RESEARCH BRIEF • MAY 2023

Judging Nudging: Understanding the Welfare Effects of Nudges Versus Taxes

Based on BFI Working Paper 2023-66, "Judging Nudging: Understanding the Welfare Effects of Nudges Versus Taxes," by John A. List, University of Chicago; Matthias Rodemeier, Bocconi University; Sutanuka Roy, Australian National University; Gregory K. Sun, Washington University, St. Louis

A combination of nudges and taxes always outperforms each policy in isolation; however, there is large variation in how much these combinations add to social welfare, reinforcing the importance of empirically quantifying welfare effects.

Non-price interventions motivated by insights from psychology, or "nudges," have gained in popularity and are applied in numerous ways to achieve desired outcomes, including efforts to conserve energy, deter smoking, and to induce vaccinations, among many others. The cost advantage of nudges over traditional policy tools, like price and quantity regulations, is that the provision costs of nudges are often low, such that the change in behavior per dollar spent on the intervention is large.

While useful for comparing across policies, this cost-based approach does not consider important factors of economic efficiency. For example, it does not quantify how the change in behavior caused by the nudge changes welfare to consumers and other members of society. This matters because a more complete benefit-cost analysis uses a revealed preference approach to understand how behavioral changes from policy interventions map into welfare implications. Such studies are rare; likewise, even though we have much information on the efficacy of various nudges, we know far less about their welfare impacts.

This paper addresses that gap. Please see the working paper for key features of the authors' methodology, but at a high level, they develop an approach to estimate the welfare effects of both nudges and taxes in hundreds of prior studies, thus providing the first comprehensive meta-analysis of welfare effects. They focus on data from three distinct markets where nudges are ubiquitous and behavioral biases are allegedly important: cigarettes, influenza vaccinations, and household energy consumption. They find the following:

Cigarettes

- Nudges, on average, increase the smoking cessation probability by 7.5% and reduce cigarette demand by 14%. The average nudge has the same effect on aggregate demand as a tax that increases the price of cigarettes by 28%.
- Nudges cause a statistically significant increase in social welfare by $80 per consumer per year, while the optimal cigarette tax amounts to $2.25 per pack and raises welfare by $71 per consumer. Interestingly, a policy mix that combines a nudge with a tax is only slightly superior in terms of welfare gains than the nudge in isolation.

Influenza vaccinations

- A nudge increases the average vaccination take-up by 35%, which corresponds to 13 percentage points. Vaccine subsidies would have to decrease prices by 105% to generate the same effect as nudges, implying that the behavioral bias alone justifies a subsidy that makes influenza vaccines free.
- Regarding welfare effects, the benefits of nudges over influenza subsidies are more limited than in the cigarette market. Still, in the most likely scenario where nudges and price effects are positively correlated, that is, changes in one relate to a similar change in the other, subsidies slightly outperform nudges. In this scenario, the nudge raises welfare by, on average, $29 per person, while the optimal vaccine subsidy increases welfare by $65 per person.

Energy

- Nudges have the same effect as a tax that raises the electricity price by 12.7%.
- Welfare gains from taxing electricity vastly exceed welfare gains from nudging: nudges increase social welfare by $129 per household per year, while the optimal tax raises welfare by $1,000 per household per year. A policy mix that adds a nudge to the tax provides virtually no additional benefits over implementing a tax alone.

A key insight of this work is that two factors govern the difference in results across markets: heterogeneity of the behavioral bias (or the differences among people's unconscious beliefs that influence their decision-making) and the size of the average externality. Nudges have the unique advantage over taxes in that they potentially reduce the heterogeneity in the behavioral distortion. Taxes, on the other hand, have the unique advantage of internalizing the externality. Whenever the heterogeneity in bias is large relative to the size of the externality, nudges dominate taxes. This insight highlights a call to researchers to estimate these statistics in their empirical work. Providing such policy-based evidence yields wisdom that usefully guides the optimal design of public policies.

Bottom Line: A combination of nudges and taxes always outperforms each policy in isolation. However, empirically there is large variation in how much such combinations add to social welfare. Under certain parameter values, adding a tax/subsidy to a nudge can provide important incremental efficiency gains in the market for cigarettes and influenza vaccines. However, in the electricity market, the additional benefit of adding a nudge to a tax is vanishingly small under virtually all parameter values. In other words, the empirical quantification of welfare effects is key.

READ THE WORKING PAPER

NO. 2023-66 · MAY 2023

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