

Where is My Money? New Findings in Fiscal Psychology

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Abstract The essay outlines selected psychological attitudes towards taxes. We argue that the application of behavioural economics methodology to taxation is more than justified because, in their decision-making, taxpayers seem to be influenced by the perception of taxes rather than solely by their existence. We also discuss several real life examples of how tax salience affects the perception of taxes in various settings. The conclusion points out that the tax non-salience contributes to fiscal illusion, which allows governments to grow.

Keywords Behavioural economics · Fiscal policy · Fiscal psychology · Salience · Taxes

According to classical economic theory for taxes to be efficient they should be equal (insofar as feasible) and have a minimal impact on the taxpayers' welfare. Based on these criteria one can draw several general recommendations for tax policies – taxes should be simple, small, levied predominantly on goods with low demand elasticity (i.e., on goods demanded by consumers even when the prices of such goods increase) and should reflect the ability of taxpayers to pay them. All those recommendations can be found already in works by Adam Smith and are hard to dispute. Although generally concurring with those criteria, behavioural economists point out that with respect to tax impacts people's

perceptions of taxes might have as much significance as the taxes' prescriptive qualities.

For decades, behavioural economists have noticed that people make systematic errors in decisions and judgments even in respect of simple tasks. A joint paper by a psychologist and a lawyer - Edward J. McCaffery and Jonathan Baron - reveals that "*People decide complex matters—and tax raises a host of complex matters—by responding to the most salient or obvious aspect of a choice set or decision problem. They fail to take into account logically relevant information that is not immediately available ...*" (2006:107). They say, the errors people make in evaluating and judging tax policies and resulting taxes derives from a tunnel vision in approaching problems and choices. Such tunnel vision is also known as the focusing or isolation effect. In this paper, we first discuss general behavioural (psychological) attitudes towards taxes and later we present several real life examples of how tax salience affects people's perceptions of taxes in various settings (see also Congdon et al. 2009).

Behavioural Tax Policy

After decades of tax increases, in many instances leading to suboptimal tax revenues beyond the Laffer point,¹ the only option governments have to further raise sources for public expenditures and social redistribution is to make taxes more "sexy". Even though governments decide not to raise taxes further, higher attractiveness of paying (or at least less resistance towards paying) taxes might bear significant benefits to both the governments and the taxpayers. Besides lower tax

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¹ The point in which the Laffer curve depicting the relationship between tax rates (x axis) and tax revenues (y axis), reaches its maximum. Taxation revenues beyond that point decrease even though the tax rates are rising.

evasion and consequent lower costs of the tax system, higher volunteering of taxpayers can enhance the institutional environment and help governments to promote their social and redistributive policies.

In that respect, the traditional models of thinking about taxes can hardly bring any significantly positive results. Findings of behavioural economics and psychology, however, might have promising applications. It seems, contrary to predictions of neoclassical economics, that people routinely err not only in both evaluating information and inputs relevant to their judgments, but also in their decision-making. Decisions on paying taxes do not differ. For example, people should not theoretically change their judgments on the progressiveness of the tax system when asked on how much certain taxpayers should pay in absolute or in relative terms. The experimental data, nevertheless, suggest that people prefer much higher progressiveness of the tax system when asked in relative terms (percentage of income) than if asked in absolute terms (in real money). The reason for the so called “metric effect” is that although higher income earners pay significantly more in taxes even under a sole tax rate than low income earners, the prevailing perception is, however, that the tax burden on high income earners is “similar”. On the other hand, once stated in absolute terms, the same tax burden applied on various incomes is perceived as being progressive. McCaffery and Baron (2006) call this effect the “progressivity illusion”.

