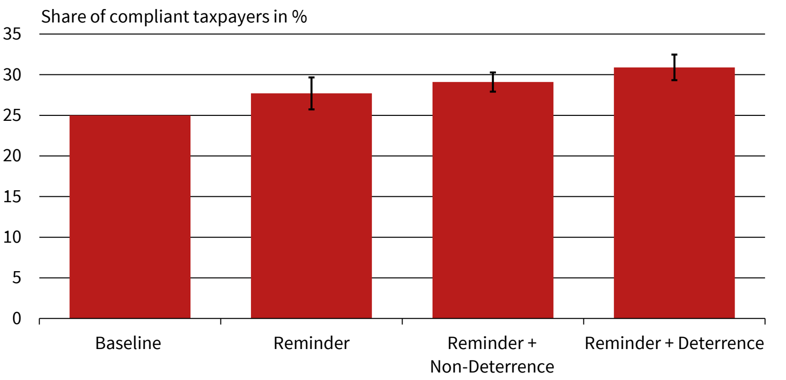
Figure 1
Country Coverage of Nudging Interventions



Source: Authors' compilation. © ifo Institute

Figure 2
The Effects of Nudges on Extensive Margin Tax Compliance



Source: Authors' calculations. © ifo Institute

There are three main types of nudges that appeal either to rational or moral considerations of tax compliance, or to the behavioral fallacy of limited attention.

Deterrence nudges emphasize the rational considerations for tax compliance such as audit probabilities and penalties. The deterrence nudges do not change taxpayers' financial incentives.

Tax morale nudges emphasize the moral considerations for tax compliance, such as the unfairness of not paying taxes, the importance of tax compliance for the provision of public goods, and the prevailing social norm of majority compliance.

Lastly, reminder nudges address taxpayers' limited attention bias, increasing the salience of taxes due.

Before sending a nudge to the entire population of taxpayers, tax authorities usually evaluate the impact of these nudges in relatively small-scale experiments (nudging experiments henceforth). In a nudging experiment, taxpayers are randomly divided into one or several treatment arms that receive a nudge, and a control arm that receives either no communication or neutral communication. These experiments can vary in the length of the time horizon over which tax compliance is measured, types of nudges sent, the exact compliance measure under consideration (e.g., probability to pay, the amount of taxes paid), the type of tax under scrutiny (e.g., income tax, property tax), and the population of taxpayers receiving the nudge (general sample vs. non-compliers), among other parameters.

THE METHOD OF META-ANALYSIS

Antinyan and Asatryan (2024) analyze nudging intervention in a meta-analysis, a method that quantitatively reviews the available body of evidence. The literature is composed of up to about a thousand treatment-effect estimates of nudges obtained from up to 71 interventions. The nudging interventions of De Neve et al. (2021) in Belgium, Dwenger et al. (2016) in Germany, or Hallsworth et al. (2017) in the UK are examples of some of the better-known studies.

The field is however much larger, as seen in the map of Figure 1, so far mainly covering countries of North and South America and Europe, and it is growing. For recent literature reviews, see Mascagni (2018) for a discussion of tax experiments, and Slemrod (2019) for a review of the more general literature on tax compliance.

Of course, these experiments may arrive at different and sometimes opposing findings. The aim of a meta-analysis is to arrive at a consensus estimate of the size of the effects or to show that there is no consensus in the literature. Additionally, meta-analysis makes it possible to study the main reasons behind potential heterogeneities in the estimates.

THE EFFECTS OF TAX COMPLIANCE NUDGES

Our meta-analysis yields precise estimates of the three main types of nudges on tax compliance.

We find that simple reminders increase the probability of compliance by 2.7 percentage points relative to the baseline, where about a quarter of taxpayers are compliant. Nudges that commonly refer to elements of tax morale increase compliance by another 1.4 percentage points. Deterrence nudges, which inform taxpayers about enforcement parameters, increase compliance the most, amounting to an additional 3.2 percentage-point increase on top of reminders. These effects are summarized in Figure 2.

