Coercion and Social Welfare in Public Finance

Economic and Political Perspectives

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July 16, 2013

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Dedication

To Isaac, Jonah, Lily, Amelia, Oliver and Eleanor.
Jorge Martinez-Vazquez

To Navah and Zev.
Stanley L. Winer

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Editors' Preface and Acknowledgements

The papers and formal discussions presented in this volume emerged from the workshop on *Coercion and Social Welfare in Contemporary Public Finance*, held at Stone Mountain, Atlanta, in October of 2010. This conference was designed and organized by us with the intention of creating the book on the meaning and role of coercion in public finance that is before you. The idea for working on public finance in the Wicksellian tradition emerged in the course of our own individual research activities, and we are fortunate to have been able to collaborate in bringing together a distinguished group of scholars to explore this line of thought more fully than we could do on our own.

We are indebted to the authors and discussants for their participation at the workshop and for their work in helping to turn a stimulating workshop into a cohesive book. We thank Roger Congleton, Michael Munger, Walter Hettich, George Tridimas and John Wallis for reviewing early drafts of our Introduction to the volume, as well as two anonymous reviewers of the manuscript for their helpful suggestions. We also want to thank Luc Noiset, Tom Rutherford and David Wildasin for their participation at the seminar.

Financing for the workshop was provided by the International Center for Public Policy of the Andrew Young School of Policy Studies at Georgia State University. This generous support was essential for the project, and we are grateful for it. Winer's participation was partly supported by the Canada Research Chair Program. Finally, we thank our editors at Cambridge, Scott Parris and Kristin Purdy, for their assistance.

Coercion, Welfare and the Study of Public Finance

Jorge Martinez-Vazquez and Stanley L. Winer

1. The purpose and outline of this book

Social interaction necessarily requires limits on the freedom of individual choice. As soon as we are part of a group, different voices must be heard and compromises must be made. Major questions will inevitably arise about whether some people have more to say than others when acceptable limits to individual actions are specified, how such limits or rights are to be defined and circumscribed, and how they will be enforced once agreement on their nature is achieved.

Coercion is an essential part of this process. While voluntary agreement may underlie some of the compromises achieved, coercion is a part of all widely used collective decision mechanisms. Coercion will also be involved in the enforcement of group decisions after they are made, to deal with free rider problems and other types of strategic behavior by individuals or groups who attempt to take advantage of their fellow citizens.

Coercion is therefore a fundamental and unavoidable part of our social lives. For this reason, it is not surprising that philosophers and legal experts have examined its nature at length. Economists, however, have not yet offered a fully integrated analysis of its role in either the private or the public economy. Contemporary economic analysis of the public sector usually does not deal with coercion in a direct or formal manner, though a concern with it often lies below the surface, especially when contentious issues like taxation are involved. The essays in this book are different. Since collective choices on fiscal matters emerge from and have all the essential characteristics of social interaction, including the necessity of coercion, and because there is an older tradition of work on coercion in public finance (introduced below) that we can build upon, the essays presented here focus directly on the study of coercion arising through the operation of the fiscal system.

The initial questions that were put to the contributors to this volume on coercion in public finance are challenging: How does the coercive power of the state evolve, and what are the implications of this history for the structure of the public finances? How can we understand the meaning and role of coercion in contemporary societies? Can we measure it? What is its role in modern public sector economics which is, after all, concerned with figuring out how governments should interfere with our private and social lives?[1] How does a concern with coercion in public finance conflict with, or mesh with welfarist objectives? And, what are the important issues and problems that may guide contemporary research?

Detailed answers, and more questions, are found in the individual contributions by the thoughtful group of authors and discussants we have brought together here. In this introductory chapter we hope to convince the reader that a deeper understanding of coercion in fiscal affairs is important for the study of the public economy and of public policy generally. We shall also explain the structure of the book, and briefly outline what the reader can expect from each contribution.

Our enterprise is both old and new. A concern with coercion was central to an older tradition in public finance that was initiated by Knut Wicksell (1896) and Eric Lindahl (1919), and which is an important part of the equally celebrated work of James Buchanan and Gordon Tullock (1962). We shall have more to say about this tradition shortly. But for the moment we shall point out that with the exception of one special type of work that originates with Lindahl, and which is well represented in this book, *explicit* concern with, and analysis of, coercion is not

[1] Here we are paraphrasing part of Robin Boadway's characterization of normative public economics later in the book.

reflected in the mainstream of contemporary research on the public economy. This is so despite that fact that contemporary public economics is a field that is primarily guided by a social planning approach to welfare analysis, in which a benevolent planner is allowed to coerce anyone to any extent, for example by taking from the rich to give to the poor as long as aggregate social well-being is increased.

Two specific and basic sources of coercion in public finance are at play in the essays in the book. Coercion in public finance arises as a result of: (i) external control by the state over one's life and that of the country exercised through threats of violence or sanctions; and (ii) as a by-product of the compromises that all citizens must agree to in a democratic society as part of the process by which collective decisions are made. These two situations, while conceptually different, are related, and the issues of how a society progresses from the first to the second, as well as their coexistence, also arise.

The first source of coercion– external control by the state – is closely connected to what has become one of the most influential theories of the state. In Max Weber's view (1919), "... a state is a human community that (successfully) claims the monopoly of the legitimate use of physical force within a given territory". How such a state evolves from anarchy to one in which state sanctions are severely constrained under an impersonal rule of law, and the nature of the public finances that arise at different stages of this development, are key issues in the first part of the book.

In market economies, coercion is pervasive in *private* contracts, and can be productive. As Thomas Hobbes put it some time ago in *Leviathan* (1651, Part II, Chapter XVII):

"…Covenants, without the Sword, are but Words, and of no strength to secure a man at all."

Oliver Williamson (1983) draws on this idea by observing that it is possible to think of most human interactions as undergoing a 'fundamental transformation'. Before a private contract is signed, there is no coercion in the negotiation process. Each party can exit without harm. But after the contract is signed, exit from the agreement may be expensive, and failure to meet its terms may trigger punishment. So it is likely that the contract would never have been signed unless the there was an ex ante expectation that ex post sanctions would be imposed. That is, both parties are inviting coercion voluntarily, as a means of making a credible commitment, and without this, the contract would not be effective.

