Cross-Issue Coalitions, Representative Government, and the Credibility of Public Debt

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While it is often argued that adopting representative political institutions can allow governments to establish credibility as debtors, existing work generally does not consider how partisan incentives might alter this picture. In fact, both in early modern European cases, such as England after 1688, and in many of today's developing countries, the establishment of representative government has, in many instances, handed power to groups which face *ex post* incentives to default on debt. In this paper I construct a simple model which shows how legislative bargaining over non-economic issues, like the degree of religious toleration, can increase the likelihood that assemblies such as these can nonetheless successfully commit to paying their debts. Credibility under these circumstances is the byproduct of partisan political bargaining. Building on this model, I show how political parties, conceived as a means to cement bargains between heterogeneous interests, can also play a critical role in determining whether credibility is established.

1. Introduction

Numerous scholars have argued in recent years that representative political institutions allow governments to credibly commit not to engage in opportunistic behavior such as defaulting on debt or arbitrarily changing taxes and regulations. In a seminal contribution to this work, North and Weingast (1989) suggest that the (re)establishment of parliamentary prerogatives in England after the Glorious Revolution of 1688 allowed the British Crown to dramatically improve its credibility as a debtor. The English experience of institutional change may then have important implications for other governments seeking to increase the credibility of their economic policies. In a similar spirit, Sargent and Velde (1995) have suggested that the French monarchy during the eighteenth century lacked credibility as a debtor, precisely because it failed to reinvigorate France's national representative institution, the Estates General.[1]

Implicit in both of the above arguments, there is an assumption that if given the power, those who make decisions within a representative assembly will necessarily oppose policies such as defaulting on public debts. Not formally specifying the partisan preferences of legislators is potentially problematic here, however, because in representative assemblies such as the British House of Commons after 1688, the overwhelming majority of members of Parliament represented landowning interests who could have had a direct interest in defaulting on government debt so as to reduce taxes on agricultural revenues. In contrast, the financial interests of the City of London, who had the most to gain in an immediate sense from swift and certain repayment of debts, were in the minority within the Commons.[2]

The observation that landowners formed a large majority in the UK Parliament after 1688 raises the question of how commitment might occur even in societies where the majority has an incentive to default. Equally

[1] In contrast, Hoffman, Postel-Vinay, and Rosenthal (2000) have suggested that representative political institutions were not a necessary condition for the growth of public credit in 18th Century France.

[2] North and Weingast (1989 p.818) do make reference to the fact that a "commercially minded ruling Whig coalition preferred limited government" in Great Britain after 1688. In another paper (Stasavage, 2000) I present historical evidence to support the interpretation of the Whig party as a cross-issue coalition of landowners and capitalists of the sort referred to in this paper.

importantly, one needs to ask how this could be achieved without resorting to mechanisms which infringe on democratic principles, such as restrictions on the suffrage, limitations on who can hold elected office, or practices which limit the ability of electors to hold legislators accountable.[3] The goal of this paper is to show how government commitment can emerge as a byproduct of partisan political bargaining across multiple issue dimensions. In so doing, I hope to respond to authors like Elster (2000) and Przeworski and Limongi (1993) who have suggested that theoretical treatments of government commitment often fail to consider partisan motivations on the part of actors.

I construct a simple political model of capital taxation which introduces partisan preferences explicitly by considering a society divided between landowners and owners of capital. This political model of capital taxation, which is adapted from Persson and Tabellini (1994), can also be applied to the politics of public debt. I then expand the model to show that if legislators also bargain over a second issue dimension, such as the degree of religious toleration, and if landowner preferences are heterogeneous across this dimension, then more liberally minded landowners may moderate their demands with respect to taxation in order to acquire support of capitalists on the issue of religious toleration. The end result is a lower expected level of capital taxation. The size of this effect will be greater the less weight that capital owners place on this second issue relative to achieving their preference with respect to taxation. Expected capital taxation will also be lower, the greater the weight that liberal landowners place on the issue of religious toleration.[4] Finally, in an extension to the model, I suggest that the creation of multiple veto points in government may have a greater impact on commitment when bargaining occurs over two dimensions of policy. To formalize the decision making process, I use a legislative bargaining framework first developed by Baron and Ferejohn (1989) and subsequently extended by Baron (1991).

[3] Manin (1995) reviews how 18th century governments resorted to a number of such practices while still having representative institutions.

[4] Under social choice theoretic assumptions, such as those adopted by Schofield (1995), one would predict greater instability of policies for the preference configurations I consider. It would still be possible to demonstrate, though, that capital taxation could be lower when a second issue dimension is present.

In a broader sense, this paper revisits influential arguments from comparative politics about the effect of cross-cutting social cleavages in moderating policy choices (Almond, 1956; Lijphart, 1977, Lipset, 1960).[5] While political economy models generally consider how preferences with regard to macroeconomic policy are divided across a single social cleavage (such as rich vs. poor or capitalist vs. laborer), the model I develop in this paper suggests a means of tractably analyzing how heterogeneity of preferences across other issues, such as religion, foreign policy, or social policy, can have a significant impact on economic policy choices.[6]

After considering the effect of cross-issue bargains on policy choices, I next examine whether political party structures can improve possibilities for groups with heterogeneous interests to make such deals and to subsequently respect them. This motivation for the formation of political parties draws on ideas developed by Schwartz (1989) and Aldrich (1995).[7] I suggest that formation of a party can lead to lower expected capital taxation, while also reducing the uncertainty which might prevail in a bargaining environment without parties. To formalize party formation within a legislative bargaining model, I draw on work by Jackson and Moselle (2000) as well as by Calvert and Fox (2000), who model parties as an equilibrium outcome of a repeated legislative bargaining game. In doing so I make sure to distinguish between "significant" party behavior and "party-like" behavior. This responds to the critique made by Krehbiel (1993), who suggests that evidence of voting cohesion is not sufficient to demonstrate that party institutions exert an independent influence on outcomes.

