The Impact of Income Tax and Redistribution of Tax Money on Productivity, Satisfaction, and Perceptions of Fairness

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Consumers face different levels of taxation and redistribution of tax money, which can influence perceptions and behavior. Across four studies, we show that people’s intuitions of how different income tax schemes influence productivity, satisfaction, and perceptions of fairness do not match how people actually respond in an experimental pay-per-performance setting.

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What makes you pay?
The features of incentives and the distribution of benefits in financial behavior

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Paper #1: Taking One for the Team: Motivating Prosocial Volunteering by Varying the Size and the (Un)Certainty of its Impact on Collective Welfare

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Paper #2: Using Gambling to Incentivize Prudent Financial Decisions

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Paper #4: The impact of income tax and redistribution of tax money on productivity, satisfaction, and perceptions of fairness

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SESSION OVERVIEW

Incentives can be especially powerful in driving desirable behavior. However, social psychology and consumer behavior have found that people respond differently to different incentive structures and framing of rewards (Gneezy, Meier, & Rey-Biel, 2011; Goldsmith & Dhar, 2013). In addition, people are sensitive to cost structure, fairness, and how benefits are redistributed (Fehr & Gächter, 2000; Kahneman et al., 1986). Thus, it is important to understand the effectiveness of incentive structures and distribution of benefits in encouraging behavior change. This session contributes to this literature through novel experimental research that explores how individuals’ sensitivity to incentives and their perception of the fairness of incentive structures can be harnessed to increase collective welfare.

The first two papers focus on people’s sensitivity to different incentive structures and the distribution of benefits and its implications to personal and public wellbeing. Olivola, Kim, Merzel, Kareev, Avrahami, and Ritov use a Volunteer’s Dilemma Game (VDG) to explore how varying the number of players, the size of the benefits associated with volunteering, and the certainty of these benefits influences prosocial contributions. The results indicate that people are sensitive to the size and the certainty of welfare impact, but this sensitivity varies across cultures and gender. Sussman and O’Brien demonstrate that low income consumers are more motivated to pay off debt in accounts that incentivize repayments with lottery prizes than with a known payoff of equal expected value. Additionally, the concreteness of the goal to repay debt can make people particularly sensitive to certain lottery incentives. These two papers show how designing incentive schemes not only enhances personal welfare but also increases the distribution of benefits to others through contributions.

While the first two papers examine how people’s sensitivity to incentives can increase contributions, the last two papers explore how people can be incentivized when they know how costs and benefits will be distributed. Mohan, Buell, and John show that disclosing favorable or unfavorable variable costs associated with a good’s production increases purchase interest and sales because of brand attraction. However, this result only holds when the price is a fair markup. Srna, Zauberman, and Schrift investigate how people’s effort, satisfaction, and perceptions of fairness in response to different flat tax rates and the redistribution of tax money are counter to intuitions in an experimental pay-per-performance setting. These two papers demonstrate the importance of sharing cost information, and find that fairness is an important contributor to people’s willingness to invest.

Taken together, these four projects highlight the importance of sensitivity to different incentive structures and the distribution of benefits to understanding consumer perceptions and behavior in four different domains of banking, volunteering, sales, and taxation. In line with the conference theme “Advancing Connections,” the widespread applicability of these papers’ findings could attract researchers interested in incentives, prosocial behavior, consumer behavior, and financial decision-making and have a broader impact on policy and practitioners. This session will create a productive discussion because of the theoretical and practical implications of each presentation.

Taking One for the Team: Motivating Prosocial Volunteering by Varying the Size and the (Un)Certainty of its Impact on Collective Welfare

EXTENDED ABSTRACT

What factors motivate or deter volunteering? This paper explores how culture, gender, and welfare impact, jointly influence prosocial decisions in a special type of social dilemma: The volunteer’s dilemma game (VDG; Dickmann, 1985). The VDG provides a controlled experimental method for studying volunteering behaviors in an anonymous interactive environment (e.g., Barron & Yechiam, 2002; Dickmann, 1993; Murnighan, Kim, & Metzger, 1993).

