

# Public Finance II.

## Lecture II - Behavioral Economics and Public Finance

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### 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.
- Sunstein, C. R. (2020). Behavioral science and public policy. Cambridge University 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.
- 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.

# Psychology and Public Finance

- The new model of behavior introduced by psychology can lead to a new set of tools for achieving policy goals as well as refine our understanding of how the old ones work.
- **Diagnosing policy problems.** The first and fundamental issue in public finance is understanding when and how markets fail to maximize social welfare; traditionally, this occurs when markets fail to generate efficient outcomes due to market failure or when market outcomes are in conflict with other social goals, such as equality. A behavioral approach shows how standard public finance sometimes misdiagnoses the ways in which market failures translate into welfare losses, misstates the welfare costs of outcomes like inequality, and entirely misses other opportunities to improve social welfare.
- **Judging policy objectives.** Given an appreciation for the welfare costs of market failures or other sources of welfare loss, public finance can inform the question of how to weigh competing policy objectives and social goals. While it is ultimately up to policymakers and society - not economists - to make the judgments that such trade-offs require, public finance can shed light on the nature and the terms of the trade-offs. Allowing for behavioral tendencies can alter the terms of long-standing trade-offs as well as introduce new trade-offs.
- **Prescribing policy responses.** Finally, public finance can suggest appropriate designs for policy responses that reflect judgments about policy objectives. Public finance generates a set of principles for policy design - such as how to set taxes or subsidies - that already derive in large part from consideration of how individuals respond to the incentives that they are offered. Behavioral findings, by changing our expectations regarding individuals' responses to policy, can generate an updated set of principles for policy design.

# Diagnosing Policy Problems

- Public finance starts with identifying a set of problems that require a policy solution.
- Traditional public finance considers essentially two classes of policy interventions to be welfare improving: corrective policies that address market failures and redistributive policies that seek to improve social welfare.
- When markets fail due to externalities or asymmetries of information, unregulated outcomes are no longer presumptively efficient, and government policies that correct for those failures can increase efficiency.
- When market outcomes are efficient but undesirable, due, for example, to unmet preferences for equity, the government can intervene to improve social welfare by redistributing income.
- Somewhat separately, public finance recognizes that governments face the problem of raising revenue in an efficient manner to support those and other functions of government.

# Market Failures

- The central theoretical result in welfare economics is that markets, when they are perfectly competitive and otherwise well functioning, result in a level of economic efficiency on which government policy cannot improve.
- In practice, that result holds only when markets exhibit certain characteristics, such as common information. When the standard assumptions fail to hold, markets fail, and government intervention may improve market outcomes.
- There are a number of conditions under which markets can fail. Two are of central interest for the study of public finance: **asymmetries of information**, which occur when relevant information is not common among all market participants, and **externalities**, which occur when the welfare of some individuals is interrelated with that of others through channels that are not mediated by the price system.
- In each case, public finance provides a standard approach to describing the nature of the problems that those conditions present for policy. And behavioral economics, by updating the assumptions of individual preference and choice on which that approach to some extent depends, can modify the standard conclusions.



# Asymmetries of Information

- Asymmetries of information occur when some market participants have more complete information than others about relevant market features. Markets characterized by asymmetries of information can fail to operate efficiently, in particular because such asymmetries can lead to adverse selection. Adverse selection arises when buyers or sellers with private information self-select into or out of transactions based on that information in ways that ultimately undermine the market. A classic example of asymmetric information is thought to occur in health insurance markets.
- However, if individuals have difficulty translating their private information into optimal decisions and actions, then asymmetries of information will not necessarily generate adverse selection according to the usual model. As a result of the interaction between asymmetric information and behavioral tendencies, the consequences of asymmetric information for market outcomes and the nature of the resulting policy problem become much less certain.
- If individuals in a position to exploit an informational advantage that would, in the standard model, lead to adverse selection fail to understand that advantage or are unable or unwilling to act on that information, there may be less adverse selection than the standard model would predict. The extent of the market failure - and the corresponding welfare losses - would be diminished. In extreme cases, it seems possible that such tendencies could even change the sign of selection effects.
- Another way in which behavioral tendencies can interact with asymmetries of information is by creating them outright. In the standard model, asymmetries of information are typically assumed to follow from the features or structure of the market - that, for example, health status is simply impossible or infeasible to monitor accurately - but not from differences in the capacity of market participants to attend to or process information.
- Behavioral tendencies, however, raise the possibility that asymmetries of information could arise from such differences - for example, when individuals in their role as consumers are constrained by limited attention or computational capacity in a way that firms in their role as suppliers are not.