The remainder of this chapter proceeds as follows. First, section 2 presents the basic credibility problem in capital taxation, reviewing reasons why even a social welfare maximizing government might opportunistically raise taxes

[5] This model also has potential implications for the international relations literature on "linkage politics". For an illustration of the significance of second issue dimensions for bargaining over EMU see Frieden (1993).

[6] Roemer (1999, 1998) has also considered this question, by asking how the presence of a second issue dimension influences policies proposed by political parties to voters. His model differs from the one presented here in that he focuses on party competition for votes rather than bargaining within a legislature. He also assumes a common internal structure for all parties involving militants, reformists, and opportunists.

[7] Using a similar model, Bawn (1999) has modelled ideologies as equilibrium strategy profiles of a repeated game where three legislators much decide upon the distribution of public spending.

on capital or default on its debt. Section 3 then develops a political model of capital taxation, following Persson and Tabellini (1994). Sections 4 and 5 expand the basic model by introducing a second issue dimension and by allowing legislators to form political parties. Section 6 considers further extensions to the model including the presence of multiple veto points, economic shocks, and possibilities for bureaucratic delegation.

2. Debt and taxation with a welfare maximizing government

Before considering what tax and debt policies politically-motivated governments will pursue, to establish a baseline it is useful to show that even social-welfare maximizing governments can face incentives to default on their debts and to make opportunistic hikes in capital taxes. Take a case where a government seeks to finance a public good with proportional taxes on two factors, labor and capital. In setting the level of these taxes, a social welfare maximizing government will consider two things. First, how much money is required to finance the public good? Second, to what extent will taxes on labor and capital income be distortionary in the sense that levying a proportional tax may prompt people to supply less labor or invest less (supply less capital) than they otherwise would have done? Following standard public finance theory, a welfare maximizing government will tax the less elastic factor of production more heavily, so as to minimize the total loss created by taxation.[8]

What the above scenario does not consider is how outcomes may change if decisions with regard to the supply of either factor need to be made prior to the government's setting policy. This is particularly relevant for owners of capital, because once they have chosen to keep their capital in a particular jurisdiction, say by investing in a business or purchasing a government bond, then they may lack the capacity to easily shift it elsewhere. If the elasticity of capital with respect to taxation is effectively zero after these decisions have been made, the efficient policy for a welfare maximizing government would actually be to raise capital taxes *ex post* in order to decrease the distortionary effect of taxes on labor, as formalized by Fischer (1980). The problem, of course, is that

owners of capital will anticipate this incentive, and refuse to invest in the first place. In equilibrium, society as a whole will be worse off, because there will be less accumulation of capital and the public good will have to be financed exclusively by labor income taxation.

The credibility problem in debt repayment for a welfare maximizing government is very similar. Government debt held by the private sector is a form of capital investment. As was recognized by Prescott (1977), to the extent that debt repayments are funded by taxes which have distortionary effects (such as taxes on labor), then a welfare maximizing government will actually have an incentive to default on its debt in order to allow a reduction in these distortionary taxes. Anticipating this incentive, no one will purchase any government debt.

One frequently evoked solution to credibility problems is that governments will refrain from opportunistic behavior because of the negative future consequences which this decision might have. If a government has made *ex post* changes in capital taxes in the past, it may be less likely to enjoy significant capital investment in the future. Likewise, a government which defaults on its debts may find it difficult to attract new lenders in the future, or it will be forced to pay a default premium on its debt issues. While it is well known from the theory of repeated games that actors who do not discount the future too heavily may be able to sustain equilibria in a repeated context which would not be sustainable in a one-shot game, it is also well known that this solution is by no means guaranteed. This reputational outcome is but one of an infinite number of equilibria.

In the case of government debt, the likelihood of obtaining a reputational solution may be even less plausible than with capital taxation. Bulow and Rogoff (1989) show that reputational forces will be insufficient to guarantee debt repayment in equilibrium as long as a government can continue to hold assets abroad after it defaults.[9] These foreign assets can be used to insure against future negative economic shocks. Following the Bulow and Rogoff

[8] More specifically, the government will follow a "Ramsey rule" which sets taxes on labor and capital at a level where the marginal effect of an additional increase in each tax is equal.
[9] They show this in the context of an infinite horizon game where revenues are stochastic in each period.

model, debt repayment can only be ensured if creditors are able to impose additional costs on defaulters, such as seizure of assets or restrictions on trade.[10]

A second potential solution to the credibility problem in capital taxation is capital mobility. If credibility problems are caused by private actors becoming locked into certain investments, then making it as easy as possible to reverse a decision to purchase a certain asset could attenuate the problem, and especially if it was easy to move capital abroad. In the extreme case, where private actors can immediately shift their capital without cost, then the credibility problem would disappear entirely, as has been formalized by Kehoe (1989). The problem here is that in practice, many decisions regarding capital investment are in fact very costly to reverse (see Dixit and Pindyck, 1994). In the case of government debt, decisions to invest in government debt may not be irreversible due to the existence of secondary markets. This might make the reputational costs of default more immediate for governments, but as long as they retain the power to instantaneously suspend debt payments, the credibility problem persists.

In sum, while explanations based on reputation and the effect of capital mobility provide partial answers to the question why governments do not always tax capital opportunistically and default on their debts, there are too many cases where governments have short time horizons and where capital is not fully mobile to sufficiently explain an absence of opportunistic behavior purely on these grounds.