A closer examination of different types of non-deterrence nudges – public good, moral appeal, and social norm types – does not suggest that any of these types stand out as being more effective than the others. In fact, all three types of non-deterrence nudges have statistically smaller effects on tax compliance than deterrence nudges.

DESIGN ASPECTS THAT MAKE NUDGES EFFECTIVE

Additional findings of the meta-analysis highlight the design aspects of experiments that make the nudges more, or less, effective.

Three findings stand out as being important drivers of nudges. First, the choice of the groups of taxpayers targeted by the nudge matters; in particular, nudges tend to be more effective when focusing on non-compliers such as late payers. Second, the effects of nudges are likely to be bound to the short run, rather than being permanent. Third, nudges enacted in low-income countries seem to be less effective than the ones enacted in middle- or high-income countries.

POLICY CONCLUSIONS: WHO, WHEN, AND HOW TO NUDGE?

Policy interventions that nudge taxpayers with the aim of increasing compliance have become a popular tool among many governments owing to their ease of implementation and low monetary costs. This easy adoption of the policy is demonstrated, for example, by Hjort et al. (2021), who inform randomly selected Brazilian mayors about research on the positive tax compliance effects of reminder letters and find that the treated jurisdictions, even relatively small municipalities with limited capacities, are more likely to implement nudging interventions.

While our analysis demonstrates that there are gains to be made from the application of nudges in the context of tax compliance, the wide adoption of nudging as a policy tool is not straightforward. In order to be able to implement nudges effectively, tax authorities need to understand who to nudge, when to nudge, and how to nudge.

In terms of who to nudge, according to our results, nudges work best when they target noncompliant taxpayers, such as those late in paying taxes. Thus, an optimal strategy for tax authorities will be to think about ways to find noncompliant taxpayers or noncompliant taxbases of certain taxpayers, and then target these through nudges. Making extensive use of third-party information can be promising here (Kleven et al. 2011) in two ways. First, more and better digital infrastructures help tax authorities process large amounts of data and cross-check its validity by comparing different sources, which would lead to flagging suspicious taxpayers who can then be targeted by nudges. Potentially suspicious taxpayers can be identified, for example, by matching the same transaction reported by the buyer and by the seller (as in Almunia et al. 2022), or by using satellite data to uncover unreported properties (as in Casaburi and Troiano 2016). Second, policy initiatives that make new information available, such as on foreign sources of income and wealth, can similarly help identify potentially noncompliant taxpayers and nudge them. The recent work of Boas et al. (2024) shows – in the context of newly made available data on income and wealth parked offshore account thanks to reforms of automatic exchange of information – that such targeted nudges can be very effective, even when noncompliance consists of potentially very large amounts of income or wealth that are hidden from the tax authorities using sophisticated techniques.

In terms of when to nudge, as we have shown, nudges work in the short term, that is, in the horizon of a couple of months. Beyond that, they become ineffective on average. One strategy for tax authorities would be to nudge taxpayers once again around the time the nudge effect is predicted to vanish. The timing of these repetitive nudges can be anchored to be some time before major tax filing deadlines. The work of Antinyan et al. (2021a) illustrates that repetitive nudging can be beneficial for tax compliance.

In terms of how to nudge, although we have shown that deterrence nudges work the strongest, tax morale nudges work, too, but just less powerfully than deterrence ones. It is, of course, plausible, if not likely, that rational motives are more important drivers of tax compliance than morale motives. However, a competing hypothesis is that morale factors are deep-rooted parameters that are very important drivers of compliance, yet they are difficult to change in general and through nudges sent by tax authorities in particular. This argument would suggest that, to be credible, governments need to make real changes in those elements that affect the morale of taxpayers, such as in the provision of public goods or in making sure a just and appropriate level of compliance is reached across the whole population. Our finding that nudges do not work as well in low-income countries as in middle- and high-income countries is consistent with this explanation.

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