Similarly, individuals do not perceive tax penalties imposed on certain taxpayers as *de facto* benefits given to all others. The economic rational, however, declares both equal. A penalty for a landowner is, in principle, a bonus for the landless. In one of his lectures the Nobel winner Thomas Schelling asked his students whether there should be larger child bonuses for the poor or for the rich. A subsequent question to the same class was whether childless poor or childless rich should have higher (tax) penalty. The students preferred that the rich have smaller bonuses under the first scenario and higher penalties in the second one. Only few students realize that the difference between the scenarios is in the scenarios’ default settings - in the first scenario a childless taxpayer and in the second one a taxpayer with a child. A higher penalty for the childless rich (compared to that of the childless poor), however, means that the rich person with a child gets a higher bonus, as s/he does not have to pay the higher penalty. Yet, this logical conclusion goes to contrary to the revealed preferences of students in the first question. This reversion of preferences resulting from the progressivity illusion and penalty aversion would later become known as the Schelling effect.

Tax Saliency

One of the ways to make the tax system more “likable” is to lower the saliency of taxes. That is, however, easier said than

done, particularly in situations when taxpayers have a firm idea of the total amount of taxes they pay. Income taxes bear approximately 10 % of deadweight cost, i.e., every dollar paid to the relevant authority costs taxpayers additional 10 cents paid for book keeping, filling the tax forms, communicating with tax advisers and the IRS, etc. These administrative costs co-determine the saliency of taxes and are construed by the taxpayers as part of the taxes levied. That means that taxpayers do not consider taxes purely as a number or percentage of their income stated by the respective regulation and paid to the government (i.e., the net tax), but rather as a result of subjective, self-created construct of the taxes levied and additional costs of taxes. That applies not only to the taxation of income, but also to taxes on commodities and property.

In other words, more clarity with respect to the volume of paid taxes means a higher tax saliency and a higher tax saliency means more animosity against taxes and the government. Having learnt this, Milton Friedman, a titan of liberalism and a fighter for minimalistic governments, confessed his regret that his idea of a Federal income tax withholding system was implemented. Under this system, income tax is levied automatically in regular advance instalments that make the paid tax less salient, thereby giving governments more space to grow.

In many respects, tax policies resemble the setting of prices by market participants. The basic principle of efficient pricing is to set prices to the maximum possible level while not alienating the customers. Market participants use several psychological tools to achieve this and governments may want to mimic their behaviour and select tax rates such that the political costs are minimal (dissatisfaction of the people with the tax burden) while the tax revenues reach their maximum.

It is a common practice for retail vendors to use so called odd pricing, i.e., prices as 0.99, 9.99 or 399.99. Empirical data suggest that such pricing strategy regularly increases demand. It was proven that while shopping, customers primarily take notice of the numbers on the left, which they remember, compare and based on which they make their final decisions whether to purchase the goods or not. The numbers on the right i.e., those behind the first numbers are not considered as salient and are usually ignored. In other words, to most consumers USD 400 seems to be significantly more than USD 399.99. There is yet another factor increasing the success of odd pricing - odd prices are mentally associated with discounts and sales. This mental link also increases demand, although the goods in question are sold for their regular price and not at discount price. Correspondingly, customers mentally undervalue prices of such goods and buy higher quantities of them.

Several states in the US most likely noticed such consumer behaviour and consequently tried to avoid double digit taxes, particularly on gasoline. If for any reason they failed to do so and increased the respective tax over 10 cents per gallon, they do not stay at the lowest available rate (10 cents per gallon) but

rather set the rates much higher in the second decimal. In one of the rare studies on taxation based on a retail pricing model, Olsen (2013) analysed Danish municipal income rates between 1972 and 2006 and confirmed that the local tax rates usually have numbers 0, 5 and 9 at the end (similarly to the most retail prices of goods) and that 14 % tax rates ended as nine-ending decimals, while the most common rate was 19.9 %.

The subjective perception of tax burden and its impact on demand was also documented in a famous experiment by Chetty et al. (2009). They proved that consumers to a large extent ignored sales tax if the tax was not included in the price of the good as shown on the shelf (on the price tag) but rather accounted for only at the register. In the experiment, they first examined whether the participants are able to correctly calculate total (final) price of goods in their shopping baskets. Even though the customers were aware of the tax status of the to-be-purchased products, most of them failed to increase the final price estimate for the sales tax. Nevertheless, once the price tags showed the price of the respective goods and the respective tax, the total price estimates improved significantly.

