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Positive public economics: reinterpreting 'optimal' policies

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The standard positive/normative divide fails to capture the way economists use 'optimal' taxation models. This paper argues that the better way to understand public economics is through a three-part division between positive, normative, and instrumental models. An instrumental model is about means and ends. Once this additional dimension is acknowledged, one can see that 'optimal' taxation models are closely connected to what are generally seen as purely positive models. I argue that economists have been using similar standards to assess 'optimal' taxation models as they use to assess positive models. Recent advances in optimal taxation theory have embraced the positive aspects of models, even about social welfare functions, something that is generally classified as a normative.

Keywords: optimal taxation; public economics; public finance; taxes; positive economics; normative economics; welfare; model interpretation

Introduction

Public economists have a tense relationship when talking about 'optimal' taxation. We are hesitant to say we know what a society's goals are. At the same time, we often assume a social welfare function, because we recognize that the more agnostic Pareto-criterion leaves little to say. One resolution of this tension is to completely reject the normative models as outside of economic science. Economics is about positive statements and the science does not deal with what policy *should be*. This is the approach taken by Friedman (1953).

Yet, economists use and will continue to use models that are explicitly related to one's understanding of what policies should be. The field attracts people with these concerns. How can economists provide value to policy discussions by utilizing the unique skills that economists have in modeling and data analysis, but without requiring that they pronounce a normative standard from on high? In this paper, I argue that this tension over discussing optimal policy comes from a weakness in the positive/normative dichotomy.

Instead, models of optimal policies are better understood within the three-part division proposed by Machlup (1978). Models can be positive: A causes B in the real world. Models can be normative: B is good. Models can be instrumental, or means-ends: if you want B, A will get you there. The first part of the article shows how this three-part division better fits how economists see models of optimal taxation. I argue that this taxonomy helps make sense of how economists actually use these models. Not all uses of 'optimal' imply that the economist writing the paper believes that taxes should be a certain value. The second part of the article shows how optimal taxation models are actually made up of all three aspects. They are positive, normative, and instrumental at the same time, but to varying degrees.

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Recognizing the positive aspect of these models could allow economists to better assess what models are useful for what purpose.

This paper is about how economists *interpret* models, not about the models themselves. Asking whether a model itself is normative does not make sense. In economics, models are mathematical objects.[1] What would it mean to talk about a 'normative' mathematical object? Instead, I focus on how economists take a mathematical object and attempt to say something about the world. This means looking at the words that surround the mathematical model in a typical paper on optimal taxation. It is more meaningful to say that an economist takes a model to say something normative about the world. For example, a social welfare function is simply a mapping from a set of allocations to the real numbers. That is all. However, the function gets interpreted by the writer and reader. Economists attach a certain meaning to that function, which I argue later is sometimes better understood as normative and sometimes not.

There are many other ways to judge economic models. Throughout this paper I have taken for granted that models under discussion as fully specified and all derivations are valid. I assume at least the math is correct. If there is an assumption that is missing or the derivation is wrong, the deduction is invalid. If some assumption is not explicit, it is better to make it explicit. Even after that, there are many debates within the literature. My focus is on those debates and how economists interpret and justify models of optimal taxation, given there is not a problem with the math. As I show, economists justify their models in different ways that go beyond explicitly stating all assumptions and making valid deductions.

Taking normative models seriously

Over the last 60-plus years, since Friedman's essay on positive economics (Friedman, 1953) the standard interpretation of models, at least as told to undergraduates, is that models are tools for prediction. A better model will lead to a better prediction. That is what it means to do economic science, at least nominally. Economic Science is positive. As Desmarais-Tremblay (2014, p. 283) says, 'following Robbins (1945) and Friedman (1953), normative theorizing has been condemned as unscientific, if not worthless.'

Yet economists continue to use optimal taxation models within public economics. Most of the literature on optimal taxation follows from Mirrlees (1971) and Diamond and Mirrlees (1971a, 1971b) and the framework they put forward. Since this large literature is explicitly *not* about predictions, Friedman's justification for such models cannot work. To be fair to Friedman, as his title says, he was talking about positive economics. So without the Friedman story to fall back on, economists must search for another justification for and interpretation of normative public economic models.