3. Distributional politics and capital taxation

While early models of credibility problems in capital taxation assumed that governments were welfare maximizers, the literature on the political economy of debt and taxation has provided strong theoretical and empirical reasons for believing that government policies in this area respond to partisan

[10] A different conclusion is reached by Chari and Kehoe (1993), who assume that after default a government does not have the option of holding assets abroad in order to insure against future shocks.

pressures.[11] Persson and Tabellini (1994) have developed a political model of capital taxation which expands the model in Fischer (1980) to allow for individual heterogeneity in ownership of capital and labor. The results of this expanded model also apply directly to the case of government borrowing. While all individuals would like to minimize the distortionary effects of taxation because of the losses this imposes on the economy as a whole, preferences are also influenced by relative endowments of each factor. Efficiency considerations aside, owners of capital prefer high taxes on labor and laborers prefer the reverse.

The politics of capital taxation in early modern Europe can be modeled in a similar manner to Persson and Tabellini (1994). To reflect the groups which held political influence, however, and in particular the exclusion of labor from the political process, I present a model where individuals hold variable endowments of land and capital, rather than labor and capital.

I assume that society is made up of three players, each of whom has an exogenous endowment, e, which reflects the relative importance of land income and income from capital as a share of their total income. Individuals for whom $e > 0$ own more land than capital, and for individuals with $e < 0$, the reverse is true. The quantity of capital and land of the ith individual in this economy is determined by the following equations where k_1 and l denote the average per capita stocks of capital and land, with the subscript "1" denoting the first period, and the subscript "i" an individual's share.[12]

$$k_{i1} = k_1 - e \qquad (1)$$

$$l_i = l + e \qquad (2)$$

The game has two periods. In the first period players choose whether to save or to consume their exogenous endowment of capital income, they gain utility from any consumption $U(c_{i1}) = c_{i1}$, and players are assumed to be risk neutral. Land income cannot be consumed in period 1.[13]

[11] For a review of theoretical contributions on partisanship and public debt see Drazen (2000).
[12] Since the stock of land is fixed, I suppress the time subscript for this variable.
[13] This assumption does not alter the results. An alternative would be to specify a game with one period where capital owners are required to make their investment/consumption decision in advance of tax rates being set.

In the second period, tax rates on land and capital are chosen subject to a government budget constraint g (expressed in per capita terms in (4) below), and the players consume any after-tax income from capital and land.[14] Capital saved from period 1 is assumed to earn a rate of return r as indicated in equation (3). Thus capital owners can have an incentive to save. Second period utility $U(c_{i2})=c_{i2}$ can be expressed as a linear function of both types of income and the tax rates (where θ is the tax rate on capital income, τ is the tax rate on land income.

$$k_{i2} = (k_{i1} - c_{i1})(1+r) \tag{3}$$

$$g = \tau l + \theta k_2 \tag{4}$$

$$U(c_{i2}) = (1-\theta)k_{i2} + (1-\tau)l_i \tag{5}$$

Using (1) and (2), equation (5) can be re-written as expressed in (6) to show that a player's second period utility is a linear function of their exogenous endowment, e. As a result, while the policy problem of how much to tax capital and how much to tax land is a 2-dimensional one, given the utility functions and the government budget constraint defined above, the preferences of the different legislators can be projected onto a single dimension.[15]

$$U(c_{i2}) = (1-\theta)k_2 + (1-\tau)\, l + e_{i2}(\theta-\tau) \tag{6}$$

Given (4) and (6), individuals will save all of their period 1 capital as long as expected taxation is low enough to make this worthwhile, or if $(1-\theta^e) > 1/(1+r)$. The expected tax rate on capital, θ^e, will depend upon expectations about bargaining between the three legislators. In the case where 2 of the 3 legislators are landowners ($e>0$), a credibility problem is likely to emerge.[16] Landowners would prefer owners of capital not to consume all of their capital in the first period. Otherwise, the government budget constraint must be satisfied exclusively with taxes on land income. The problem is that in period 2, if capital owners decide to save, then a landowning majority would have an

[14] The government budget constraint might be taken to represent essential expenditure for national defense.
[15] Persson and Tabellini (1994) establish this result following Grandmont (1978).
[16] I leave formal specification of the equilibria for the next section.

incentive to increase taxes on capital *ex post*, setting θ equal to g/k_2. Owners of capital will anticipate this incentive, and as a consequence, they will consume their entire endowment of capital in period 1. The public good will then need to be financed exclusively by taxes on land income at a rate of g/l. This is an undesirable outcome for all concerned.

The key insight of the above model is that a landowning majority would benefit from the ability to commit to choosing a rate of taxation lower than g/k_2. Following Persson and Tabellini (1994), a society with a landowning majority might therefore have an incentive to elect a median legislator who does not have an incentive to tax capital heavily, but this raises questions about how such an arrangement could be sustained, in particular if there are re-election concerns. In practice, Manin (1995) shows that 18th century European political institutions tended to bias policies in favor of landowners who were concerned about being expropriated by those without property. As such, these institutions might have credibly committed the poor to not expropriating the rich (frequently through undemocratic means), but they did little to solve the credibility problem landowners suffered with respect to capital taxation. In the next section I argue that cross-issue bargaining might increase possibilities for a landed majority to credibly commit.

4. Cross-issue bargaining and credible commitment

While political economy models of macroeconomic policy frequently consider only one dimension of social conflict, such as rich vs. poor, labor vs. capital, or creditors vs. debtors, in practice economic policies are set by legislators who bargain simultaneously over multiple additional issues including foreign policy, religion, and social policy. It has long been known that this legislative context opens up the possibility that politicians might compromise on one dimension of policy in order to receive legislative support on another issue. Likewise, the comparative politics literature on "cross-cutting cleavages" has explored how heterogeneity of preferences across two dimensions can lead to compromise policy choices. In this section I explore formally whether the

presence of a second issue dimension over which landowner preferences are heterogeneous can increase possibilities for credible commitment.

