

# Public Finance II.

## Lecture II - Psychology and Economics

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Office Hours (Room 5C.30)  
Tue 10:00 – 10:45  
Thu 12:30 – 13:15

### Readings:

- Gruber, J. (2005). Public finance and public policy. Macmillan.
- Congdon, W. J., Kling, J. R., & Mullainathan, S. (2011). Policy and choice: Public finance through the lens of behavioral economics. Brookings Institution Press.

# Introduction

- When should the government intervene in the economy? When do markets fail? How do we craft policies that maximize social welfare? How do we design policies to minimize unintended consequences?
- Traditional public finance provides a powerful framework to tackle those questions. This framework, however, relies on an overly simple model of human behavior.
- This lecture revisits the core questions of public finance but with a psychologically richer perspective on human behavior.
- We do not merely apply psychology to economic problems; instead, we explore how psychological factors reshape core public finance concepts such as moral hazard, deadweight loss, and incidence.
- First, we review what the lessons of behavioral economics are, examining some of the main findings from psychology and behavioral economics, and what they imply for our understanding of preferences and choice.
- Second, we develop a conceptual framework for integrating behavioral economics and public finance that will pay dividends when we go to apply those findings to topics in public finance.

# Psychology and Economics

- What do people want? Do they even know? How do they make choices, big and small? Answers to questions like these - how individuals form preferences, how they make decisions - guide how economists think about the world.
- Public finance is no exception. While it is easy to think of public finance mainly in terms of more aggregate units of analysis - how markets fail, how they can be repaired - its conclusions are undergirded everywhere by a theory of individual choice.
- The occurrence and the consequences of market failures depend on elements of individual decisionmaking just as much as they do on the role of market structure.
- Similarly, conclusions about whether and how the government should intervene in response to market outcomes turn on how we believe people will respond to those policies.

# How do people choose?

- The evidence suggests that deviations from the standard economic model are more the rule than the exception and that they have consequences in the aggregate and for policy responses.
- Psychology has demonstrated that violations of the standard economic assumptions about preference and choice are pervasive.
- Behavioral economics has identified a number of contexts in which deviations have consequences for market or policy outcomes.
- Centrally, that evidence suggests that when people deviate from the standard assumptions, they do so in predictable ways.
- Thus behavioral economics does not just question the validity of old assumptions; it replaces them with new ones.

# Three basic deviations from standard assumptions

- **Imperfect optimization.** The classical model assumes that individuals are capable maximizers of their own utility—that is, that they know what they want and what will make them happy and that their choices and preferences are consistent. Behavioral economics, however, finds that individuals are imperfect in their ability to maximize their own welfare and that their choices are often inconsistent—that is, that individuals have more difficulty knowing what they want than the standard model assumes.
- **Bounded self-control.** Even when individuals accurately perceive their own interests, they can have difficulty realizing their intentions. The classical model allows for no such difficulty, and it assumes time consistency in preferences. Behavioral economics recognizes forces such as temptation and procrastination as real and meaningful phenomena—that is, that individuals have more difficulty doing what they want than the standard model assumes.
- **Nonstandard preferences.** Finally, the standard model also makes some weak assumptions about the shape of individual preferences. Behavioral economics finds two important cases in which those assumptions appear inaccurate: First, preferences appear to be set over changes in status rather than over end states. Second, the assumption of pure self-interest is often a bad assumption, in that individuals routinely hold preferences that are other-regarding—that is, that what people want is different from what we usually assume.

# Imperfect Optimization

- Large set of findings in the psychology of judgment and decisionmaking suggest that individuals are not always good at making choices.
- They make choices that appear to ignore or misconstrue available information or that exhibit the types of logical inconsistencies disallowed by full optimality.
- For the purpose of working through their implications for public finance, we will group the deviations into three categories according to the general feature of decision making that drives the deviation: limited attention, limited computational capacity, and biased reasoning.
- Limited attention captures deviations from optimality that appear to be due to the fact that there are limits to the bandwidth of the human brain in processing stimuli—that individuals cannot notice and attend to all of the features of choice simultaneously.
- Limited computational capacity captures deviations that are due to the limits of the processing power of the human brain—that even when individuals are capable of attending to the relevant features of a choice, making some choices simply is complex or otherwise intrinsically difficult.
- Biased reasoning captures deviations from optimality that are due to a set of persistent biases in the way that the human brain appears to subjectively evaluate alternatives, especially those involving probabilities or statistics.

# Limited attention

- The mind appears able to attend to only a small fraction of the stimuli that it perceives, and that attention is focused in a way that is neither random nor entirely conscious. As a result, individuals can focus on, or attend to, only a few of the many features of their choice environment at once. Choice becomes sensitive to the way in which attention is allocated or directed.
- **Salience Effects:** Because individuals cannot attend to everything at once, salient features of their environment will command their attention and can influence behavior and choice. For example, there is evidence that raising or lowering the salience of taxes or fees, without changing their level, affects behavior.
- **Local Construal:** The other set of effects of limited attention on choice comes about because individuals with limited attention can direct that attention. The ability of individuals to direct their limited attention is powerful. The result of focusing attention for choice is that it can lead to choice processes that result in what are local, rather than global, optimization patterns.