Such models cannot be seen as worthless within the economics community, since they continue to be used. This paper asks how economists use models of optimal taxation. Since Friedman's article, economists and philosophers have put forward explanations of how models within the social sciences are used, when their focus is not on prediction. The major articles and books that study how economists use models fail to focus on normative models.[2] For example, Clarke and Primo (2012, p. 83) explicitly say they are not looking at normative models. They are focused on positive models, so they cannot deal with optimal taxation. Only McCloskey (1983) does not emphasize positive models, but he does that by rejecting the positive/normative distinction. Yet, economists continue to use the positive/normative distinction, as I will in this article. Given the analysis that has been done on positive models, one might expect more work that focuses on normative models. The work that has been done that looks at public economics looks at the question from a different angle than the

methodology papers that look at purely positive models. For example, Desmarais-Tremblay (2014) looks specifically at James Buchanan and Richard Musgraves and shows how it is difficult to distinguish the two economists using the positive-normative framework. The current paper builds off the approach in Desmarais-Tremblay (2014), breaking out of the positive-normative framework, but instead I focus on a broader group on individuals doing optimal taxation in the tradition of Mirrlees (1971) and Diamond and Mirrlees (1971a, 1971b). Another recent related paper is Cherrier and Fleury (2014). However, they look at economists interest in collective decision-making in general over the period of 1940 to 1981, instead of an explicit focus on 'optimal taxation,' a field that returns on Google Scholar over 500 articles just in the American Economic Review since 1980.

The importance of understanding how normative models are used is especially important within public economics. Unlike normative vs. positive decision theory, public economics cannot possibly have a clear separation when they use a social welfare function. A social welfare function will always carry a normative connotation. But public economists still make the distinction. Atkinson and Stiglitz (1980) split the book into two parts: the first, normative, the latter, positive. In the Editors' introduction to Volume 1 of the *Handbook of Public Economics*, Alan Auerbach and Martin Feldstein write that 'Public Economics is the positive and normative study of government's effect on the economy' (1985, p. xv), distinguishing the positive from normative, but not marking a clear divide. While there are certain models that are clearly positive and certain models that are clearly normative, many models are somewhere in between. For example, in Volume 5 of the *Handbook of Public Economics*, every paper discusses optimal policies, although only Piketty and Saez (2013) is explicitly about optimal policies. Yet, public economists continue to rely heavily on normative models, although recently there has been a pushback against these type of public economics models. For example, Mankiw and Weinzierl (2010), raise questions about the uses and abuses of optimal taxation models that economists must continue to think about. In the third sentence of the paper, where no reader can miss, Mankiw and Weinzierl write that their results (that it is optimal to tax people differently based on height) can be interpreted 'as a broader effort to challenge that entire literature.' Their challenge is evident. In what sense is a policy 'optimal,' if a model says a certain tax is optimal, but people reject the policy. This article is another attempt to analyze how economists can think about such models of optimal taxation.

Limits of positive-normative dichotomy for public economics

The textbook distinction in economics is between positive economics and normative economics. Textbooks, literally, at both the undergraduate level (Cowen & Tabarrok, 2013, p. 386; Mankiw, 2014, p. 28) and graduate level (Mas-Colell, Whinston, & Green, 1995, p. 116–118) create this dichotomy. The elementary distinction is that positive economics concerns what *is* and normative economics concerns what *ought to be*. This distinction may not be perfect, as many positive models are 'normatively loaded' (Hausman, 1992, p. 261), but in many fields of economics, this distinction is helpful. As Wade Hands (2012, p. 119) explains, 'there seems to be a clear distinction between the statement "I give to charity" (i.e. it *is* the case that I give) and the statement "I ought to give to charity" (i.e. it would be a good thing if I were to give)' (emphasis in original).[3]

Using such a dichotomy, any model about optimal policies would be classified as normative. However, the positive/normative dichotomy does not capture the uses of the models within public economics. Consider the following two explanations of what different economists call normative economics:

> This book is *normative*... It tries to figure out what taxes we *should* have... The ultimate goal of (New Dynamic Public Finance) is to provide relatively precise recommendations as to what taxes should be. (Kocherlakota, 2010, p. 4) (emphasis in original)

Kocherlakota's argument fits well within the textbook distinction. The models are a way to discuss how taxes should be. Kocherlakota is open and straightforward about what the goal of his book. Everyone would classify it as normative and not positive.