Coercion also arises naturally in the *public* life of liberal democracies. This brings us to the second source of coercion in public finance identified earlier – coercion that arises through the operation of a collective choice process. To fix ideas, consider a group of people who have come together in a room for a common purpose and who must collectively set the temperature on a thermostat and then pay for the resulting use of energy. Inevitably, some will be too hot and some too cold, and even those for whom the temperature is just right may be unhappy with the resulting balance between what they pay and what they get. Individual citizens can escape the situation if they move to another room or out of the building that represents the collectivity in this example. But if they stay, they must cope with the coercion implied by their assent to the collective decision.

Coercion in this situation, that is, not getting what you *think you deserve* at the tax-price that you have to pay, cannot be avoided whatever collective choice procedure is employed in deciding upon the public budget, as we implied earlier. Nor does anyone want to do so if on balance we value the goods and services made possible by collective action, provided (and here we mimic the logic of private contracts) that we can be sure that others will also be forced if necessary to carry through with *their* tax obligations.[2] On the other hand, it is our understanding

[2] One should note that such reciprocal coercion is also part of the foundation for one important view of what is, and why people obey the law. See, for example, Hart (1961).

that if coercion of the individual by the state, or by special interests acting through the state becomes too great, unrest, emigration and eventually failure of the state may occur.

The two sources of coercion introduced above are just that - situations that lead to coercion, not measures of the degree of coercion itself. In the second part of the book, we shall see that it isn't easy to come up with a precise definition or measure that incorporates the counterfactual, the state of relative freedom from coercion which any careful definition unavoidably must encompass. (What is the precise meaning of what we *think we deserve* in the definition of coercion suggested in the previous paragraph?) Still, we must do so if we want to proceed further, and this leads, as we find out here as well, to reappraisal of aspects of the foundations of welfare analysis.

In the third and longest part of the book, the task of actually doing public economics when coercion is an explicit part of the framework of analysis is tackled, first from the theoretical perspectives of mechanism design and optimal taxation, and then in the somewhat more applied contexts of the study of fiscal incidence and fiscal federalism. Finally in the fourth major part of the book, experimental methods are used to investigate the collective action problem citizens face in organizing resistance to coercion, and to explore the productive role of coercion in organizing public life.

The reader will also find short formal discussions of the essays at strategic points in the volume. These discussions are presented to help the reader gain a critical perspective on what has been said, while at the same time provoking a contest of ideas.

Before we introduce the individual contributions in greater detail, it will be both helpful and interesting to go further into the history of thought concerning the role of coercion in public finance.

2. Reflections on coercion in the history of public finance

It is fair to say that the role of coercion in public finance was drawn to our attention by Wicksell in his book *Finanztheoretische Untersuchungen* (1896), part of which was published as the chapter titled "A New Principle of Just Taxation" in the Musgrave-Peacock (1958) collected readings of *Classics in the Theory of Public Finance*.

As we have noted, contemporary public economics remains a field largely guided by utilitarianism and social planning. The state in this approach stands outside the polity and the economy. The tradition initiated by Wicksell, in contrast, views public finance as the study of how people act collectively to achieve their various ends. In this view, as Richard Wagner reminds us, the state does not stand above the economy and its participants, and the fiscal system that emerges through the collective choice process may be, depending on the nature of governance in place, beneficial for a large majority or only for an elite (Wagner 1988,1997).

Wicksell was especially concerned with the possibility that the fiscal system could be used to coercively redistribute from one group of citizens to another. Indeed, since spending and taxing decisions in the legislature are usually not coincident and the decision-making rule departs substantially from unanimity, this is more than a possibility: it is obviously politically tempting to deliver publicly financed benefits to favored groups at the expense of other taxpayers. It is a testimony to the importance of the issue to be able to say that it is one of the key problems addressed by contemporary political economy, which to a considerable extent is focused on the study of why such coercive redistribution happens and on the precise form it takes in various political systems.[3]

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[3] This sort of redistribution is often referred to as rent seeking. See Congleton et al (2008) for a comprehensive collection of work on this topic.

Wicksell recognized that the design and operation of fiscal systems is intimately bound up with the way in which they are determined, since fiscal policies are *always* the outcome of a collective choice process in a democratic society. He advocated a process that involved voting over packages that combine public expenditures with the taxes required to finance them using an approximate unanimity rule, as a way of making decisions about the public finances that he thought would achieve both economic efficiency *and* the absence of coercion. Wicksell' s purpose, as James Buchanan (1967, 1986) emphasizes, was to insure that as far as possible, government actions embodied a quid pro quo process of exchange among citizens that was mutually beneficial.[4]

Avoiding coercion while pursuing efficiency, by seeking a broad consensus about both spending and the taxes required to support that spending before action is taken was for Wicksell, a valued end in itself. In later work, for example by Lindahl (1919) and Buchanan (1959), this was also seen as a way of uncovering what people actually want in public goods situations where market prices that guide an invisible hand process toward an efficient allocation do not exist.