# Limited Computational Capacity

- Even when individuals are not constrained in terms of attention, they can find some choices hard to make because of the complexity of evaluating the alternatives and because they are not unbounded in their capacity to think and reason. Their decisions can be influenced by spurious features of the choice environment. The main implication of limited computational capacity for economic behavior is that optimization generally is only approximate, not accurate or precise.
- **Decisional Conflict:** Individuals appear to find the process of choosing itself to be difficult under some conditions. There is evidence that what individuals seek to avoid are difficult choices. When individuals face choices among options with no clearly dominant alternative, they are more likely to look for ways to avoid choosing, such as seeking additional alternatives or deferring choice, than when a dominant option is available.
- **Inconsistent Subjective Valuation:** A range of evidence from behavioral economics suggests that individuals in fact have a difficult time forming consistent subjective valuations. Valuations instead appear malleable and arbitrary, as demonstrated in contexts in which alternatives have attributes that are not easily valued or that vary along multiple dimensions. Perhaps most dramatically, other results suggest that individuals' preferences can be influenced by external cues that have no plausible connection to subjective value. Finally, preferences appear to be very sensitive to the way in which choices are structured.
- **Schmeduling:** Refers to a tendency of individuals to hold and act on only approximate mental representations of price schedules. Individuals to respond to incentives in a way that is attractive piecewise but suboptimal in the aggregate.
- **Mental Accounting:** The tendency of individuals to evaluate choices with respect to discrete, notional accounts rather than general measures of financial status, such as overall wealth, total income, or total spending. For example, tax benefits seem to be more likely to lead to increased spending on children simply by virtue of being labeled child credits.
- **Choice bracketing:** Individuals may be more inclined to commit to making small, recurring payments, such as to a charity, because they bracket the choice narrowly—comparing the payments to other small, frequent expenses rather than considering the aggregate expense.



# Biased reasoning

- These deviations take the form of biases that individuals exhibit when assessing the probabilities associated with risky choice or when making judgments about their own place in the distribution of possible outcomes. Biased reasoning of this sort is manifested in two broad categories, probabilistic reasoning and motivational biases.
- **Probabilistic Reasoning:** Individuals appear to have difficulty making correct or consistent decisions under uncertainty. They mistake randomness for patterns.
- **Motivational Biases:** One example is overconfidence. Individuals are found to be routinely overconfident about their own abilities. Overconfidence appears to be related to some economic behaviors, like risk taking by entrepreneurs. A related but distinct bias is a tendency toward over-optimism

# Bounded self-control

- In addition to assuming that individuals are good at knowing what to choose, economists further assume that individuals are good at implementing their choices—in particular, that they possess what can be broadly termed self-control, that they do not face any tension between what they intend to do and how they act. Slightly more formally, we might say that the standard economic model is one in which choices display time consistency. When choices are time consistent, consumption patterns observed ex post are consistent with consumption plans made ex ante.
- However, individuals often choose and act in ways that are time-inconsistent, and they often display a bias for present over future consumption. The failure of individuals to display time-consistent preferences is an example of a general tendency that we label bounded self-control.
- **Procrastination and Temptation:** One major consequence of bounded self-control is the gap that it can create between intention and action. Individuals may engage in procrastination, failing to take actions that they intended to take. Conversely, it can lead individuals to succumb to temptation, taking actions from which they intended to refrain.
- **Channel Factors:** One of the most striking results in psychology is that allowing for a gap between intention and action, research finds that only very minor features of choice can serve to widen or narrow that gap. Psychologists have labeled those features of choice channel factors. Channel factors can explain the tendency of individuals to be steered toward or away from choices by ostensibly quite minor barriers or inducements. The dramatic results of automatic or simplified enrollment procedures in social programs, such as college financial aid programs or employment benefit programs such as 401(k) plans, are likely due in part to channel factors.
- **State and Affect:** Another important aspect of bounded self-control is that the ability of individuals to exhibit self-control depends not just on the context of choice but also on the state of the decisionmaker. For example, stress and cognitive load may cause individuals to act impatiently. Similar effects may result from other visceral states, such as hunger or fear. Second, state and affect can play a role in time-inconsistent behavior to the extent that the inconsistency comes about because of the difficulty that individuals have in predicting their hedonic state, or forecasting their affect, at the time of forming their intentions.
- **Addiction:** Finally, at the extreme, individuals may lose self-control outright due to addiction

# Nonstandard preferences

- Usual economic assumptions about choice include some weak assumptions about the shape and content of preferences. Two, in particular, are relevant here.
- First, economists typically assume that individual utility is a function of end states— that is, how individuals value an outcome usually does not depend on the path taken to realize it or on the position of the outcome relative to other possible outcomes, but simply on the outcome itself.
- Second, economists commonly assume that individuals are purely self-interested. It should be noted that in neither case are those assumptions essential features of the standard model of choice; they are instead standard simplifying assumptions.
- Psychology and behavioral economics have produced findings that suggest that in many cases those assumptions are a poor fit with the preferences exhibited by many decisionmakers.