However, this is not the only way that economists use 'normative' models. For a classic example, take the introduction to the section 'Normative Analysis' in Atkinson and Stiglitz (1980):

> The aim of the Lectures that follow is *not* to argue the case for particular policies; it is not their intention to provide an answer to the question, 'what ought the government to do?'... [O]ur concern here is with the *structure* of arguments rather than with the arguments themselves. The aim is to explore the relationship between specified objective and the policy recommendations to which these objectives lead... (emphasis in original)

Atkinson and Stiglitz (1980) explicitly reject the textbook definition of normative economics. Instead of being about what ought to be, normative models are about the structure of arguments. The models are tools to connect specified objectives to policy recommendations, regardless of whether the economist using them thinks the policy recommendations should be put into place. These are two examples, but they highlight a tension within public economics, a tension pointed out in Su (2012, p. 381). Economists use the word 'normative' to mean two different things that are at odds with each other. How can economists and philosophers of economics make sense of this?

The textbook distinction between normative and positive economics does not fully capture what economists are actually doing with optimal tax models. To move forward our understanding on this front, economists must move beyond the positive/normative distinction. Such a dichotomy awkwardly forces the analysis of Kocherlakota and Atkinson and Stiglitz under the umbrella of 'normative' economics. Instead, a three-part division, such as proposed by Fritz Machlup (1978) will help avoid such confusion over optimal policy models.

Machlup distinguishes between three aspects of economic theories: (1) positive economics, (2) normative economics, and (3) instrumental economics. The distinction is most clear when Machlup (1978, p. 430) simply relates two events, A and B:

> Positive: If A, then B.
> Normative: B is good.
> Instrumental: If you want B, A will get it.

Immediately, the three-part framework allows readers to separate the stated goal of Kocherlakota from the stated goal of Atkinson and Stiglitz. Kocherlakota's comment remains normative while Atkinson and Stiglitz's comment is better described as instrumental economics. With this terminology, economists no longer need to lump them together.

However, the division is not neat. Separating positive, normative, and instrumental economics creates ideal types. In reality, many models and papers including those of Kocherlakota (2010) and Atkinson and Stiglitz (1980) fall somewhere in between. Optimal policy models within public economics have causal claims of the form 'a policy A would cause B.' They have instrumental claims of the form 'if a government wants to be utilitarian, policy A will get it there.' They may have normative claims too, 'policy A should be implemented.' Individual models in public economics then become points within the triangle in Figure 1.

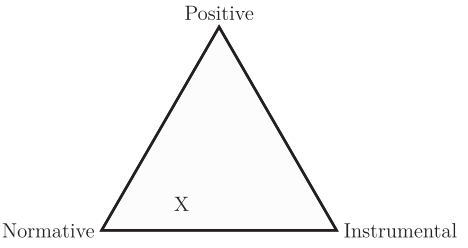

Figure 1. Three-part interpretation of models.

The art of economics

Machlup was not the first economist to propose a three-part division, moving beyond positive and normative. Proposals go back over a century. Lèon Walras proposed a distinction between science, art, and ethics (Walras, 2003). The most prominent three-part division comes originally from J. N. Keynes (1955, pp. 34–35), who distinguishes between

> a *positive science* may be defined as a body of systematized knowledge concerning what is; a *normative* or *regulative science* as a body of systematized knowledge relating to criteria of what ought to be...; an *art* as a system of rules for the attainment of a given end. (emphasis in original)

More recently, Colander (1992) and responding papers (Su, 2012; Colander & Su, 2015) use this division as their starting point. It is fair to say the standard three-part division used in the economic methodology literature is positive, normative, and art. Yet, I have chosen to avoid using 'art' for analyzing optimal taxation, instead using Machlup's instrumental.