My analysis follows the frequently used model of legislative bargaining developed by Baron and Ferejohn (1989). Baron and Ferejohn extend the Rubinstein model of alternating offer bargaining to a situation where there are more than two players and decisions are carried by a simple majority. In their model the sequential nature of the bargaining process allows one to establish equilibria where the social choice literature would predict instability, in the absence of a structure induced equilibrium of the type identified by Shepsle (1979).[17] This model has been extended by Baron (1991) to cover bargaining over multiple issues where preferences are heterogeneous. Jackson and Moselle (2000) have shown how the introduction of a second issue dimension over which preferences are homogenous (this can be taken to represent transfers) can alter equilibrium outcomes in a bargaining game over an ideological issue.[18] Calvert and Fox (2000), and Jackson and Moselle (2000) have also introduced political parties in a legislative bargaining model.

As in the previous section, I assume that there are three players: A, B, and C. Each player has preferences over the issue of taxing land vs. capital, and in addition, each also has preferences over the degree of religious toleration. Preferences are separable across the two dimensions. As previously, preferences over taxation depend on an individual's exogenous endowment, e, except I now assume e to be bounded by the interval [-1,1]. To make the model as tractable as possible, I also assume that the government budget constraint can be met by a 100% tax on either land or initial capital income, and I normalize each of these parameters to 1 ($g = k_1 = l = 1$). These assumptions imply that any legislator who owns more land than capital ($e > 0$) will prefer to set $\theta=1$ and $\tau=0$, and any legislator who owns primarily capital ($e < 0$) will prefer the reverse. It is important to note, though, that for a legislator with $e > 0$, the utility loss of setting $(\theta-\tau) < 1$ will be increasing in e, and similarly for legislators with $e < 0$.

[17] For a thoughtful discussion of how and why Baron and Ferejohn (1989) uses assumptions that differ from social choice models see Baron (1994)

[18] Sened (1996) also presents a model where transfers facilitate coalition formation.

I also assume that legislators have preferences over a second issue dimension, the degree of religious toleration ρ , with ρ=1 implying full toleration and ρ=-1 implying no toleration.[19] The second period utility functions for the *i*th player can be written in terms of $(\theta-\tau)$ and ρ as in (7) below. In these equations z is an exogenous parameter analogous to e (and also bounded [-1,1]).[20] Any individual with $z>0$ will prefer full toleration and inversely for any individual with $z<0$. The utility loss from setting ρ away from an individual's ideal point will be determined by the magnitude of z. In this model, z and e also determine the relative weight which players place on each dimension in their utility function, or in a sesne, the "salience" of each issue.

$$U_{i2} = (1 + e_i(\theta-\tau)) + (1+z_i\rho) \qquad (7)$$

As a final specification, players also share a common discount factor δ which takes a value between 0 and 1. The discount factor might be less than 1 for standard time-preference reasons. Existing literature has also suggested that discounting could reflect the possibility that a legislator would not be re-elected if bargaining continues to the next round.[21] An additional reason for discounting in the context of this game could involve the possibility that failing to satisfy the government budget constraint for one period would result in invasion, in which case legislators would be replaced.

The game proceeds in the following sequence.

1. Players receive their exogenous endowments e and z, and they choose whether to consume their capital endowment or to save it (depending on expectations of capital taxation θ^e.
2. One of the three players is chosen at random to propose a set of policies ($\theta-\tau$ and ρ) which is then voted on, without possibility for

[19] Alternatively, the second issue dimension could be modelled as one where preferences are homogenous, as in Jackson and Moselle (2000) and Sened (1996).
[20] For the sake of coherence and simplicity of calculations, I have specified utility with respect to religious toleration in a similar manner to utility with regard to taxation.
[21] This follows Baron (1989) and Baron and Ferejohn (1989).

amendment, under simple majority rule.[22] If two players vote in favor of the proposal, the policy is implemented and the game ends.

3. If two players do not support the proposal, stage 2 is repeated, potentially an infinite number of times.

To identify the possible sub-game perfect equilibria of this legislative bargaining game I first make the assumption that players can only adopt stationary strategies, that is strategies where actions chosen do not depend upon the history of the game. This rules out the possibility that players might adopt trigger strategies to enforce cooperation with respect to voting on different proposals. This has become a standard assumption in the work using the legislative bargaining model, and it follows arguments made by Baron and Ferejohn (1989) about the implausibility of non-stationary strategies in this context. I later relax the assumption of stationary strategies. Finally, I also restrict my attention to pure strategy equilibria.

The sub-game perfect equilibria of this legislative bargaining game can be identified as follows (more detail in the appendix). A sub-game perfect equilbrium must satisfy the condition that each player maximizes her own utility subject to the constraint of offering another player at least her expected utility from continuing the game. In addition, players must not be able to improve their utility by unilaterally deviating and offering to an alternative player.

While the literature on legislative bargaining is concerned with deriving general propositions about government policy choices, my goal here is to develop a more specific proposition, that cross-issue bargaining may lead to government commitment in the area of capital taxation even when a majority of members of the legislature are landowners. To illustrate this possibility I

[22] I discuss the motivation for this random selection rule at the beginning of Section 5. Deviations from this random selection rule have clear effects that have been documented elsewhere, and so I do not consider them in detail in this paper. See McCarty (2000).