A 3 week experiment in which the researchers incorporated the sale tax of 7.375 % in the prices on the price tags of selected cosmetics products, hair care accessories, and deodorants showed that the demand for such products decreased (in comparison to similar products placed in the same aisle as well as to the same and similar products offered by shops in close proximity). The drop in demand for products with the tax added price was approximately 8 %. The effect was fairly robust as the price elasticity (percentage change in quantity demanded in response to a 1 % change in price) of such products reached values of 1 to 1.5.

Chetty et al. used the same concept when measuring real changes in demand in case of taxes on alcohol, particularly various types of taxes on beer. In the US, alcohol is subject to two state-level taxes. Excise tax is included in the price as shown on the price-tag and therefore is more salient in comparison to the regular sale tax on alcohol, which is added to the final price only at the register. Based on the changes of both taxes across several states in the US between 1970 and 2003 and the respective consumption (sale) of beer the researchers determined that the increase in excise tax has significantly higher impact on sale of beer than a similar increase in sales tax. Whereas the excise tax manifested elasticity of approximately 0.84 the elasticity of the sale tax reached only 0.06.

Similar results regarding the salience of different taxes were observed with yet another study. Finkelstein (2009) analysed the adoption of electronic toll collection (ETC) on toll rates. ETC (E-ZPass in the north-eastern United States or I-Pass in Illinois) offers a discount on the toll while charging the toll automatically whenever a car with the ETC box drives through a toll plaza. In other words, having the ETC boxes drivers, do not have to pay the toll in cash and see their bank notes leaving their wallets. This lowers the drivers' perception

of the toll even if they pass the toll plaza regularly (for example on their daily commute). According to one of the surveys, almost 40 % of the drivers who pay the toll using the ETC system regularly were not aware of how much they pay for passing through the toll plaza. At the same time, only 20 % of those who paid their toll in cash were not aware of the toll size (when asked during the survey). A significant majority, in particular 83 %, of those using ETC system erred when asked to make an estimate of the toll size. In contrast, only 39 % of those paying in cash made an inaccurate estimate.

The ETC system was implemented across several US states in different periods and under different conditions providing the researchers with a sufficient variability of data on income from the toll-facilities before and after the system implementation. Considering changes in toll traffic and other variables, the analyses show that the ETC usage reaches equilibrium once it is used by 60 % of the drivers. In such case, the income derived from the tolls is higher by 20 to 40 % in comparison to income derived from tolls paid in cash. The reason for such a significant difference stems from lower demand elasticity of the drivers using the ETC system. For such drivers the toll rate plays a less significant role than the pay-in-cash system, therefore the demand elasticity for using toll roads declines. Correspondingly, increases in tolls cause only a small decline in traffic. Additionally, the ETC system is less susceptible to political circle. Compared to the traditional cash based toll system, which witnessed smaller increases in toll levels during election years, the ETC system showed to be more immune to the election calendar.

Another example of behavioural responses to taxes comes from the area of income taxes. Saez (2010) based his research on the fact that the progressive taxation of individual income tax creates nonlinearities – or “kinks” – at each point of the marginal tax rate increase. Similar and sometimes even stronger kinks are caused by transfer programs such as Earned Income Tax Credit (EITC). Fully aware taxpayers should be over-proportionally bunching around these points because if they surpass any such point their tax levy increases and the marginal net income might not necessarily compensate their disutility from additional work. Based on tax return data from Internal Revenue Service (IRS) since 1960, Saez showed that tax payers are in fact bunching only around the first EITC kink point, i.e., at the point where the credit reaches its maximum level. “*The first kink of the EITC is special because it is the level of earnings that maximizes the tax refund and should be the focal point for tax filers misreporting their incomes. The first kink point of the income tax schedule is the income level where tax liability starts, and hence might be more visible on tax tables than kink points at higher income levels.*” (Saez 2010:181).