The art of economics is closely connected to instrumental economics though. Keynes (1955, p. 59) even talks about 'the art of taxation or of State finance...' Still, Machlup's division helps make better sense of the modern optimal taxation literature for a couple of reasons. First, in both Keynes (1955, pp. 55–60) and Colander (1992), the art of economics is closely connected to applied work. Colander (1992, p. 192) writes that 'the art of economics is applied economics.' Since much of the literature in optimal taxation has been highly theoretical, such as Mirrlees (1971), Diamond and Mirrlees (1971a), Diamond and Mirrlees (1971b) and Golosov, Kocherlakota, and Tsyvinski (2003), the connection between 'art' and 'applied' might mislead in this context. For the present paper, instrumental is about means and ends, regardless of whether it is theoretical or applied.

The second major reason for using instrumental instead of art comes from differences in the use of 'positive' economics in the Keynes/Colander formulation, compared to Machlup's. In Colander (1992, p. 194), he writes 'positive economics is abstract thinking about abstract problem which might someday have some relevance...' This again brings in another dimension, abstract vs. relevant, that might blur the present discussion. That does not mean the abstract/relevant dimension is not important, merely that it is not directly related to the focus of this paper, interpreting optimal taxation models.

Machlup's definition of positive economics fits better within public economics. Purely positive models are about causes. Associating positive public economics with causality works nicely, especially given the recent focus on 'causal inference.' Chetty and Finkelstein (2013, p. 113) stress how 'empirical work has documented the *causal* impacts of social insurance programs' (emphasis added). For another example, Chetty and Saez (2006) use tax cuts to infer estimates of the causal effect of the tax cuts on corporate behavior. Many

other examples exist. The main point for the present argument is that Machlup's use of 'positive' to mean causal better fits and helps to contrast between positive/causal papers from other papers in modern public economics, such as optimal taxation. Understanding the optimal taxation requires disentangling the different aspects of each model. Machlup's framework gives one way. The next three sections attempt to disentangle them using that framework.

Normative aspects of 'optimal' policy models

While few economists are as explicit that their models are normative as Kocherlakota (2010), the normative aspects are still present in many papers within public economics. For example, Saez (2001, p. 218) argues 'therefore, the government should apply high marginal rates at levels where the density of taxpayers is low compared to the number of taxpayers with higher income.' Considering that Saez uses data on the United States to reach this result, readers could be expected to take such a statement as normative about what the United States *should* do. Of course, the authors are quick to point out that this is not definitive. 'The fact that the (hazard) ratio increases from $80,000 to $200,000 suggests that, with constant elasticities, optimal rates should be increasing in that range Saez (2001, p. 219).' The evidence only suggests increasing tax rates.

The framing in Saez is not unique. Golosov, Troshkin, and Tsyvinski (2011, p. 160) argue that 'the main insight here is that any optimal dynamic tax policy or a social insurance system has to take into account agents' ability to save. Generally, though, taking into account agents' ability to save implies that savings *should* be discouraged' (emphasis added). Farhi and Werning (2007, p. 386) say

> How should privately felt parental altruism affect the social contract? What are the long-run implications for inequality? To address these questions, we modeled the trade-off between equality of opportunity for newborns and incentives for altruistic parents. In our model, society *should* exploit altruism to motivate parents... (emphasis added)

All of these examples have more than a hint at normative results, compared to purely instrumental. They make statements about what should happen.

Instrumental aspects of 'optimal' policy models

As highlighted above by Atkinson and Stiglitz (1980), optimal policy models are not purely normative though. Atkinson and Stiglitz see their 'normative analysis' as deductive reasoning to analyze the structure of arguments. As Piketty and Saez (2013) say, 'Models in optimal tax theory typically posit that the tax system should maximize a social welfare function subject to a government budget constraint, taking into account how individuals respond to taxes and transfers.' They take no stance on whether the social welfare function assumed in the model is what the social welfare function 'should' be. It is simply part of the logic in a model.

For a more concrete formulation of what Piketty and Saez (2013) are saying, one way to set up their basic linear tax model [p. 410–413] is to say

(1) If a government wants to maximize a weighted sum of individual utilities, and
(2) if a government has access to linear taxes and no lump-sum taxes, and
(3) if a government has information on wage earnings, and
(4) if each citizen has a given productivity and utility function,
(5) then a government should set taxes at τ.