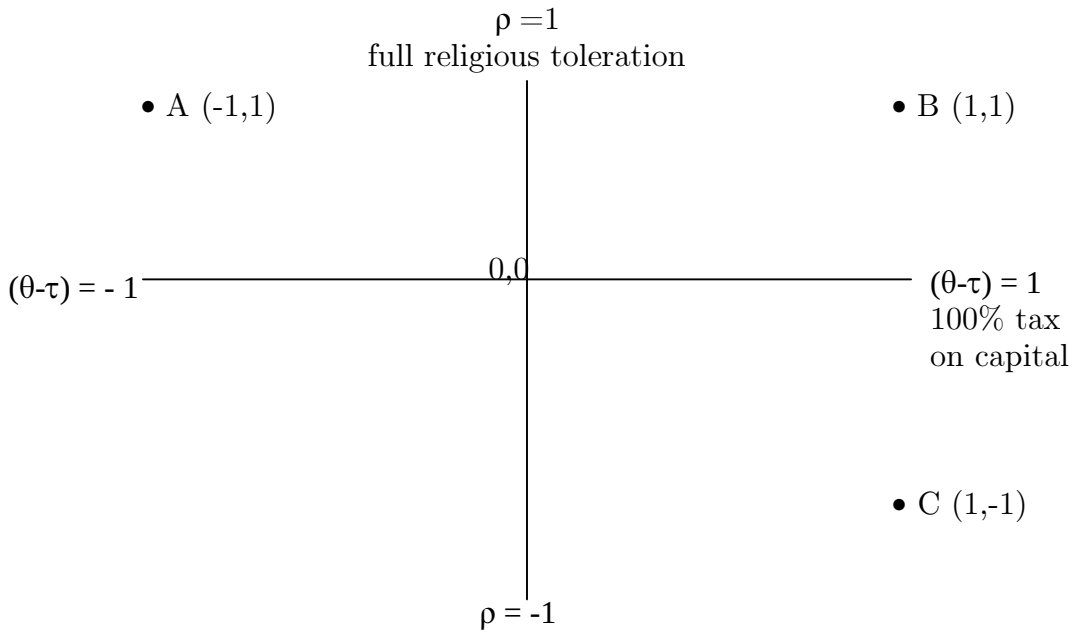
consider four specific configurations of preferences for the three legislator game and solve for the sub-game perfect equilibria.[23]

Example 1: single issue bargaining : As a benchmark for comparison, I first consider an example where players care only about tax policy (that is $z_a = z_b = z_c = 0$) and where there is a landowning majority. Player A owns only capital, and players B and C own only land. The two sub-game perfect equilibria of this simple case are particularly straightforward. In both cases B proposes (θ=1, τ=0) to C and C proposes the same policies to B. In the first equilibrium A will propose to set θ-τ=(5δ-3)/(3-δ) to B, while in the second equilibrium she will make an identical proposal to C. A can successfully propose a tax of capital of less than 100% to B and C as long as they discount the future (δ<1). The expected rate of capital taxation (which is identical in each of these equilibria) is the simple average of these three possibilities. It ranges from 1 (when δ=1, so there is no discounting) to 0.66 when δ=0.

Example 2: Multiple issues: Bargaining outcomes change significantly when one introduces a second issue dimension. Figure 1, below, depicts a situation where society is composed of a landowning majority but where landowners are divided in terms of their attitudes towards religious toleration. Player C is a conservative landowner, Player B is a liberal landowner, and Player A is a capitalist who also favors religious toleration. This can be taken as a stylized representation of politics in many countries in early modern Europe where landowners made up the majority of political assemblies, but where holders of financial capital were also present, and where landowners were themselves split over policies such as religion, foreign policy, and individual rights.

[23] The other reason for using specific examples is that attempts to establish general properties of equilibria in this game with multiple policy dimensions have proved difficult. See Baron (1991).

Figure 1: player preferences over taxation and religion (example 2)



In Example 2 I assume that players own exclusively land or exclusively capital (so e_a = -1, e_b =1, e_b=1) and the following parameters determine their utility gain from religious toleration (z_a = 1, z_b =1, z_b=-1). Equations 8a-8c represent the second period utility functions for the three players.

$$U_{a2} = (1 - (\theta-\tau)) + (1+ \rho) \quad (8a)$$

$$U_{b2} = (1+ (\theta-\tau)) + (1+ \rho) \quad (8b)$$

$$U_{c2} = (1+ (\theta-\tau)) + (1 - \rho) \quad (8c)$$

Given the above configuration of preferences, there are two sub-game perfect equilibria, and in each of these the expected rate of capital taxation is substantially lower than in the single issue case.[24] In the first equilbrium, A offers to B, B offers to A, and C offers to B. The expected rate of capital

taxation can be easily computed from the simple average of the proposals that A, B, and C make in equilibrium, and given the government budget constraint g=1. In the second equilibrium A offers to B, B offers to C and C offers to B. Each of these two sub-game perfect equilibria exist for all values of the discount factor δ between 0 and 1.

Equations 9a-c below show the proposals for each player in the first equilibrium. Player B proposes her own ideal point, regardless of how heavily players discount the future, and A votes in favor based on the gains she receives in terms of religious toleration. This strong bargaining position reflects the centrality of Player B's preferences with respect to the other two players. For low discount factors ($\delta<0.65$), Player A also proposes her ideal point, although when players discount the future less heavily, A is obliged to moderate her proposed tax policy in order for B to accept. Likewise, for high discount factors Player C moderates her proposal with respect to religious toleration. The equilibrium proposals are as follows.

$$\theta-\tau_a = (-27+45\delta-16\delta^2)/(9-9\delta+2\delta^2),\ \rho_a = 1 \quad (9a)$$

$$\theta-\tau_b = 1,\ \rho_b = 1 \quad (9b)$$

$$\theta-\tau_c = 1,\ \rho_a = (-27+45\delta-16\delta^2)/(9-9\delta+2\delta^2) \quad (9c)$$

Based on the above it is possible to calculate expected rates of capital taxation, and these can be compared with the outcome of a game where players bargain only over taxation. As long as $\delta<1$, the expected rate of taxation is lower than the case where players bargain only over taxation (as shown in Figure 2, below). This is due to the fact that while the equilibrium proposals by B and C are the same as in the single issue example, A now can attract B's support with a proposal for a more moderate rate of capital taxation, combined with full religious toleration. In the second equilibrium, the expected rate of capital taxation is identical to that in the first equilibrium, and so it is not reported.