However, that is it, no other bunching evidence around other kink points of the tax schedule was found, neither in situations where the marginal tax rate notably increased nor

even if such points were well known to the respective taxpayers. No effect was also found with other kink points even narrowing the analysis to only those reporting self-employment, whose reaction was most significant at the first kink. Besides other explanations such as misreporting by self-employment income taxpayers, higher flexibility of lower income earners to choose their work load, etc., one of the more straightforward explanations is that due to the complexity of tax codes the marginal tax rates become irrelevant for the taxpayers who simply undervalue their impact on the income. Surveys confirm this explanation, as many taxpayers are not able to state correctly the marginal income tax rate applied to their income.

Fiscal Illusion and Conclusion

Tax policy is without a doubt more complex than outlined here. Additional levels of complexity are added with each and every contradictory aim of the currently promoted equitable tax systems, i.e., systems in which certain groups are taxed at lower or higher rates. And so far we have been considering only the income side of government budgeting. Each social policy usually driven by various incompatible aims of political representatives rather than by efficiency and welfare maximization, causes the taxpayers to be more confused.

Nevertheless, the salience effect of taxes seems to have straightforward consequences. The above examples indicate that once a government – on purpose or unconsciously – reduces tax salience, the taxpayers underestimate consequences of such manipulation and undervalue the resulting real tax burden. Moreover, the taxpayers' response is even lower when the changes are to taxes, which are entirely hidden such as those on electricity or natural gas.

In the end, although the taxpayers know of the existence of the taxes, it is impossible for them to decipher and evaluate who is ultimately burdened by those, which are non-salient. That makes the increases of such taxes psychically “less painful” and hence the governments prefer to increase those as compared to others. As a result, taxpayers are subject to fiscal illusion – they compare psychological costs of the state (being only taxes that are salient) and the “amount” of services provided by the government. As most taxes may be not salient, people underestimate the price of the provided services they receive (or are forced to buy) and consequently demand more such services, bigger governments and further expansion of governmental activities. In the end, this inevitably causes higher real tax burdens and/or fiscal deficits – both unsustainable in the long run.

Although some argue (Finkelstein 2009) that less salient taxes might decrease tax deadweight loss and therefore it is more efficient to implement them as compared to their more salient equivalents, the resulting impact on the taxpayers'

welfare is not clear. Underestimating high but non-salient taxes can paradoxically increase consumption of goods that are subject to such taxes and at the same time significantly decrease disposable income. That might be particularly undesirable for the bottom income social groups, which tend to be the intended beneficiaries of tax policies and correlated social welfare policies.

On the other hand, it can be argued (and is fairly plausible), that lower income groups would be more sensitive to marginal tax rates and changes of such rates, both being more salient for such groups; the same way as the lower income groups are highly sensitive to various promotional sales and hidden discounts (Mullainathan and Shafir 2013). Conversely, the real impact measured by the total levy on the higher income group would be very likely more significant in case of less salient taxes. As a result, the tax salience as such can be an inherent equitable tool of the tax system. One shall, however, be mindful of all the possible consequences of using tax salience as a tool in the tax policies.

Further Reading

- Chetty, R., Looney, A., & Kroft, K. 2009. Salience and Taxation: Theory and Evidence. *American Economic Review*, 99(4), 1145–1177. doi:10.1257/aer.99.4.1145.
- Congdon, W. J., Kling, J. R., & Mullainathan, S. 2009. Behavioral Economics and Tax Policy. *National Tax Journal*, 62(3), 375–386.
- Finkelstein, A. 2009. E-ztax: Tax Salience and Tax Rates. *The Quarterly Journal of Economics*, 124(3), 969–1010. doi:10.1162/qjec.2009.124.3.969.
- McCaffery, E. J., & Baron, J. 2006. Thinking about tax. *Psychology, Public Policy, and Law*, 12(1), 106–135.
- Mullainathan, S., & Shafir, E. 2013. *Scarcity: Why Having Too Little Means So Much*. London: Penguin Group.
- Olsen, A. 2013. The politics of digits: evidence of odd taxation. *Public Choice*, 154(1–2), 59–73. doi:10.1007/s11127-011-9807-x.
- Saez, E. 2010. Do Taxpayers Bunch at Kink Points? *American Economic Journal: Economic Policy*, 2(3), 180–212. doi:10.1257/pol.2.3.180.

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