This way of looking at a model highlights the instrumental aspect of optimal tax theory. Such models are if–then statements about means and ends. A policy τ is a means to achieve an end of maximizing weighted utilities. The standard reason economists label such models normative is because of point 1. The goals that are generally placed in that statement are such things as Utilitarian, Rawlsian, or Libertarianism. These are what the government thinks a society 'should' be. These are normative philosophies about how things should be, so the models generally inherit the title 'normative.'

The key economic steps are to derive 5 from 1–4. This is where the unique tools of economics help. However, such a derivation is not necessarily what the economist who uses such a model thinks should be. The deduction does not mean that the person doing the deduction thinks that any part of the deduction *should* happen. The deduction and the recommendation are connected, but conceptually distinct. To take a more extreme example, if the government's goal is to kill all puppies, no logical deduction about the means and ends has any reasonable connection to what the economist thinks should happen. The instrumental aspect of a model is conceptually distinct from the normative aspect.

Positive aspects of 'optimal' policy models

All models within public finance also have some aspect that is positive. They may either have predictions about the effect of a policy on an outcome or causal arguments that relate policies to outcomes. Put differently, such models must take a positive stance on how actual people market decisions in their collective decision-making process.

Positive economics is sometimes associated with prediction. Predictive models can be formulated into a similar deductive structure. The premises could be that (1) price ceilings cause shortages in a market, (2) rent control is a price ceiling, (3) New York City created rent controls. This will lead to the deductive conclusion that New York City will have shortages. Upon inspection it is not clear how this positive aspect is different than the instrumental aspect.

(1) If price ceilings cause shortages, and
(2) if rent control is a price ceiling, and
(3) if New York City created rent controls,
(4) then New York City will have shortages.

The last statement logically follows from the first three, just like in the instrumental aspect above. There does not seem to be anything generally called normative about such deductions. It is fair to call this a positive model, although economists might disagree on what makes a 'good' positive model. Certain economists may give more emphasis to prediction. Others may give more weight to causal exploration. Still, the logical structure of the instrumental aspect and positive aspect are similar. Moreover, it is clear that any model about optimal taxation has an element that is positive. The model must take a stance on positive aspects, what causes what. As Friedman (1953, p. 5) explained, 'normative economics and the art of economics... cannot be independent of positive economics.' Modern public economists recognize this connection.

Normative and instrumental criteria

Given that models of optimal policy are a combination of positive, normative, and instrumental aspects, it is not immediately clear how economists can assess these models. How can someone tell whether such models are useful? Why are some models popular while

others are not? One possibility is to ignore the multiple dimensions of these models and assess them along only a single dimension. At first this may appear the pragmatic solution. However, solely assessing the uses of such models along normative or instrumental lines becomes problematic and economists do not seem to do this. For example, suppose I wanted to assess Piketty and Saez (2013) on purely normative grounds, but I disagree with their use of a Utilitarian social welfare function, because I do not think governments should be Utilitarian. Then the discussion is over. Nothing else about the model matters. But that is not the way the optimal taxation literature developed. The disagreements are rarely solely on purely normative nor purely instrumental grounds. In fact, as I will show in the next section, economists have attempted to justify the 'usefulness' of models of optimal taxation along all three dimensions.

While usefulness is sometimes straightforward in positive economics (maybe as prediction), usefulness gets more complicated when looking at normative or instrumental economics. From a normative criterion, the debate within economics cannot directly deal with disagreements between models. As stated earlier, economists who disagree over what a social welfare function should be will not find answers within economics. One possible use of such models could be for an economist to start with a philosophical stance, say Utilitarian. Then the economist uses models to derive what the utilitarian policy should be. I want to argue that this is outside of economics. While this use of a model might rely on tools developed with economics, the task is fundamentally outside the scope of economic science.