No doubt on purpose, Wicksell swept many of the difficult issues raised by using coercion as a criterion with which to judge fiscal systems. In particular, he knowingly left aside the problem of injustice in the initial distribution of income, dealing with which may require coercive redistribution from rich to poor, and the problem of how we control a (Weberian) state that has a monopoly on violence while still insuring that the state has sufficient power to tax.[5]

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[4] We are reminded of this important aspect of the Wicksellian perspective and of Buchanan's discussion of it by Mueller (2003, 5). Readers interested in further reading about the role of coercion on public finance, in addition to what is provided in this Introduction and in the volume as a whole may wish to look at the work of Buchanan and Tullock cited earlier, as well as later work by Johansen (1963), Buchanan (1968,1975), Head (1974) and Breton (1996). For textbook discussions, see Mueller (2003, chapters 1 and 4) and Besley (2006, chapter 2)

[5] As to the first issue, Wicksell notes (Musgrave and Peacock 1958, 108) that "it is clear that justice in taxation tacitly presupposes justice in the existing distribution of property and income". As Besley (2006, 53) points out, he then goes on to say that society may revise the existing property structure if it is in contradiction to modern concepts of law and equity, though how this was to be done was not then discussed. We are

He must have been aware of the many issues involved in dealing with coercion more deeply, as it has long been an important subject in philosophy. To take one famous example, Jean-Jacques Rousseau, perhaps the most important theorist of the social contract, offered an analysis of coercion more than a hundred and thirty years before Wicksell's work. In his *Social Contract* (Book IV, 1762) he states in a passage worth quoting at some length:

> "*When the state is instituted, residence constitutes consent; to dwell within its territory is to submit to the Sovereign. Apart from this primitive contract, the vote of the majority always binds all the rest. This follows from the contract itself. But it is asked how a man can be both free and forced to conform to wills that are not his own. How are the opponents at once free and subject to laws they have not agreed to? I report that the question is wrongly put. The citizen gives his consent to all the laws, including those which are passed in spite of his opposition, and even those which punish him when he dares to break any of them*."

Similar reasoning has found its way into thinking about the public sector, though not generally in the public finance literature. For a recent example, we can read William Baumol (2006, 613), who echoes Rousseau in stating that

> *"the essential feature that defines a democratic government is voluntary agreement by the members of the public to subject themselves to its coercion."*

About 25 years after Wicksell's seminal contribution, his student Eric Lindahl presented a dissertation (1919) in which he attempted to find a positive solution, or mechanism, to implement the Wicksellian ideal. This work is also provided in the Musgrave-Peacock volume in a chapter titled "Just Taxation – A Positive Solution." Lindahl's contribution appeared during the same year in which Weber introduced a monopoly on violence as *the* defining characteristic of

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not aware of how he thought about the second issue of controlling the state. For a recent discussion of why the twin issues of controlling state power while still insuring sufficient power to tax are important, see, for example, Levi's Presidential Address to the American Political Science Association, "Why We Need a New Theory of Government." (2006, 5-19).

the modern state, in his famous Munich lecture titled 'Politics as a Vocation'. However we are not aware of any direct connection between Lindahl and the Weberian conception of the state, a view that still is of substantial importance in political science.

The problem of constraining the state aside, Lindahl 's attempt to find a mechanism to implement a non-coercive and efficient allocation of public goods set off a quest that has occupied mechanism design theorists for many years. This still active area of theoretical research, one well-represented in this volume, is the only one in public sector economics in which coercion explicitly plays an important role. Coercion - or more precisely, its complete absence - is imposed on the abstract economies explored in this work by requiring that all agents in the economy have the option of withdrawing without cost to some outside alternative, thus insuring that no one is coerced in any solution of the model.

While a concern with non-coercive implementation in economies with public goods has become an established part of the contemporary mechanism design literature, Wicksell's approach to the study of the public sector more or less disappeared from the main stream of public finance after being introduced to the English speaking audience by Richard Musgrave in an early paper (1939) and especially in his *Theory of Public Finance* (1959). This was so despite the rise of the public choice school led by Buchanan and Tullock, who generalized Wicksell's framework in their *Calculus of Consent* (1962) to determine the socially optimal degree of consensus for collective choice.[6] Social planning as an expression of utilitarianism, following the work of Francis Edgeworth (1897), Arthur Pigou (1932) and especially Paul Samuelson (1947, 1954), emerged after the second world war as the predominant approach in public economics and economic policy research.

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[6] See Chapter 6 and especially Figure 3 there where the optimal degree of consensus for a collective choice process is determined. Buchanan's book on the *Demand and Supply of Public Goods* (1967) is also an important contribution, standing between the Wicksellian tradition and post - WWII developments.

In terms of the stylized collective choice scenario introduced earlier, modern social planning leads to the study of how to set the temperature on the thermostat to optimize an objective that combines and allows for trade-offs between aggregate social welfare and equity among heterogeneous citizens. It is implicit in this approach that one accepts, or should accept, the solutions favored by the planner as a matter of social solidarity. Also implicit in this approach are the assumptions that the community is well organized to take advantage of collective action by the state on behalf of its citizens under the rule of law, and without the exercise of violence. In this volume, none of these conditions are taken for granted.

3. A tour through the individual contributions

We turn now to the individual chapters. The emphasis in our introduction to these essays will be on their general thrust, and on how they fit together.

3.1 Violence, structured anarchy and the state

We begin in Part I, and appropriately so for a book on coercion in public finance, with two papers that deal with the connection between violence and the public finances in societies in which democracy under the rule of law is not already well entrenched.

The opening essay by John Wallis, "The Constitution of Coercion: Wicksell, Violence and the Ordering of Society" sweeps across the history of human organization. It relies upon, and extends to the study of public finance, his recent book with Douglass North and Barry Weingast on *Violence and Social Orders* (2009). It will not come as a surprise to the reader of this Introduction that Wallis begins with the Weberian conception of the state. Wallis asks how a society capable of limiting a government that has a monopoly on violence must be structured to constrain the government's use of violence, and how an answer to that difficult question bears on the use of unanimity in taxing and spending that was Wicksell's solution to the problem of limiting coercion. He shows at some length - in part using arguments developed in his book and extended here - how analysis of the evolution of a rule of law applied impersonally can be applied to public finance. He concludes on the basis of this analysis that Wicksell's idea is too simple; that it is not consistent with a solution to the problem of constraining the state because it leads to too much detail or attention to individual preferences in public finance, which is at odds with the requirements of an open access society with limited government under the impersonal application of the rule of law.