Each player in the VDG is given a starting budget and has to decide whether or not to pay a fee in order to improve the final payoff (i.e., welfare) of all players. The contribution of one player is sufficient to produce the collective benefit but every player who chooses to pay must do so—irrespective of what the other players chose. Thus, if no one volunteers then no one receives the benefit; if a player does not volunteer but someone else does, the player receives the full benefit; and if a player volunteers, that player receives the benefit minus the cost of volunteering. All players make the decision (to volunteer or not) simultaneously. Critically, while all players benefit from one person volunteering, these benefits do not increase further if more than one player volunteers. Therefore, there is a coordination and efficiency problem to be solved in the VDG: every player prefers to volunteer if no one else will, but volunteering becomes pointless if at least one other person is already going to do so. In other words, it is suboptimal if no one volunteers (as it represents a missed opportunity to increase final payoffs), but it is inefficient if several people volunteer (as it implies wasted “effort” on the part of every additional player, beyond the first, who volunteers).
We developed six variations of the VDG, in which we manipulated the number of players in the game (and thus the number of potential beneficiaries of volunteering), the size of the welfare benefits associated with volunteering (i.e., how much people benefit from one’s decision to volunteer), and whether volunteering led to certain or merely probabilistic increases in welfare (i.e., whether or not volunteering is sure to be effective), all while holding its expected value constant. We administered these 6 variations to economics students in five different cultures: Bali, England, India, Israel, and Java (total N = 603).

Overall, participants were sensitive to the welfare benefits of volunteering, but this sensitivity varied across cultures. Specifically, we found that Balinese participants’ decisions to volunteer were less influenced by the returns to volunteering. This can be explained by the fact that Balinese culture places a strong emphasis on communal volunteering, as a sacred value (Veszteg & Narheltali, 2010), which could lead to scope insensitivity regarding the perceived benefit of volunteering. In contrast to the size of the welfare benefits, volunteering decisions were unaffected by the number of players present. This could be because the increased welfare benefits of volunteering when more players are involved were offset by the diffusion of responsibility that comes with more players (Darley & Latané, 1968; Latané & Darley, 1968; 1970; latané & Rodin, 1969). Finally, we found that culture interacted with the (un)certainty of the benefits associated with volunteering, to influence volunteering decisions. Specifically, we found that, whereas Balinese, English, Israeli, and Javanese participants were equally likely to volunteer when doing so was associated with certain vs. uncertain welfare benefits, Indian participants were much more likely to volunteer when the returns to doing so were uncertain (albeit, with the same expected benefits, on average). Additional analyses showed that this tendency was unrelated to their general risk preferences, however.

Beyond culture, we found two other predictors of volunteering: religiosity and gender. First, we found that religiosity increases volunteering, and this was true for all major religions represented in our study. To the best of our knowledge, this is one of the first studies to show that religiosity increases prosocial choices in social dilemma games (Galen, 2012). Second, we found that men are less likely (than women) to volunteer when the returns to doing so are certain. By contrast, men and women are equally likely to volunteer when the welfare benefits of doing so are uncertain. To the best of our knowledge, this is only the third study to examine the effects of gender on volunteering in a controlled social dilemma experiment (Rapport, 1988; Vesterlund, Babcock, & Weingart, 2014).

In sum, we investigated several determinants of volunteering. In particular we examined interactions between culture, gender, and welfare impact, on decisions to volunteer in an experimental social dilemma game. We show that, in deciding whether to volunteer, people are sensitive to the size of the welfare impact of volunteering and whether this impact is certain or uncertain. However, this sensitivity to size and (un)certainty varies across cultures and genders.

Using Gambling to Incentivize Prudent Financial Decisions

EXTENDED ABSTRACT

US consumers struggle with their finances—both building savings and paying down debt. Despite the importance of savings as protection against financial shocks, a large percentage of households hold little to no saving (Lusardi, Schneider, and Tufano 2011). Additionally, US consumers carry over $800 billion dollars of credit card debt in aggregate, despite high financial and psychological costs associated with debt.

Prize-linked savings accounts have been used effectively to increase savings among consumers throughout the world (e.g., Kearney et al., 2010). These accounts are similar to traditional savings accounts except account-holders forgo some or all interest dividends in return for the chance to win lottery-like payouts. They are particularly appealing to low-income individuals, and evidence suggests that investment in this product can serve as a substitute for lottery or casino gambling (Cole, Iverson, Tufano, 2014; Cookson, 2014). Importantly, legislation passed in late 2014 will allow prize-linked savings accounts to be offered by banks and credit unions in the US.