Assessing the instrumental aspect has a different problem. Unless there is a flaw in the deduction, the implication must follow from the premises. The if–then framework of instrumental models forces a tight connection. This leads to a problem of interpretation. If assumptions X and Y hold, then policy Z is optimal by definition. If models are simply if–then statements, how does one justify the antecedent? What if X does not hold for any society? It is always a simplification. Since the 'if' part will never truly hold in any real society, the deduction will never be sufficient for any policy conclusions. Yet, the if–then framework is still used within economics to say something about the world, not just about the model. This has also been a problem with the if–then structure of positive models. Economists have found a means of dealing with such concerns by comparing the model to reality, possible through an econometric test. As I argue in the next section, economists are attempting to assess optimal tax models on standard positive grounds, but also using similar tests for the normative and instrumental interpretation of the model.

Quest for Positive 'Optimal' Policies

To be 'scientific,' economists attempt to avoid the normative side of the triangle, if possible. But given that normative aspects are inherent in the model, if economists do not want their models to be purely normative, they need to 'push' such models in the positive/instrumental direction. To get the most out of such models, economists must address all three dimensions of a model. The tricky dimension will always be the positive one. The quest for positive optimal taxation theory has been elusive, but it has been a feature of the literature.

The distinguishing feature of optimal policy models is the use of a social welfare function as a way to compare different policies. The optimality is with respect to a given social welfare function. Otherwise, these models share the structure of positive models. Given that the structure of positive and instrumental models is so similar, economists can and do use similar standards for assessing optimal policy models as they use for standard positive

models. This creates a realm for positive optimal policy models, which requires a positive analysis of such models.

The quality of the assumptions matter in public economics. For example, Chetty and Finkelstein (2013, p. 163) are worried that for their model 'the analysis above rests on a static model that makes several strong assumptions that are unlikely to hold in practice.' If these models are purely normative or instrumental, that concern does not make sense. The authors say this after assessing results that are both positive and normative. It is only once that we recognize that all optimal policy models have a positive element that this concern about strong assumptions makes sense.

If the assumptions of Model A are closer to reality than the assumptions of Model B, then we have one positive comparison between the two models. On this criterion, Model A is better. Much of the development within this literature revolves around improving assumptions within the model. Implicitly or explicitly, improving is often associated with being more realistic. That appears to be the concern of Chetty and Finkelstein (2013) mentioned above.

One way to interpret the development of optimal taxation models within New Dynamic Public Finance is that these models are an attempt to more deeply understand the dynamic aspect of policies and decisions.[4] Tax systems are inherently dynamic, so any model that ignores dynamics is failing to address a part of real tax systems and the incentives they create. Again, that is a positive assessment of models. It is looking for a better understanding of how considerations about time cause different outcomes in the world. For example, Farhi and Werning (2013) include richer aspects of the life-cycle. Golosov, Troshkin, and Tsyvinski (2016) use recent empirical work to better understand the shocks that people face. Golosov and Tsyvinski (2015) say that such models better match reality:

> Advances in theoretical methods and computational techniques dramatically increased the *realism* of the models used for the analysis. It is now possible to study optimal policy in environments with rich heterogeneity and realistic uncertainty that closely *match* microeconomic data. (p. 148, emphasis added)

If models were purely normative or purely instrumental, such arguments would be superfluous. Instead, economists see justifications based on realism as important when using models of optimal policy.

People have challenged whether it is important that assumptions are realistic. Friedman (1953, p. 14) did not see realism of assumptions as important.

> Truly important and significant hypotheses will be found to have 'assumptions' that are wildly inaccurate descriptive representations of reality, and, in general, the more significant the theory, the more unrealistic the assumptions (in this sense).

More recently, Reiss (2012) argues forcefully against realism as a standard for models, starting with the basis that 'all models are false.' Yet, economics working within optimal taxation continue to justify models based on realism. Instead of judging whether that is an appropriate standard for these models, I take for granted that public economists prefer realism, at least when all else is equal. Given that, it helps clarify how economists see models of optimal taxation. They also want realism in their models of optimal taxation, making their standards similar to other economists.