In rejecting Wicksell's approach, he is in accord with the *Calculus of Consent*. But the argument here takes a different route, bypassing the problem of how to structure the collective choice mechanism itself. In this respect, his conclusions – though not his reasoning - are similar to those of Henry Simons (1938) and of Buchanan and Roger Congleton (1998), all of whom advocated broad tax bases that, to paraphrase Simons, prevent government from dipping deeply into great incomes with a sieve. The idea here, cast in the original language of Wallis' analysis, is that to prevent the breakdown of impersonality in the application of (tax) law, and the higher level of coercion and even violence this leads to as groups then sort themselves out for reasons of self-protection, the state should not be able to use tax discrimination to effectively play favorites.[7]

These non-discriminatory tax systems are the antithesis of an Optimal Tax system, which is a generally more complex structure proposed by a benevolent planner to maximize social

[7] This idea works reasonably well whatever the tax base chosen, such as with a broad base consumption tax, as Buchanan and Congleton realize. But it seems that advocates of the broad base income tax in particular (in the tax-expenditure literature) have not generally understood the basic idea, and would not, it seems, be opposed to such deviations from non-discriminatory treatment if it were instead delivered by explicit discrimination in the provision of public expenditure.

welfare in a world of heterogeneous taxpayers. (See, for example, Frank Ramsey 1927, and Peter Diamond and James Mirrlees 1971a,b and others.) While reading this chapter, one wonders how far one can go in a democratic, open access society, where interest groups must compete openly and vigorously and hence on unfavorable terms for government favors, towards such an Optimal or economically efficient fiscal system without regressing back into the world governed by bargaining among interest groups. That is one of the unpalatable alternatives to a society based on the impersonality Wallis favors, where membership in a group is what matters, and the waste of resources in protecting one's common interest with other members of the clan, tribe or party, as in much of the world today, reduces social welfare substantially.

The second paper in this Part of the book is by Stergios Skaperdas. This chapter investigates at length a world of structured anarchy that is certainly unpleasant by modern democratic standards. In "Proprietary Public Finance: Its Emergence and Evolution Out of Anarchy", the societies Skaperdas describes are ones where elites compete to provide security for the larger society, and where each rent-maximizing elite uses the fiscal system to exploit the citizens under their control. There is no Weberian state, a type that looks benign by contrast. The proprietary state – one in which the state is 'owned' by a ruler who maximizes revenues net of the cost of governing and which are common in the history of the world (Finer 1997) - emerges here out of anarchy given the state of military technology, but faces difficulties surviving because of the problem of providing effective security. This is a more or less stable world in which the center of power establishes itself at great expense in terms of enforcement and security.

Skaperdas' model includes as an exceptional case, Mancur Olson's (1993) roving bandits, who arise and survive only when military scale economies are absent so that there is no surplus that can be captured by an 'entrepreneur' who offers to rid the peasants of these bandits in exchange for tax payments that leave them with a subsistence existence.

In his formal discussion of the Wallis and Skaperdas essays, Leonard Dudley characterizes Wallis' chapter as one that deals with bargaining between elites and the associated commitment problems that these elites must cope with as they try to maintain their rents. He thinks of the essay by Skaperdas as an analysis of the role of scale economies in military technology in the outcome of elite competition. Dudley then argues that these two chapters are parts of a bigger picture, and that they may be unified by thinking about the first paper as an essay on the demand for governance, and about the second as providing a theory of its supply. Rents play a key role in this unified framework because they provide the incentive for and currency via which elites can make stable agreements. He goes on to argue that coercion in public finance - in the sense of tax-prices in excess of willingness to pay - will be a key feature of regimes in the (possibly substantial) period of time following important shocks to the economy or society, especially when the private sector becomes more efficient (after a technological shock) , and will be less important in long periods of stability. We leave the 'proof' of this assertion, along with the many interesting details of the arguments in the main papers, for the reader's discovery.

Before continuing to introduce the other contributions in the book, it is important to note that in the papers in Part I, more than in the following sections of the book, the emphasis is on the kind of governance in which rulers and elites use fiscal instruments to satisfy private interests without direct concern with the public interest, and competition between elites often generates unequal and even destructive outcomes. In the following parts of the volume, some constraints such as exist in a democracy on the powers of the government and the bureaucracy are regarded as a normal, though still problematical part of society.

3.2 Voluntary and coercive governance in welfare analysis

We pointed out earlier that definitions of coercion often are phrased in terms of its source, and that we need to go further in order to construct measures of coercion. The chapters in Part II move in that direction. In "Coercion, Taxation and Voluntary Association", Roger Congleton attempts to clarify the meaning of coercion by developing a representation of voluntary and coercive proposals first suggested by Alan Wertheimer (1990). The new development in this chapter is Congleton's demonstration that coercion cannot be defined without the use of a baseline proposal or counterfactual, which is the situation that would have occurred had the proposal of interest not been made.[8]

We must imagine what the counterfactual could have been in any particular situation. Congleton argues that often this baseline can be considered the exit option or, more precisely, the alternative realized when an offer is rejected. This reasoning obviously could form a rationale for the use of participation constraints in the mechanism design approach, though not necessarily the costless migration form of the constraint usually used in that literature. Coercive proposals, in his view, do two things: they attempt to eliminate this baseline as an option; and they involve the person making the offer also determining the payoff that the person receiving the offer obtains by acceptance or rejection of it.

To move towards measurement, Congleton uses as a baseline the outcomes in an ideal society where rent extraction thorough the public sector is completely absent. This corresponds to a world of costless exit from the community in question, which is one among many possible

[8] For another interesting, recent paper on the definition of coercion, which is illustrative of the importance and endurance of the issue in political science, see Valenti (2011). See also, for example, Grief (2005) and the various essays in Reidy and Riker eds. (2008), Brautigam et al eds. (2008) and Marciano and Josselin eds. (2007). We note that in contrast to the present book, these works do not focus directly on the study of public finance.

scenarios. He argues that estimates of rent extracted per non-privileged member of society can form the basis of a simple measure of the *aggregate* amount of coercion, thus linking the large literature on rent seeking to the present discussion. He also speculates about the implications of using rent (that is, coercion) minimization as a criterion for social action compared to one of maximizing GDP per capita.