Although prize-linked accounts have previously been used only in the context of building savings, we propose that a similar incentive structure could be used to help consumers reach another important financial goal—repaying their debt. Prize-linked debt products may be particularly attractive as an incentive in the context of consumers who hold nonperforming loans and may otherwise be unlikely to repay the full amount of the loan. Across four studies, we examine interest these products (prize-linked debt and savings), investigate differences in beliefs about savings and debt that would make each product appealing, and explore how considering goal-setting can be used to recommend specific design parameters.

Study 1 investigated whether consumers would express any interest in a prize-linked account to assist with debt repayment, and how this interest would compare to interest in prize-linked savings. 52 online participants were told to imagine that they had $10,000 to allocate across four different options: (1) a traditional savings account (2) prize-linked savings account (3) repaying credit card debt with a constant bonus and (4) prize-linked debt account. In the two debt accounts, the cards were described as offering a promotion where consumers received a bonus for making payments on their debt. The expected value of bonuses was equated across all four account types. A 2 (credit vs savings) x 2 (traditional vs lottery) within-subject ANOVA revealed that participants put significantly more money towards credit repayment ($5,716) than savings ($4,283, p < .05). Participants were more likely to put more money towards the traditional ($8,341) than lottery-based products ($1,658, p < .05), but they were as attracted to the prize-linked debt account ($1,077) as the prize linked savings account ($593, ns), suggesting that the novel prize-linked debt account may be an effective remedy for debt repayment in some populations.

Study 2 examined relative interest in prize-linked savings versus debt products relative to traditional accounts by asking 100 participants to allocate funds across prize-linked savings versus traditional savings or prize-linked debt repayment versus traditional debt repayment options, in a between-subjects design. Results showed that the prize-linked debt account garnered significantly more interest ($2,402) from participants than the prize-linked savings accounts ($1,051, p < .05) when compared to their respective traditional accounts.

Study 3 moved to a national sample with overrepresentation from low-income households, to determine characteristics of people interested in each type of product. This study included a large range of individual difference measures. Relying on a study design similar to Study 1, results revealed that overall interest in lottery-based products was predicted by liberalism, gender, age, race, income, risk tolerance, and propensity to play the lottery. Additionally, we examined a range of attitudinal measures to better understand perspectives towards savings and debt. Among other factors, we found that having a plan for reaching one’s debt goal was a positive predictor of...
lottery use while having a plan for reaching one’s savings goal was a negative predictor, and that the importance of debt repayment is a significant predictor of the relative preference for the debt lottery relative to the savings lottery. To better understand the appeal of a prize-linked credit account (relative to prize-linked savings), we also examined differences in beliefs about building savings and repaying debt. This analysis revealed that participants considered building savings to be a more gradual process than repaying debt, and that people have more concrete views of their debt goals relative to savings goals.

Leveraging insights gained about the psychology of debt repayment, Study 4 aimed to understand how the presence of concrete savings goals and beliefs that debt repayment is not always gradual could help with product design. One way debt differs from savings is that many people may have the same, concrete debt-goal (i.e., become debt free) whereas savings goals are more personalized and amounts are malleable (e.g., have enough money to retire). This suggests that a debt product that offers the opportunity for a consumer to clear her debt could be particularly compelling, while no exact parallel exists in the savings domain. To test this hypothesis, 100 participants read a scenario in which they had a preset amount of credit card debt and choose between a consumption (TV purchase) and lottery-based debt repayment opportunity (1-7 Likert scale). Each of the debt repayment options included several $1,000 payouts. This amount was either (a) insufficient for repaying all outstanding debt (b) equal to outstanding debt or (c) described as eliminating all of the winner’s debt (rather than stating an amount, equivalent to $1,000 in the scenario provided). Participants in the explicit debt elimination condition were significantly more likely to repay their debt ($ = 9.16) than those in either of the other two conditions ($ = 8.88, $ < 0.05). These findings suggest that (holding expected constant value) allowing for the possibility of clearing a customer’s total debt, and highlighting this feature, may be most effective in encouraging debt repayment.

Overall, we provide additional insight into existing prize-linked savings accounts. More importantly, we introduce a new product to help consumers repay their debt, demonstrate interest in this product, and recommend using goals to encourage take-up.