But shocks to income are not the only assumptions made in a model of optimal taxation. The structure of an argument within optimal taxation models also requires an assumption about what the government wants to do. This is generally captured using a social welfare function. If such models are going to remain positive, they must resemble the way the

world is. This becomes more difficult when talking about a social welfare function. There are two ways to interpret social welfare functions. One is purely positive and about what a government will do. This is generally the approach followed in political economy or economic analysis of politics.

Public economics models follow a second interpretation of social welfare functions and use them as a statement of what 'society' wants. This is where it gets easy to see such models as normative. For example, Piketty and Saez (2013, p. 405) say that "use a 'universal' social utility function $u(c)$ to evaluate social welfare. The concavity of $u(c)$ then reflects *society's value for redistribution*..." (emphasis added). The social welfare function comes from the society being analyzed. Therefore, Piketty and Saez are working to move beyond purely normative into the land of positive economics. In order to make any statement about optimal policy, the economist needs at least to estimate the concavity of $u(c)$. It is better for the social welfare function to be realistic. Again, the model is assessed based on how close it resembles people in real decision-making processes. The standard for judging the model is positive. Piketty and Saez are not claiming they, the authors, want a certain concavity, which would be a normative use of the model.

There are more general concerns beyond concavity concerning how assumptions about what society wants get translated into a policy goal. Mankiw and Weinzierl (2010) discusses whether their result that governments should tax people based on how tall they are in a standard model requires a rethinking of the Utilitarian framework. One way to approach such a concern is to generalize models of social welfare functions. This allows for more general concerns than just redistribution captured through the concavity of the function. Weinzierl (2014) and Saez and Stantcheva (2016) both attempt to develop general models to handle different policy goals. They are attempts to make optimal policy models closer to how the world is. If economists used optimal taxation models for purely normative purposes, these advances do not make sense. Instead, they are attempts to incorporate realistic concerns into a social welfare function.

Even with a general framework, it still remains to be shown which social welfare function should be assumed, especially if the optimal policy is sensitive to a specific social welfare function. This question had received relatively little attention until the past decade or so. This is puzzling, as Weinzierl (2014, p. 128) points out, since 'tax theory is one of few forthrightly normative fields in economic research.' Recently though, there has been a growing field trying to figure out what people would actually want to be considered in a social welfare function. One attempt is to use surveys to better estimate what people in a society actually want. Weinzierl (2014) attempts to see what people say taxes should be. He finds evidence that people say they want taxes to be partially based upon Equal Sacrifice, compared to pure Utilitarianism. If that result is to be taken seriously, it requires a re-examination of many results within public economics that are based on an assumption of a Utilitarian social welfare function. In a different setting, Kuziemko, Norton, Saez, and Stantcheva (2015) use surveys to find out people's preferences for inequality and how malleable these preferences are. Such surveys are positive. They are also about optimal taxation, but still a big push forward in the search for positive optimal taxation.

Surveys are not the only way that economists are trying to better understand what social welfare functions match reality. A recent literature on 'Inverse-Optimum' tries to back-out what social welfare function could rationalize a government's tax policies. This literature attempts to back out the underlying social welfare function. Bourguignon and Spadaro (2012), Brendon (2013), Lockwood and Weinzierl (2016) and Heathcote and Tsujiyama (2016) all partially attempt to better characterize a government's social welfare function that is revealed through its actions. Results in these papers can be used to improve assumptions

about what governments actually want. This literature is the clearest example of a recent attempt at positive optimal policy analysis.

This recent push for more positive models of optimal taxation is not out of nowhere. 'New Welfare Economics' was an attempt, using such things as Kaldor–Hicks compensation, to improve upon the use of a social welfare function and all its normative baggage. Other economists took a stronger stance. Buchanan (1959) explicitly rejected the social welfare function framework, claiming it was 'an explicit expression of a value criterion.' It was not grounded in the actions of individuals, expressed through their decisions. The recent developments, such as the uses of surveys or the Inverse-Optimum, are an attempt to address the concerns of people like Buchanan (although not mentioning him), while keeping the social welfare function, which public economists see as a powerful tool. Both New Welfare Economics and the recent work are attempts to develop a more positive model of taxation.