The second paper in this section also identifies the subjectivity of coercion as a central issue, but in quite a different manner. In his essay "Kaldor-Hicks Coercion, Coasian Bargaining and the State", Michael Munger explores the implications of not knowing exactly what people regard as coercive for the foundations of welfare analysis. He does so by comparing the Kaldor-Hicks-Scitovsky (KHS) criterion to Coasean bargaining (Coase 1960). The essence of the application of the KHS "Compensation Principle" is the summing of gains to gainers and comparing the result to the sum of losses to the losers. The choice among feasible allocations that results produces a greater social surplus than any other, assuming (as did Wicksell) that justice and equity questions are somehow handled separately by the political process. Munger notes that Coasean bargaining is precisely isomorphic in the sense that it discovers the maximal social welfare. But in his view the two approaches differ importantly in the degree of their potential for coercion by the central authority, and by their capacity to elicit accurate information about costs and benefits.

The essay attempts to unify two approaches to welfare analysis that until now have been considered to be separate, placing them on a continuum according to which one might choose one or another as a mechanism for revealing preferences, reducing coercion and achieving efficient solutions to public good problems.

Munger’s essay also explains how you can get out of the need for a standard of reference to define coercion if you live in a (non-Coasian) world of cheap bargaining. Of course bargaining, like migration, is not costless, and we can conclude that the measurement of coercion is not easy, depending as it will on an operational definition of some sort of counterfactual or standard of reference. The essays in the following section on public economic theory and application struggle with this issue, one to which we will return.

In his discussion of the two papers in this second section, Edgar Kiser points out that while Congleton and Munger acknowledge the subjective nature of preferences in choosing a definition of coercion, neither of them asks what he sees as the obvious next question: If ideas about coercion are fundamentally subjective, what factors determine the degree of coercion that individuals deem appropriate? He then introduces us to the long tradition of research by sociologists who have worked at understanding how individual preferences are molded and shaped, suggesting an important place for such work in the contemporary study of coercion.

3.3 Coercion in public sector economics: theory and application

We move from the nature of public finance in structured anarchy and under impersonality, and from discussion of the philosophical foundations of coercion, to deal with the role of coercion in mainstream models used in public sector economics. To present ideas sharply and to cover as much ground as possible, the first two chapters in Part III purposively lie at opposite ends of the continuum concerning the voluntariness of participation in the social situations in which coercion might arise. These are theoretical analyses. The second two papers are more applied in nature, dealing with two standard topics in public finance, namely fiscal incidence and federalism.

In "Non-coercion, Efficiency and Incentive Compatibility in Public Goods Decisions", John Ledyard presents a survey and extension of research on participation constraints in mechanism design in the presence of public goods, work which emerged out of Lindahl' s contribution in 1919. A 'mechanism' in this literature is a process through which individuals communicate and arrive at a social allocation of resources. Bargaining over tax-shares as Lindahl described it in 1919, a collective choice process like majority rule and a competitive decentralized market are examples of such mechanisms. As in Congleton's analysis in Part II, the participation constraints allow individuals to exit the community, and in this case to do so without cost.

Ledyard first asks if a mechanism of some sort exists which exhibits both efficiency in the equilibrium supply of public goods along with strictly voluntary participation, that is, one that achieves the Wicksell – Lindahl ideal, despite Samuelson's (1954) guess that coercive taxation will always be required to deal with free riders. The answer is a qualified yes, and so Samuelson was too pessimistic. It is possible to achieve a solution in which everyone contributes voluntarily and the public good is supplied in just the efficient amount, and this will precisely be the one proposed by Lindahl, in which individualized tax-prices are equal to everyone's marginal evaluation of the public good! (Hurwicz 1979).

However, we learn next that such a nice outcome depends importantly on who knows what. If individual agents are assumed to know only their own 'types', that is, what they alone want from the public sector, the answer is a gloomy one. In this kind of economy, it turns out that we will likely not have any public goods, at least not without coercion. (Here then is another reason why some coercion may be a good thing.) Putting us all behind John Rawl's (1971) veil of ignorance, or considering the matter ex-ante when people know nothing, not even their own type, makes things easier it turns out. But how comforting this is if we need governments to engage in contemporary policy reform is not obvious.

The results described so far are based on frameworks where it is assumed that everyone knows that everyone else is behaving rationally; that there is a 'common knowledge of rationality'. If we want to do away with that, and allow for full knowledge in all *other* respects, we again find that the Wicksell-Lindahl ideal is unobtainable with any mechanism that is non-coercive.

Ledyard speculates about some very recent work that may change the last conclusion. Apparently by using MRI imaging to observe a neuro-signal that is correlated with the individual's demand for public goods, it may be possible to figure out a tax-price that will induce truthful revelation of an individual's demand for the public service, despite the incentives for free-riding. Would this MRI be voluntary or compulsory, one might ask (half) jokingly? More seriously, this discussion provides another example of the fact that constraints on mechanism design and policy making generally are not determined by nature alone. They depend on such matters as attitudes towards privacy, and on the extent to which we will allow the state to fix our outside options.

He concludes with a discussion of the classic problem of insuring the proper behavior of the state, the issue Leonid Hurwicz took up in his Nobel lecture in 2007. In the mechanism design literature, this issue plays out in a different manner than in the chapters by Wallis and Skaperdas. If we dispense with the usual assumption that the state (somehow) enforces property rights, and allow for the possibility that endowments can simply be seized, the imposition of participation constraints obviously does not imply that coercion is entirely absent. And knowing this, agents will behave differently than has been assumed in the theory introduced above. How the results reported in this chapter are then altered is left for future research.