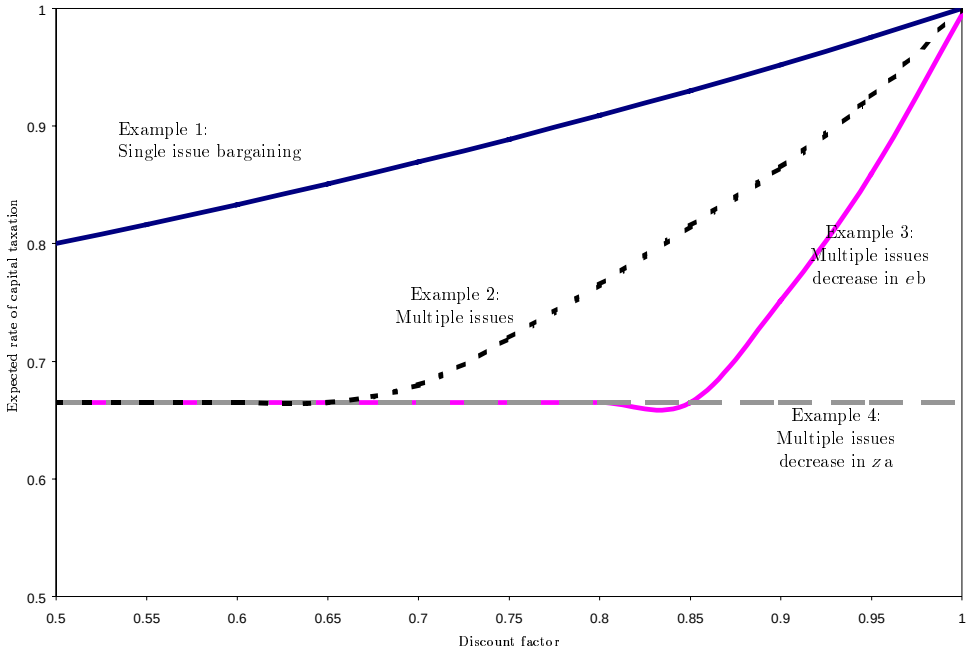
[24] All derivations are presented in the appendix.

Example 3: Multiple issues, effect of a decrease in e_b *:* I next consider how the equilibrium proposals of the three players change when Player B, the liberal landowner, earns 20% of her income from capital, instead of earning income exclusively from land. Under these conditions there is a sub-game perfect equilibrium in pure strategies where A offers to B, B offers to A, and C offers to B. The equilibrium tax proposals of A and B now change significantly, as one might expect, leading to a significant decrease in the expected rate of capital taxation. This reflects the fact that as the share of her income owned from land decreases, Player B's loses less utility from any proposal for a capital tax rate lower than unity.

Example 4: Multiple issues, Effect of a decrease in z_a *:* As a final variation, I considered how expected taxation changes as the weight that Player A places on religious toleration z_a decreases to 0.6. There is once again a sub-game perfect equilibrium in pure strategies for all discount factors where A offers to B, B offers to A, and C offers to B. Interestingly, this has an effect of significantly lowering the expected rate of capital taxation, and this rate remains low even for very high discount factors. This result is attributable to the fact that A is able to propose a capital tax rate of 0 in equilibrium.

In sum, the results show how bargaining between legislators in the context of multiple issues can lead to lower rates of taxation on capital than would prevail if players bargained exclusively over tax policy. This effect will be larger the less weight that capital owners place on the issue of religious toleration. The effect will also be larger when liberal landowners derive a small fraction of their income from capital. To the extent that cross-issue bargaining leads to expected rates of capital taxation which are sufficiently low that owners of capital will save and invest (that is if $1-\theta^e > 1/(1+r)$, then we can say that it improves possibilities for credible commitment.

Figure 2: Expected capital taxation
under alternative bargaining scenarios



Example 1: $z_a=z_b=z_c=0$; e_a=-1, e_b=1, e_c=1. Example 2: e_a=-1, e_b=1, e_c=1, z_a=1, z_b=1, z_c=-1. Example 3: e_a=-1, e_b=0.6, e_c=1, z_a=1, z_b=1, z_c=-1. Example 4: e_a=-1, e_b=1, e_c=1, z_a=0.6, z_b=1, z_c=-1.

5. Political parties and credible commitment

While the presence of salient issues such as religion or foreign policy may lower expected rates of taxation, in the bargaining game described above, it is also worth considering what effect political parties might have on commitment. In the bargaining game specified two players might be able to significantly improve their expected utility if they could cooperate by agreeing to support a common policy platform, or in other words to form a party. As an example, if capitalists and liberal landowners could agree to form a political party, and thus exclude the conservative landowners from any majority, the effect might be to both increase their expected utility and this might also lower the expected tax rate on capital. The result would be for commitment to a low capital tax rate to emerge as a byproduct of coalition bargaining between heterogeneous interests. Party formation in the context of a legislative bargaining game has been considered by Jackson and Moselle (2000) and Calvert and Fox (2000) who draw on earlier ideas presented by Schwartz (1989) and Aldrich (1995). [25]