# Externalities and Public Goods

- Externalities occur when some element of an individual's welfare function is determined in whole or in part by the action of some other agent that does not take that fact into account in determining its own behavior. The classic example of an externality is pollution. Because it is unpriced to the firm, the market fails, and unregulated levels of pollution will be inefficiently high, leading to a loss of welfare relative to the social optimum.
- A special case of an externality, called a public good, is an externality that enters each individual's utility function at its aggregate level. National defense is a classic example. Simply by living within a country's borders, one benefits from the aggregate level of defense protection that the country offers. In general, public goods, like all goods that generate positive externalities in production, will be underproduced by the market.
- The standard models of how externalities form and how they lead to inefficient outcomes depend closely on how individuals behave and how they respond to those externalities. So, for example, the excess consumption of fossil fuels like gasoline that the standard model predicts in the face of negative externalities in their consumption—in the form of pollution or their contribution to global warming—comes about because of the way in which individuals are assumed to respond to the artificially low price of gasoline.
- The psychology at work in deciding how to consume energy and in what form, however, might cause individuals to make different choices. Individuals with other-regarding preferences may internalize those externalities voluntarily, leading to efficient outcomes even in the presence of the externality. In the example of gasoline consumption, a sensitivity to pro-environmental social norms may lead individuals to partially internalize the externalities involved and, say, change their commuting patterns or purchase a different type of car.
- In addition, behavioral tendencies may sometimes lead directly to new types of externalities or outcomes that mimic externalities. That can result when, for example, imperfectly optimizing behavior has consequences for others. For example, errors by individuals in making choices that affect, say, public health outcomes have external consequences.

# Market power

- Markets also can fail when firms have market power, that is, when they are no longer price takers. When firms have market power, they are able to restrict supply and sell their goods and services at prices above marginal cost, which is inefficient and leads to a loss of welfare relative to the social optimum. While market power is a form of market failure and thus fits with this discussion, it often is not treated as a topic in public finance but left to the separate field of industrial organization.
- It is worth noting, however, that just as the conclusions in public finance about the sources and effects of information asymmetries and externalities depend in part on assumptions about how individuals choose and behave, so too can the economic analysis of market power be sensitive to the findings of behavioral economics. The most notable potential effect is that firms may be able to take advantage of behavioral tendencies on the part of consumers in order to gain or manipulate the extent of their market power—for example, by taking advantage of limited attention in order to develop or sustain pockets of market power or exploiting tendencies to bounded self-control in order to affect the elasticity of the demand curve that they sell along.
- There is, in fact, an important and growing line of research in what is sometimes called behavioral industrial organization that considers such effects. This research explores whether and how behavioral forces can create monopoly power or mediate existing monopoly powers. For example, one line of work shows how, in theory, imperfectly optimizing consumers can create market conditions under which firms can charge markups over competitive pricing on goods in such a way that neither the presence of competing firms nor information disclosure will lead profits to be competed away.

# Poverty and Inequality

- Another class of policy problems considered by public finance arises from the failure of market outcomes to maximize social welfare even when markets operate efficiently. These policy problems reflect the fact that not all efficient outcomes are equally desirable from the perspective of society. In such cases, government policy can be used to potentially improve market outcomes by improving some conception of social welfare.
- The predominant reason that public finance considers some market outcomes socially undesirable is the presence of poverty and inequality. Even when market outcomes are efficient, they can leave wide dispersions in income or other economic outcomes. Depending on how individuals form preferences over relevant outcomes and how society aggregates those preferences, outcomes with lower levels of poverty and inequality can often lead to a higher level of social welfare.
- The extent to which inequality is a source of welfare loss is, in particular, sensitive to assumptions about preferences. For example, to the extent that individuals have other-regarding preferences, the social welfare implications of inequality may be magnified. Similarly, preferences that individuals may have over the process generating the income distribution, such as preferences for fairness, may affect the social welfare costs of inequality.
- The nature and magnitude of the policy problem posed by poverty are likely to depend on behavioral tendencies in special ways. Here, the important behavioral issues are less likely to be nonstandard preferences than imperfect optimization and bounded self-control. On one hand, behavioral tendencies can inform our understanding of the causes of poverty, which may alter how poverty matters for social welfare. In general, behavioral tendencies such as, say, failing to save adequately due to failure of self-control or failure to attend to expenses that are not salient can have outsized effects on those in or near poverty.
- The poor have small margins for error, so that even small mistakes can have large consequences. Such effects could, depending on the formulation of social welfare, alter the social costs of poverty. On the other hand, behavioral insights can help to inform our understanding of the consequences of poverty, which can also have implications for social welfare. For example, the stresses associated with poverty might reinforce the effects of behavioral tendencies, by, for example, making it more difficult for poor individuals to exert self-control. Such stresses could directly magnify the social consequences of poverty.