In contrast to Ledyard's approach, the next chapter by Stanley Winer, George Tridimas and Walter Hettich (hereafter WTH) begins with a completely different perspective on the nature of participation in a community. In "Social Welfare and Coercion in Public Finance", it is assumed that exit, as opposed to voice in domestic politics, to use Albert Hirschman's (1970) categorization of alternatives, is not possible at all because it is too costly to leave 'home'. They go on to explore the grammar of optimal fiscal structure when constraints on the social planner are (somehow) imposed so that coercion does not exceed an arbitrarily chosen level, either for the community or, alternatively, for each individual. The difference between these two types of exogenously imposed coercion constraints corresponds to the difference between the Kaldor-Hicks-Scitovsky criterion analyzed by Munger in Part II and the strict Pareto criterion which requires that no individual actually lose out in any reallocation that moves society towards the Pareto-efficient frontier.

The approach taken by WTH requires the use of an operational measure of coercion. As suggested by Buchanan (1968) and Albert Breton (1996), they take the tax-share or tax-price as socially determined, as in private markets where the price is given by the market and consumers quantity adjust, and define coercion as the difference in welfare between the situation in which individuals could hypothetically adjust the quantity of public services, and the actual social situation they are presented with. They refer to this as the individual-in-society definition of coercion. Defining the counterfactual here thus depends on knowing individual demands for public services.

They then vary the allowed degree of coercion and ask how the economically efficient fiscal system changes as a result, comparing standard optimal tax and coercion-constrained tax formulas. Since coercion depends on what the constrained planner does, and the planner must take constraints on coercion into account in making policy choices, the degree of coercion actually experienced is endogenously determined in this analysis.

For a simple (Cobb-Douglas and linear tax) economy, there arises a concave trade-off between aggregate social welfare and the aggregate degree of coercion. The standard optimal tax solution, where the social planner has coerced the rich and transferred to the poor just the right amount to maximize aggregate social welfare, is at the peak of the curve, and it is possible to actually calculate the amount of coercion imposed here by the unconstrained social planner and study its determinants. Intuitively, coercion in the socially optimal plan rises with the magnitude of demands for the public good because the welfare losses from departures from preferred counterfactuals are larger then, and it also rises with the heterogeneity of tastes for the public good, since it is harder to satisfy a more heterogeneous community with the same restricted set of tax and expenditure policy instruments. (Giorgio Brosio follows up in a later chapter on the possibility suggested here that decentralization may reduce coercion at little cost in terms of social welfare; the idea turns out to be less promising than it appears at first glance.)

WTH also compare the degree of coercion in the traditional socially optimal plan with what would happen under majority rule. Coercion in this political system *exceeds* that imposed by the social planner *and* social welfare is lower. The reason is that majority rule, or any choice process short of unanimity, introduces discrimination according to political influence in addition to that adopted by a social planner.

In his discussion of the WTH paper, Robin Boadway raises several issues that point the way towards further work on coercion in public finance. We summarize three of these matters here. First there is the question of whether coercion should in some way enter the individual's utility function, or at least the social welfare function. (One answer here is probably that one should proceed in various ways, and that to include coercion as constraints on a planner as WTH do does not mean that their paper is 'non-welfarist' in a broad sense). Second, following some recent research he introduces, he suggests that it would be reasonable to define coercion with respect to what people think is an appropriate *social* outcome, instead of using the approach of WTH, and of Congleton and Munger earlier, in which what matters is the *individual's* preferred outcome. A further issue for future work concerns the fact that in the comparison with majority rule, neither voters nor political parties take coercion directly into account. With respect to Ledyard's chapter, Boadway's comments center on whether or not it is appropriate to use a completely binding participation constraint, and on the reasonableness of alternative assumptions about what agents know about each other.

3.3.1 Fiscal incidence and fiscal federalism

In the context of this book it makes a lot of sense to ask if ideas about coercion can inform the analysis of standard topics in public finance. The contributions in the second half of Part III deal with the role of coercion in the study of two well-travelled issues: fiscal incidence, and fiscal federalism.

Saloua Sehili and Jorge Martinez-Vazquez analyze fiscal incidence using the Lindahl solution as a standard of reference. In their "Lindahl Fiscal Incidence and the Measurement of Coercion", they present an incidence study in which the Lindahl solution - one which everyone would vote for unanimously at given tax-prices - equal for each individual to their marginal evaluations of the public good being supplied - is used as a standard of reference to distribute net gains (relative to this solution) from fiscal policy across individuals or groups. In this study, the calculation of the difference between the tax people pay, and what they would pay in a hypothetical Lindahl solution for the given quantity of the public good, is essentially a measure of coercion because of the operation of the fiscal system.

Note here the use of a counterfactual tax payment to define coercion, rather than a counterfactual level of benefits received as in the WTH approach. Whether the conclusions reached from using counterfactual tax payments or, alternatively, counterfactual quantities as a metric for defining coercion differ in some important manner remains to be investigated.

Another issue that arises at this point concerns the difference between the *act of coercing*, as distinct from the *amount of coercion* in a fiscal equilibrium. Sehili and Martinez-Vazquez would like to label as coerced only those citizens who pay more than they would like to pay in the Lindahl solution. One could also say that people who pay less than they should, or who receive more in benefits, are coercing others through the fiscal system. In contrast, WTH do not say who is coercing whom, but include in their aggregate measure all differences across individuals, whether positive or negative, between the values of public benefits received and what people think they ought to receive. (These values do not cancel out since individual preferences are heterogeneous).

In the Sehili-Martinez-Vazquez approach, the level of public goods may or may not be set at the Pareto efficient level, in contrast to the full Wicksell-Lindahl equilibrium, though in every case, tax-prices are adjusted until they 'match up' with individual marginal willingness to pay for the level of the public good being provided in the counterfactual. Note that it is assumed here that everyone pays their taxes whether they are coerced a lot or a little.

Their empirical application uses a numerical general equilibrium framework to model Lindahl incidence in the state of Georgia where, despite the logic of Lindahl taxation at the national level, some taxes levied by Georgia are allowed to be exported to non-residents in the rest of the United States. They find that the distribution of Lindahl net fiscal benefits across income groups at the regional level is regressive, meaning that poorer residents are coerced relative to richer ones. They show that this conclusion is robust to alternative assumptions about efficiency in the supply of public services. Moreover, their calculations show that tax exporting, that is, coercing nonresidents in other states, makes residents of Georgia on balance better off despite any deadweight losses coming from public sector expansion that this exporting may create. This last situation obviously leads on to thinking about the organization of public finance in federal systems.