While so far I have considered players who are risk neutral, it is worth noting that the effect of forming a party would be even greater to the extent that players are risk averse. In the non-cooperative equilibria presented above, while there is a single expected rate of capital taxation and of land taxation, the actual tax rates can still vary widely, from as little as 0% to as much as 100%, depending on which player is selected to make a proposal. Admittedly, the uncertainty present in this result derives directly from the modeling assumption that agenda-setting powers are randomly assigned. If it were known in advance that one player will control the agenda in the future, this uncertainty would be removed. However, adopting this alternative assumption would then beg the question why the player in consideration was granted agenda setting power in the first place? What's more, Diermeier and Merlo (1999) have found that alternative conjectures about legislative agenda setting, such as a selection rule where parties propose in order of their representation in the legislature, are not supported by empirical evidence. Ultimately, it makes strong intuitive sense

that random events are more likely to influence the identity of the agenda setter in a legislature without parties, and thus reducing uncertainty may provide an additional motivation for party formation.[26]

Following Jackson and Moselle (2000), the game proceeds in the same sequence of stages as in the previous section, except that at the outset a group of players may enter into a cooperative agreement to propose a specific set of policies if recognized and to vote to approve such a proposal if another member of the party is recognized. If a player outside the party is recognized, then party members vote to reject any proposal. This in effect ensures that the party platform is implemented as policy. This specification can be taken as implicitly assuming that membership in a political party is an underlying repeated game in which players can commit to support a common party line, but for reasons of tractability one does not make this intra-party bargaining more explicit. At the end of this section I will relax this assumption and pursue an alternative provided by Calvert and Fox (2000) based on non-stationary strategies.

The next relevant question is what exact set of policies members of a party will adopt. Jackson and Moselle (2000) model party members as adopting the Nash bargaining solution, with the reservation payoffs determined by expected utility from the non-cooperative bargaining game (NC) when there are no parties. So, for example, the vector of policies x chosen by a party of A and B would maximize the following expression.

$$\underset{x}{\text{argmax}} \; [U_{a2}{}^{x} - U_{a2}{}^{NC}] \times [U_{b2}{}^{x} - U_{b2}{}^{NC}] \qquad (10)$$

A logical alternative for modeling intra-party bargaining would be to make it non-cooperative. This could be accomplished by specifying an alternating offers bargaining game with an exogenous risk of breakdown in each period (in which case the standard legislative bargaining game would begin

[25] Alternative models for the formation of political parties have been provided by Cox and McCubbins (1993) and Snyder and Ting (2000).
[26] Winter (1996) provides a similar justification for making a random agenda setter assumption in a different bargaining context.

without parties). However, Binmore, Rubinstein and Wolinsky (1986) show that introducing even a small risk of breakdown in this type of game frequently leads to an equilibrium which converges to the Nash Bargaining Solution.[27] For reasons of simplicity, then, this argues in favor of retaining the Nash Bargaining Solution for intra-party negotiations, recognizing that an alternating offers game would generate similar results. An additional feature of the way parties are modeled here is that it distinguishes between "significant" party behavior, which involves voting behavior that would not be observed in the absence of a cooperative agreement, and "party-like" behavior where party cohesion is attributable merely to preference similarities. As a result, it responds to Krehbiel's (1993) critique that voting cohesion alone is not sufficient to demonstrate that parties matter, since cohesion may simply reflect similarities in preferences.

As in the previous section, I consider several specific preference configurations, but in this case showing how outcomes can change if players form a political party. If players A and B are able to sign a binding agreement to support a party platform, then they will agree to full religious toleration (ρ=1), and they will then adopt a tax policy which maximizes the product of their utility gains, as in (11), below. It should be noted, though, that it may also be possible for B and C to both improve on their expected utility by forming a party, in which case the expected rate of taxation would be 1.[28]

$$\underset{(\theta-\tau)}{\text{argmax}} \left[(1+e_a(\theta-\tau)) + (1+z_a) - U_{a2}^{NC}\right] \times \left[(1 + e_b(\theta-\tau)) + (1+z_b) - U_{b2}^{NC}\right] \quad (11)$$

Example 1: single issue bargaining

The results of example 1, where players bargain only about taxation, are straightforward. It is impossible for A to form a party with either B or C, but

[27] This applies as long as time periods are relatively short or players do not discount the future too heavily. It seems plausible that a time period for intra-party bargaining would be shorter than the length of a time period for legislative bargaining.

[28] It is not possible in any of the examples for A and C to improve on their expected utility by forming a party.

B and C can improve on their expected utility by forming a party. Thus in this model parties cannot improve commitment in the absence of a second issue dimension.

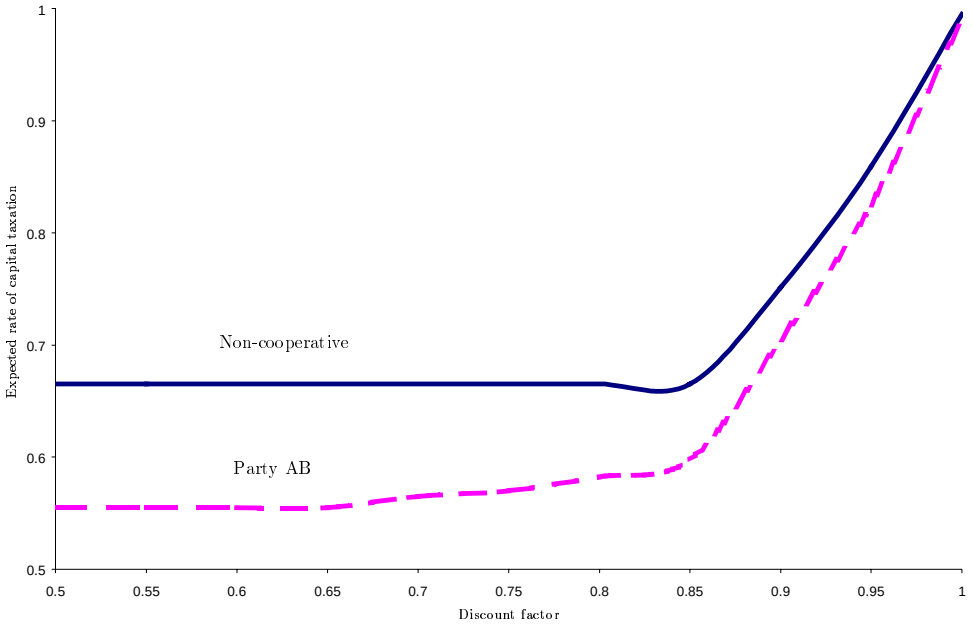
Example 2 : Multiple issues : In examples 2-4, due to the fact that players place a non-zero weight on a second issue dimension, it is possible even if they are risk neutral for players A and B to improve on their expected utility by forming a party. In example 2 Player A owns only capital and favors religious toleration (e= -1, z=1), Player B owns only land and favors toleration (e=1, z=1), and Player C owns only land and opposes toleration (e=1, z= -1). While policy in terms of religious toleration is altered when compared to the non-cooperative equilibrium, the expected rate of capital taxation produced by Nash bargaining between A and B is in fact identical to the expected outcome of the non-cooperative equilibrium. This result reflects two things. First, B would lose less than would A from a breakdown in intra-party bargaining and subsequent reversion to the non-cooperative equilibrium. This then influences the outcome of Nash Bargaining between A and B. In addition, due to their identical preferences with regard to religious toleration, A realizes a substantial utility gain from forming a party with B even if the expected capital tax is unchanged. Finally, it should also be noted that it would be possible for B and C to form a party given these parameter assumptions.