# Reference-Dependent Preferences

- Choice theory in economics typically assumes for the sake of simplicity that goods enter individual utility functions in absolute terms. That is, goods have an intrinsic value that does not depend on how they compare with alternatives. In many instances however, individuals appear to evaluate many choices in relative terms, in particular in comparison with some reference point. Preferences over alternatives might depend on whether an alternative represents a gain or a loss relative to expectations or to prior experiences. They may depend on whether individuals are valuing a good to sell it or to buy it. Or they may depend on their relationship to the status quo. These results are manifestations of what behavioral economists refer to generally as reference-dependent preferences.
- **Endowment Effect:** The general finding is that where individuals start from, in terms of their endowment, matters for choice because it creates a reference point that affects how they value outcomes. Individuals think of, and subjectively value, the experience of acquiring a good differently from the experience of giving one up. Parting with an item that individuals think of as their own seems to hurt them more than acquiring the same item benefits those who do not own it. One important consequence of the endowment effect is that willingness-to-pay valuations may not match willingness-to-accept valuations.
- **Loss Aversion:** Another reference point around which individuals tend to form preferences is zero; that is, individuals do not value or experience losses and gains symmetrically. This result is known as loss aversion, because of the consistent finding that individuals perceive losses more intensely than gains. That is, to give someone with loss aversion some amount of money and then take it back would not leave the individual's welfare unchanged, as in the standard model—rather, the individual would feel worse off, because paying the money back would reduce his or her welfare by more than the original gift increased it. One important demonstration and implication of the effects of loss aversion is that whether choices are framed as losses or gains can have a measurable effect on choice
- **Status Quo Bias:** Another consequence of reference-dependence is status quo bias, the tendency of people to stick with what they have. This effect operates at least partly in conjunction with other tendencies—such as procrastination—but it also seems to be partly a function of using one's current situation as a reference point in evaluating alternatives. The effectiveness of defaults in promoting enrollment in employment benefits and social programs, noted above as consistent with the effect of channel factors, is also reinforced by status quo bias.

# Other-Regarding Preferences

- One final assumption of the standard model that leads economists and policy-makers astray is the assumption that people are purely self-interested. While it is only a simplifying assumption on the part of the standard model, it is central to a number of specific results, including results in public finance. Findings from psychology and behavioral economics suggest that preferences and choices are interdependent in a wide variety of ways. People care about the outcomes realized by others, or at least they act as if they do. They care about the outcomes for groups and how those outcomes are generated. They care about how their choices compare with those of others and how they are viewed by others. And so on. In general, we categorize the ways in which individual preferences are related to the choices and outcomes of others as demonstrations of what we label other- regarding preferences. There are several facets to other-regarding preferences that are relevant to the economics of the public sector. They include altruism, fairness, social norms, and interpersonal preferences.
- **Altruism:** Evidence from multiple domains supports a view of human nature that is less dim than what economists typically suppose. Rather than pursuing narrow conceptions of self-interest alone, people frequently act as though they care about the outcomes of others, either individually or as a group. One important consequence of this behavior for public finance is that individuals may engage in what amounts to voluntary redistribution.
- **Fairness:** A related finding but one that has distinct consequences is that individuals have preferences with respect to the process that generates outcomes, as well as the outcomes themselves. That is, there is evidence that individuals have preferences for fairness. For example, individuals appear to value cooperation and more generally to act in accordance with reciprocity.
- **Social Norms:** Individuals are influenced by the behavior of others and by the way that others expect them to act to an extent that is surprising in the standard model. Individuals will often behave in a way that conforms to community norms.
- **Interpersonal Preferences:** A final set of interrelationships among the choices that individuals make arises from the fact that people care how they are viewed by and how they are positioned relative to others. The utility is a function of their outcomes relative to the outcomes of others.

# Summary

- Ultimately, the important question for public finance, in all cases, is whether allowing for these key behavioral deviations from the usual assumptions—imperfect optimization, bounded self-control, and nonstandard preferences—matters. They seem on their face to create the possibility that results in public finance may change if revised assumptions about individual decisionmaking are incorporated. But do they? Do choice errors matter in the aggregate or in equilibrium? Do individual decisionmaking failures matter for market failures? And so on.
- The answers are not obvious. For one, it may be that individuals exhibit these behaviors in experimental settings but not in real life, where the stakes are higher and the influence of experience and learning may be more substantial. There is some evidence that behavioral tendencies that stand out in the lab can be attenuated in the field or in agents with greater experience or strong financial incentives. However, given evidence from the field, this is clearly not always true. Separately, it may be the case that markets operate in a way that neutralizes the effects of individual decisionmaking errors on aggregate outcomes. That is theoretically possible; however, so is the converse. Tests under market conditions, including the evidence from the field and simulated markets, suggest that markets are not always sufficient to enforce the outcomes predicted by the standard model.
- To understand the true implications of behavioral economics for public finance, then, we cannot simply apply findings from psychology directly to issues in public finance piecemeal. It is necessary instead to integrate findings on behavioral tendencies into the economic framework of public finance—into the analysis of externalities and asymmetries of information, and so on—and work through their implications for the role of government and for the design of public policy.