Lifting the Veil: The Benefits of Cost Transparency

EXTENDED ABSTRACT

A firm’s costs are typically tightly-guarded secrets. However, a significant body of literature on the social psychology of disclosure suggests that those who disclose intimate information can be seen as more likeable and attractive (Collins & Miller, 1994; Laurenceau, 1998; Moon, 2000). We suggest that cost transparency – revealing a firm’s variable costs of production – is a particularly intimate form of disclosure by a firm to the consumer. Using six laboratory experiments and a field study, we examine the effect of cost transparency on consumer purchase behavior.

Our first study was a natural experiment with an online accessory retailer. We found that the addition of a ‘cost transparency’ graphic denoting the variable costs of producing a wallet significantly increased sales over a two-month period. Using the estimates from a fully-specified model, we calculated that the introduction of the cost transparency infographic increased daily unit sales by 88.1%.

In study 2, we tested the effect of cost transparency on customers’ willingness to buy in a simulated online retail environment. Participants saw an online shopping interface featuring a model wearing a t-shirt. This interface served as the baseline in all of our experiments. In the operational transparency condition, an additional infographic depicted six operational steps to produce the t-shirt – cotton, cutting, sewing, dyeing, finishing, and transport. In the cost transparency condition, the true cost of each of the six operational steps was also provided, i.e., $2.75, $0.35, $1.35, $0.50, $1.25, and $0.50 respectively. Participants indicated their willingness to buy the t-shirt on a 7-point scale. Willingness to buy was greater in the cost transparency condition relative to both the control condition ($mean = 4.16 vs. $mean = 3.31, t(177) = 2.95, $ < 0.01) and the operational transparency condition ($mean = 3.57, t(180) = 2.10, $ = 0.04).

Of course, not all disclosure leads to attraction; prior research suggests that a curvilinear relationship between disclosure intimacy and liking (Cozby, 1972). In study 6, we tested how revealing high profit margins (i.e., a high price relative to cost) moderated the effect of cost transparency on a consumer’s willingness to purchase a good from a firm. We used the online website of a popular department store to determine a relevant range of t-shirt prices ($10-$100), and manipulated the price of the product while keeping costs constant. As expected, willingness to buy decreased as price increased ($1,954 = 121.2, $ < 0.01). Moreover, there was a significant interaction between price and cost transparency on willingness to buy ($1,954 = 6.05, $ = 0.01) The benefits of cost transparency weakened – but did not reverse – when a firm disclosed higher prices relative to cost.

When might cost transparency backfire? Although consumers understand and accept that firms must make profits (Bolton, Warlop, & Alba, 2003; Kahneman, Knetsch, & Thaler, 1986), they pur-
ish firms that violate established norms of price fairness (Campbell, 1999; Xia, Monroe, & Cox, 2004). In study 7, we tested whether making a markup more salient would diminish the effectiveness of cost transparency. For instance, we noted that a similar shirt sold by a competitor is priced at $25, a 3.7X markup over the estimated cost of production. Thus, at the $30 price point, the firm’s markup of 4.5X was higher, and therefore, less desirable than that of its’ competitor. Relative to the control, willingness to buy was significantly lower versus the control when an undesirable markup was made salient ($M_{\text{markup}} = 2.17$ vs. $M_{\text{control}} = 3.34$, $t(60) = 2.37$, $p = 0.02$). This suggests that when markups are counter-normatively high compared to competitors, cost transparency diminishes purchase intentions.

The provocative implication of this research is that by revealing costs – typically tightly-guarded secrets – marketers can potentially improve both brand attraction and sales.

**The impact of income tax and redistribution of tax money on productivity, satisfaction, and perceptions of fairness**

**EXTENDED ABSTRACT**

Consumers face different levels of taxation, which have potentially important implications for their perceptions and behavior. Existing experimental evidence suggests that people are tax averse, causing them to avoid costs associated with taxes beyond equivalent costs in their purchase and policy decisions (e.g., Hardisty, Johnson, & Weber, 2010; Sussman & Olivola, 2011). This research proposes that people indeed predict they will be income tax averse, but their actual behavior in response to income tax is not nearly as extreme and is influenced by how tax money is redistributed.