In his discussion of the Sehili-Martinez-Vazquez paper, George Zodrow points to a limiting assumption in their model, to the effect that the public good entering the individual utility functions is a single pure public good, especially in relation to local services. The standard assumption in the local public finance literature is that local public services are "publicly provided private goods." A second related limitation is the assumption that all residents consume the same level of public services. In Zodrow's view, relaxing those assumptions brings into play the Tiebout (1956) model of local public finance.

Charles Tiebout's model shows that, under certain conditions, competing jurisdictions coupled with perfect or costless individual mobility results in efficient local public goods equilibria, as individuals sort themselves into homogeneous jurisdictions with no conflict regarding the optimal level of service provision. In this sense the Tiebout mechanism effectively results in a Lindahl-type equilibrium, where no coercion exits *in each local jurisdiction*, because at home everyone gets what they pay for. However, in the Sehili-Martinez-Vazquez approach, net incidence would still vary across communities because of restrictions on the sorts of fiscal instruments used by governments. The implications of this point, of course, depend on the relevance of the Tiebout model in general, and in particular for local jurisdictions in Georgia which is the case studied in this chapter.

Even though the Tiebout model necessarily describes reality imperfectly, Zodrow argues that many observers believe that the model provides important insights into the operation of the local public sector, meaning that fiscal federalism at the local level, coupled with household mobility across jurisdictions, can act to limit coercion of the kind discussed by WTH and by Sehili and Martinez-Vazquez. So it is entirely appropriate that in the next chapter, titled "Coercion in Decentralized Government", Giorgio Brosio considers the possibility, one suggested much earlier by Roland Pennock (1959) in a different context as well as by Tiebout, that formal decentralization will reduce the aggregate amount of coercion inherent in a fiscal system.[9]

Students of public economics will be reminded here of the decentralization theorem of Wallace Oates (1972). In the Oates framework, demands for public services are heterogeneous, and a uniform centralized supply at the national level is replaced with, say, two 'provinces' supplying the same kind of public service, each doing so at the provincially efficient level where the sum of marginal evaluations of the public good of citizens in each province equals its marginal cost. Since heterogeneity of demands in any province can be no greater than in the country as a whole, and generally will be less, the social planner in each province can match its chosen level of public goods supply more exactly (even if not perfectly) to the demands of its provincial citizens than can a planner in a centralized state constrained to supply a uniform level of public services everywhere. In this way we can see that with benevolent government, decentralization will always lead to an increase in the aggregate, national level of social welfare.

[9] Pennock actually considers the number of people who would be in a majority on a given issue (such as the size of public expenditure) in the country as a whole versus in the equivalent decentralized state. His logic may or may not carry over to coercion in fiscal affairs.

The question Brosio tackles is different, since he is dealing with the possibility that decentralization reduces coercion in the political equilibrium of a newly decentralized state, whether or not public goods are efficiently supplied. His answer is that formal decentralization can reduce coercion *if* it is accompanied by lower dispersion of preferences in the sub-central units, or if it produces better governance. But, and this is his major claim, such a result is context specific and does not provide a general a priori argument in favor of decentralization. While the Oates theorem still applies, provinces where the local dispersion of preferences is substantial may experience an increase in coercion defined as in WTH, depending on how the level of the public good is determined (e.g., to satisfy a median voter). He argues that in such cases, voluntary *centralization*, also known as asymmetric centralization, may do better than decentralization, especially when one realizes that centralization does not necessarily imply uniformity in public provision at the local level.

This chapter also includes a discussion of the interesting and difficult case of Macedonia after the breakup of Yugoslavia, where Brosio worked for the World Bank following the civil war that was ended by NATO's intervention. This is a highly divided society of Macedonians (the majority) and ethnic Albanians in which concern with coercion of one group by another is still at the core of public life, and in which there was significant decentralization despite the fact that there are only about two million people in this small country.

In his discussion of the Brosio paper, Bernard Grofman raises several issues that broaden the landscape of the discussion of coercion in public finance to include the nature of alternative collective choice institutions. Grofman notes that two key approaches to address the problem of preference heterogeneity are super-majoritarianism (including unanimity and veto rules) and segmentation of control over outcomes. One form of the latter approach deals with the partition of voters into more preference-homogenous voters. It is here where Oates' decentralization theorem fits according to Grofman. Even though the decentralization theorem simply assumes that localized decision-making does go along with or create more preference homogeneity, Grofman points out that such an assumption seems empirically well substantiated.

The question remains, however, whether homogeneity is necessarily better when collective choice rules are considered. It would not be the case, Grofman argues, if for example national level (centralized) decisions are done through some proportional allocation rule based on population shares, while local level (decentralized) decisions are monopolized by the majority group.

Concerning the Macedonian case, ethnic concentration led to the redrawing of municipal boundaries to increase the Albanian population's representation, and that group was also given a sort of minority veto. Grofman identifies these kinds of provisions, along with elections based on proportional representation, as *consociational* arrangements (Lijphart, 1977). Both Grofman and Brosio worry that such arrangements may lead to the hardening of ethnic differentiation, with increased self-segregation of the minority group and state support for arrangements that minimize contacts across ethnic lines.

3.4 Coercion in the Laboratory

The fourth and last part of the book brings experimental methods to bear on the nature of coercion; 'Coercion in the lab!' as discussant Michael McKee calls it. There is little work that investigates in an experimental setting how cooperation is affected by the presence of players who are 'obliged' to contribute to the collective enterprise. The first study focuses on the determinates of resistance to coercion in a public goods game. The second experimental chapter is motivated by the educated guess, expressed at various earlier points, that some coercion may be socially productive.