# Taxation and Revenue

- A third category of policy problem in public finance concerns the problem of taxation and raising revenue. The various functions of government require funding, including the redistribution of income implied by the social welfare costs of inequality and the corrective activity indicated by the market failures, as well as government activities not concerned with issues related to public finance. That leads the government to raise revenue, through some combination of taxation, borrowing, and other funding instruments.
- The government must, therefore, set tax and revenue policies in order to meet its budget requirement. That requirement does not depend in any direct way on how individuals form preferences or make choices; consequently, behavioral economics does not actually change the underlying problem that taxation and revenue have to solve.
- That said, while there is no behavioral component to the matter of why the government seeks to raise revenue, there is an important behavioral dimension to what the government should do in response.
- Raising revenue optimally involves setting the level and structure of taxes in a way that must address key trade-offs, such as weighing the efficiency costs of taxation against the benefits of raising revenue, and the terms of the trade-offs depend on how individuals respond to taxes.

# Prescribing Policy Responses

- Once the opportunities for improving welfare having been identified, public finance goes on to draw conclusions for policy design. For example, in the case of goods with negative externalities, the question is how to discourage their consumption. Traditional public finance offers a menu of principles for policy design.
- Correcting externalities is commonly a matter of either encouraging or discouraging behaviors associated with those externalities. Relaxing the standard assumptions about behavior calls into question many standard conclusions about policy design.

# Prices and Incentives

- Perhaps the fundamental design rule of public finance is that when policymakers seek to change market outcomes, they can change prices. As a general rule, in the standard model, when the objective of policy is to encourage behavior, policy-makers can employ subsidies, and when the objective of policy is to discourage behavior, they can impose taxes.
- A behavioral approach to policy design suggests a less straightforward relationship between prices and behavior. This approach notes that how individuals respond to prices is mediated by behavioral tendencies.
- As a result, prices will not always be effective levers for changing behavior, especially when prices fail to be salient or when the targeted behaviors already are the result of behavioral tendencies.
- Behavioral economics also suggests that nonprice levers (or nudges, to use the terminology popularized by Thaler and Sunstein) can be effective in changing behavior. Nudges are features of policy that operate directly through the behavioral tendencies that individuals exhibit in order to elicit a response. Nudges allow policymakers to effect changes in behavior without changing prices in some circumstances, such as with automatic enrollment in retirement plans. Ultimately, prices and nudges interact to determine the level of behavioral response to policy parameters.

# Behavioral Welfare Economics

- How to treat welfare considerations when choice cannot be assumed to reveal preference is one of the thorniest issues for behavioral economics and policy and one to which a consensus approach has not been developed. There are a couple of available approaches.
- Libertarian paternalism. This approach argues that policy should fundamentally respect choice while engaging in choice-preserving interventions that target the behavioral tendencies of individuals. Libertarian paternalism supports policies such as automatic enrollment in retirement saving plans, which address behavioral tendencies in order to encourage saving (the paternalistic feature) but ultimately leave individuals free to choose and opt out (the libertarian feature). Such policies by definition do not affect individuals when they are behaving according to standard assumptions.
- Optimal paternalism. Another approach is to explicitly weigh the costs to individuals who choose well of policies aimed at improving outcomes for individuals who exhibit imperfect decisionmaking. This approach is exemplified by the case of taxes on goods such as cigarettes. Cigarette consumption is possibly optimal, but it also is consistent with bounded self-control. The fundamental observation here is that a tax on cigarettes would have a large benefit for individuals whose consumption is due to failure of self-control but only a relatively small cost to individuals whose consumption is in fact optimal. As a result, there is an argument that, on net, such a policy is worthwhile even when it negatively affects some individuals. A similar example shows how with imperfect optimization, social welfare can be improved by restricting choice sets, balancing the costs to individuals who are forced into a suboptimal alternative against the reduction in errors by people who would have chosen badly in the larger choice set.



# Behavioral Welfare Economics

- Recovering preferences. This approach takes choice as revealing preferences when there is no reason to believe otherwise, such as when individuals' choices are consistent, and then looks to nonchoice evidence for an indication of which preferences to favor when choices are not consistent. Nonchoice evidence might include either empirical psychological or economic evidence or even results from neuroscience.
- For example, under this approach, policy toward cigarettes takes the fact that individuals have chosen to smoke as one piece of evidence that smoking makes them better off, but it is considered only one of several pieces of evidence and not necessarily determinative. Policymakers would further consider evidence based on the psychology and biology of addiction that suggests that the choice to smoke is suspect. With that evidence in hand and in conjunction with a model of decisionmaking and addiction, policymakers could then decide what truly maximizes individual welfare and set policy accordingly—in this case, to discourage smoking.
- Respecting choice. Finally, a perfectly valid and sometimes advocated position is that economists should simply stick with revealed preference. One argument along these lines simply emphasizes that going beyond choice is not the province of economics. Another stresses the reasons to think that neither economists nor policymakers are likely to do very well at weighing the evidence and making these kinds of judgments.