Perceptions of tax policy might affect people’s decisions, including residence decisions and voting on policy. Therefore, it is important to understand people’s intuitions about the impact of income tax and redistribution schedules. In the first two studies, participants predicted how they (Study 1a) or an average “Joe” (Study 1b) would behave and feel if their task earnings were subject to an income tax and redistribution schedule. In Study 1a, participants (N=202) read about a hypothetical study that taxed their earnings and were asked to predict their own behavior and feelings. The study design was within participants and compared tax levels of no tax, 10%, 40%, and 55%. Participants were instructed that tax money was either evenly redistributed among all participants or withheld to support research. Participants predicted that they would be less productive the higher the tax ($p<.001$) and reported lower satisfaction ($p<.001$) with the task and payment fairness ($p<.001$). Participants also predicted that they would be more productive with an even redistribution of tax money than when it was withheld to support research ($p<.001$). In order to determine the results’ robustness, Study 1b replicated Study 1a using third-person rather than first-person framing. Thus, in Study1b, participants (N=201) predicted how an average “Joe” would behave and feel when his earnings from a task were subject to different tax and redistribution schedules. We find the results of Study 1a extend to this context.

Given the results of Studies 1a and 1b, we sought to test participants’ intuitions in a controlled incentive compatible experiment. While these experiments do not mirror taxes’ complexities in the real world, the incentives, taxation, and redistribution of tax money are real, and thus give important psychological insights. Participants’ (N=627) earnings were taxed at 10% or 40% such that participants made the same amount after taxes regardless of the tax rate and participants were told that the tax money either supported research or was redistributed evenly among participants. When the tax money was evenly redistributed, each participant received an equal share regardless of earnings. After working on an incentive-compatible task, participants received their payment information. Contrary to intuitions, the results suggest that participants are slightly more productive with higher tax rates ($p=.03$) possibly because they compensate for lost wages by working more. There were no differences in satisfaction with task, payment, or payment structure fairness due to higher taxes ($a=.83$, $p=.87$). Despite higher satisfaction with an even allocation of tax money ($p=.002$) and receiving redistribution money, participants were less productive when tax money was evenly redistributed ($p=.03$). Consistent with public goods literature, our findings suggest that in this context people also reduce effort when benefits can be received with no contribution (Fehr & Gachter, 2000).

Admittedly, it could be argued that participants’ insensitivity to different tax rates was because 10% and 40% tax rates fall within the realm of normal income taxes, or alternatively, that participants were unclear regarding what constitutes a “normal tax rate” in this scenario. Thus, in Study 3 we held constant before tax earnings in order to make sure participants were actually experiencing the penalty of taxation. To ensure there was no ambiguity about the task and payment structure, Study 3 employed a two-stage design where all participants (N=488) first worked on a task taxed at 0%, 10% or 55%, (manipulated between participants). After completing the first task, participants either predicted how much they would work or actually worked on the second target task, which was also taxed at 0%, 10% or 55% (both factors were manipulated between participants). We find that participants were less productive (correctly complete 7 less problems on average) and satisfied on the second task when taxes were raised from 10% in the first task to 55% in the second task and were more productive (correctly complete 1 more problem) when taxes were lowered from 55% to 10%. Furthermore, participants predicted much higher productivity on the second task than they actually performed ($p<.0001$). The study’s results, however, cannot determine whether the change in productivity is because of tax aversion or a change in compensation.

In order to address this question, Study 4 compared after tax earnings with or without the mention of taxes. Participants (N=484) worked on two different tasks in which they were either taxed or not. In the first and second tasks, they were either subject to a 0%, 10%, or 55% tax or were paid the equivalent after tax amounts with no mention of taxation. We find participants’ difference in productivity between the tasks is due to changes in incentives for both tasks ($p<.0001$) but not from being averse to the mention of taxes. Thus, the results show that taxation does not have a differential impact on productivity beyond that of an equivalent decrease in incentives. This finding is inconsistent with participants’ intuition that they would exhibit tax aversion in this study.

In summary, people intuit that higher taxes and no distribution of tax money among participants decrease productivity and satisfaction beyond the impact of lower payments. However, our results provide evidence that, while people are sensitive to incentive schemes and how tax money is redistributed, their actual effort is not tax averse. We discuss the important implications of these findings to psychology, consumer research, and public policy.

**REFERENCES**