Testing optimal tax models

Positive models outside of optimal taxation are not only tested based on the realism of assumptions. The implicit logic of testing models is too weak for that to be the sole arbiter within models. Again, all models are false. The antecedent never holds in the real world. No model is literally equivalent to the real world, so many economics questions are outside of the realm of deductive logic proper. Since assumptions cannot be completely tested directly, positive economics developed another test. Positive models are also tested based on the hypotheses they generate.

A comparison to consumer theory might help clarify the distinction between these two approaches to testing models. There exist theorems within economics (Kreps, 2013, Chapter 4) that relate an unobservable utility function (or preferences) to revealed choices. One option is to look at choice and attempt to infer an underlying utility function. The guiding research question is, 'what utility function could the consumer be maximizing to generate these decisions?' For optimal tax model, this is what the Inverse-Optimum literature is attempting. For that approach, the question is 'what social welfare function could the government be maximizing to generate these policies?'

Another option that economists use is to assume a utility function and derive hypotheses about what that means for decisions. Such an approach to consumer choice models derives hypotheses to test what economists expect to observe in action. However, an equivalent approach is missing from optimal taxation literature. The direct link that exists between utility functions and decisions for a consumer is broken for political decisions. The social welfare function and policies are filtered through a political process. Through this political process, testing becomes difficult. There is not a sole decision economists can look too like in the consumer choice model. There is not even a clear decision-maker. Once economists add in public choice concerns, showing that special interest might divert policy from any reasonable 'optimal policy,' the political process becomes a messy test of the hypotheses generated by optimal tax models. That does not mean the test is impossible, just messy. Buchanan (1959) thought it was possible:

> Propositions of positive economics find their political support or refutation in observable economic quantities or in observable market behavior of individuals. Propositions in political economy find empirical support in the observable behavior of individuals *in their capacities as collective decision-makers* – in other words, in politics.

Compared to consumer theory, it is not clear what this would exactly be testing. What propositions would be supported or refuted? Any test using the political process, if it is

possible, is not a test of normative standards of a model. It does not test whether a Utilitarian social welfare function is 'better' than a Rawlsian. It is a test of what the people making the decisions, whether politicians or ultimately citizens, can ultimately agree on. It would be a test of what social welfare function most closely approximates the political decision-making process in a given country/state/city. Based on other concerns for 'realism' in optimal tax models, it seems natural to also want a social welfare function to closely approximate a real society's preferences. However, it is not clear this test of realism is workable. If it is workable, such a positive test of optimal taxation models has yet to be taken up by the literature. For now, public economists will have to make due with testing the realism of assumptions.

Conclusion

This article examines how economists use models of 'optimal' taxation. I argue that such models are best understood by breaking out of the positive/normative dichotomy. Instead, these models are better understood when one thinks about positive, normative, and instrumental models. Further, these models are rarely one or two of these categories. They are often a mixture with positive aspects, normative aspects, and instrumental aspects. Recognizing this depth within such models can help economists to better understand such models and their uses or abuses.

Once optimal policy models are properly placed, it is natural to ask how economists can assess the quality or usefulness of each model. Instead of acting like such models are not three dimensional, I argue that economists should fully embrace the complexity and assess models along all dimensions. Particularly, I argue that economists should continually test the positive aspects of such models and continue to make more of the interpretation open to positive analysis. That does not mean they should attempt to cleanse papers of normative content.

New models in dynamic public finance are generating new understandings about the use of taxes as redistribution, insurance, and distortions. Other new models such as the framework presented by Saez and Stantcheva (2016) might allow economists to use a more realistic social welfare function that incorporate fairness, equality, and justice. Economists may someday find a positive optimal taxation theory.

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Notes

1. Here I am being a little loose with the language. I am attempting to use terms as closely to common language within economics and not get stuck in the formality of model theory. I do not want to talk about sentences, formulas, and semantics, all the while losing the interested economist.
2. See Gibbard & Varian (1978), McCloskey (1983), Hausman (1992), Sugden (2000), Clarke & Primo (2012).
3. Wade Hands (2012) provides a historical summary of the positive-normative dichotomy and discusses further subdivisions, such as the difference between normative and ethically normative statements.

4. See Kocherlakota (2010) and the reference therein for a summary of many of the early results in the field.

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