The nature and extent of coercion, whether in structured anarchy, natural states or advanced democracies will depend in large measure on how people cooperate to resist it. Lucy Ackert, Ann Gillette and Mark Rider (AGR) address the fact that cooperating to deal with coercion is essentially a public good of the usual kind for those resisting. In "Cooperating to Resist Coercion: An Experimental Study", they follow up on this observation using a laboratory experiment with students.

The AGR team adapts a threshold public goods game to investigate whether people are able to cooperate to resist coercion despite individual incentives to free-ride. The experimental game they set up works like this: A randomly chosen decison maker, who remains anonymous, is given the opportunity to exproriate all or part of the endowments of four experimental subjects – the 'others'. Others can resist the decion maker's demands by making voluntary contributions to a resistance fund, and if the balance in the fund reaches a commonly known threshold, the Others don't have to pay what is demanded by the decision maker. Whether or not resistance is successful, contributions to the fund are lost.

Behavior in this resistance game turns out to be similar to that observed in multi-period public goods games. They observe "out-of-equilibrium" outcomes not predicted by the standard theory where everyone free-rides, and a decrease in successful resistance in later periods of a session compared to earlier ones. Nevertheless, cooperation remains relatively high even in the later periods. In addition, the AGR team do find that increasing the resistance threshold has a substantial negative effect on the probability of successful resistance.

We can only speculate at this point on how the coercion we observe in democratic or developing societies, including the state of Georgia and the country of Macedonia, depends on the costs of organizing resistance to it, the role of institutionalized constraints of various kinds as a substitute for the need to organize resistance, and the incentives that remain for rent seeking.

The second experimental chapter is by Elena Cettolin and Arno Riedl: "Partial Coercion, Conditional Cooperation, and Self-Commitment in Voluntary Contributions to Public Goods". They investigate whether partial coercion can increase contributions to a public good. What they mean is described by the structure of their experimental game. Three subjects are randomly matched, and each receive 50 tokens as a an endowment. One of the three is randomly chosen and forced to contribute 13 (low-coercion) or 38 (high coercion) of their 50 tokens. Then they have to decide individually how much to contribute to provision of a public good. In a final treatment, members are allowed to voluntarily commit to a minimal contribution of 0, 13 or 38.

They are especially interested in the behavior of the *non-coerced* populations in these situations. This is sensible – it is clear from our discussion above that cooperation depends on people knowing that others will be required to take part even if they find it advantageous to shirk on their responsibilities as citizens.

The main finding is that partial coercion is not a strong enough force to increase overall contribution levels. Although, there is a pure coercion effect (contributions by the coerced member are higher), and non-coerced subjects appear to adjust their beliefs about the contribution behavior of coerced subjects, they do not increase their own contributions to the public good accordingly. Voluntary commitment seems to yield the same results. They suggest that these results cast some doubt on the actual strength of conditional cooperation as a mechanism to overcome social dilemma problems.

Michael McKee in his discussion considers the two papers in this section of the book in the context of the main body of experimental work on public goods economies, and also links them to contemporary research on tax compliance issues. He suggests that coercion can be identified with compulsory tax withholding, which occurs along with more voluntary participation by other citizens. The question of whether coercion aids cooperation in the laboratory experiments is set against studies that show that tax compliance is higher than one should expect from looking at penalties from a tax audit. Apparently even simply informing people (untruthfully) they are going to be audited is enough to increase self-reporting, suggesting that coercion may be more powerful than is suggested by the experiments.

McKee speculates about the possibility that players' views about what is fair is also involved in the outcome of the experiments in both papers along with the role of coercion, to some unknown extent. This suggests that further investigation will be required to separate the role of coercion from the effect of views about redistribution.

McKee also asks whether the use of coercive methods, in Congleton's sense of altering baseline options or fixing the payoffs from them, in tax collection can lead to social norms that encourage or discourage cooperation over time, a key issue raised by John Wallis in chapter two and also by Robin Boadway. The extent to which tax evasion is a response to social actions that are regarded as coercive by taxpayers is not known, though as he points out, some experiments where taxpayers vote on the budget indicate that evasion declines as meaningful participation by taxpayers increases. To go further into this issue, McKee argues that we will need to bring the issue of commitment of government to the proper use of funds into the experimental setting, which he thinks must be involved in people's assessment of what is and what is not coercive taxation. A useful line of future experimental inquiry, he then suggests, would be to decouple the link between tax compliance (or coercion) and the use of public funds in the experiments, and study the willingness to be coerced and its effectiveness in the absence of any direct link between revenues and expenditures. In other words, more coercion in the lab is warranted.

4. Concluding remarks

We return to where we started by pointing out that social interaction necessarily requires limits on individual choice, and that coercion is an essential part of whatever process is adopted to provide for the common good. The book before you stems from the view that, despite the conceptual and practical difficulties, it is important to analyze the meaning, nature and role of coercion that is *always* part of the practical organization of any democracy, and especially in the formation, structure and operation of its' public finances.

Our intention in initiating the workshop from which this book emerged was to contribute to the approach to public finance initiated by Wicksell and Lindahl, an approach that combines a concern with efficiency in public goods supply with a related concern with coercion in the financing of government. The result is something of an adventure. The essays and discussions in this volume address a variety of important, challenging and interconnected issues concerning the evolution, measurement and implications of coercion in public finance. These include: the emergence and persistence of coercion in the financing of structured anarchies; its role in the transition from natural states to the open access society; the measurement of coercion and its connection to the foundations of welfare analysis and to the sociology of preference formation; coercion in mechanism design problems with public goods; as constraints on optimal policy design and under alternative collective choice rules; and the question of whether federalism is a less coercive solution to problems of highly divided societies. The implications for contemporary tax policy of the Wicksell-Lindahl solution, for the calculation of the incidence of the fiscal system, and for experiments with coercion in laboratory settings as a potentially productive force are also explored.

All of this work is prompted by asking about the role of coercion in public finance, a basic issue that, we think it fair to say, has been neglected in contemporary work on the public economy. We hope that the reader will find the essays and formal discussions of coercion and its role in public finance interesting, and that at least some of them will provoke further inquiry.

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