Example 3: Multiple issues, effect of a decrease in e_b: As previously, example 3 simulates the effect of a decrease in e_b so that Player B is now assumed to derive 20% of her income from capital. In example 3 for all $\delta<1$ the expected rate of capital taxation with a party of A and B is lower than in the non-cooperative equilibrium (see Figure 3). This is an intuitive result reflecting the fact that B suffers less of a utility loss from compromising on the taxation dimension and that her preferences with respect to religious toleration are identical to those of player A.

Example 4: Multiple issues, effect of a decrease in z_a: This example demonstrates how taxation is affected when Player A places less weight on the issue of religious toleration than on that of taxation. As in example 3, Nash bargaining between A and B now produces an expected rate of capital taxation which is lower than in the non-cooperative equilibrium for all $\delta<1$, as illustrated in Figure 4 below.

Another important effect of parties (not captured in the results presented here) would be reduced uncertainty for risk averse legislators. In examples 2, 3, and 4, the establishment of a party between A and B removes uncertainty regarding the actual rate of capital taxation, because A and B will propose the same policy, and any policy proposed by C will never receive majority support. The greater the extent to which owners of capital are risk averse, then, the greater the utility gain from forming a political party based on a compromise with liberal-minded landowners.

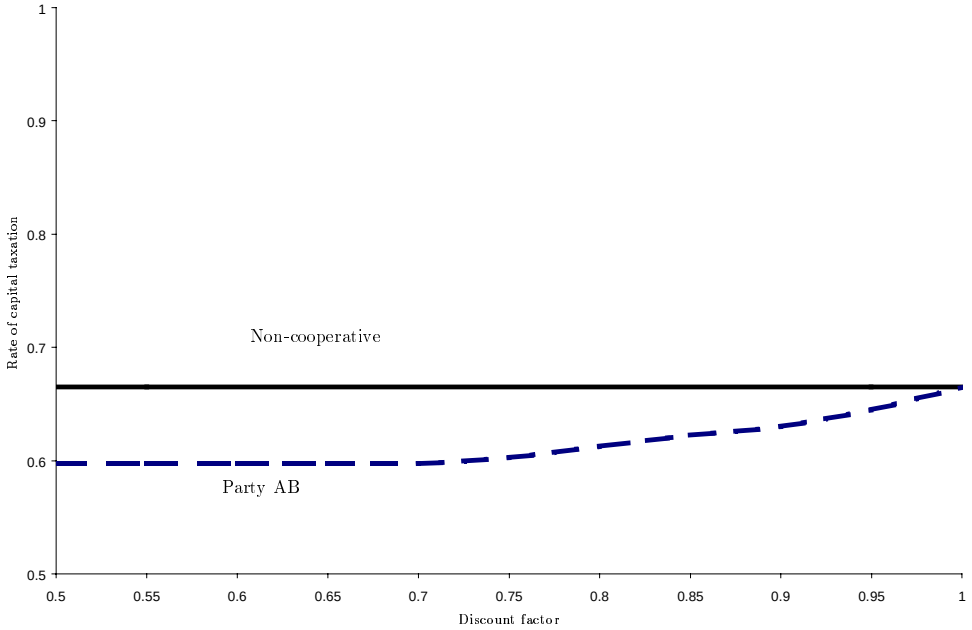
Figure 3: Effect on capital taxation of a Party between A and B
(Example 3)



Paramete

r Assumptions: e_a=-1, e_b=0.6, e_c=1, z_a=1, z_b=1, z_c=-1.

Figure 4: Effect on capital taxation of a Party between A and B
(Example 4)



Parameter Assumptions: e_a=-1, e_b=1, e_c=1, z_a=0.6,z_b=1,z_c=-1.

Party Stability

The major unaddressed issue in Jackson and Moselle's formalization of parties involves the assumption that once they form a party, individual members can commit to proposing only the agreed set of policies if recognized and to voting only in favor of identical proposals. Modern political parties have evolved a number of different disciplinary devices which can help solve this problem. So, for example, party leaders frequently have the prerogative to select and de-select candidates who wish to run on the party's ticket. A second possibility, modelled by Diermeirer and Feddersen (1998) and Huber (1996) is that legislative prerogatives, such as the ability for a prime minister to call a vote of confidence, can also promote party discipline.

Calvert and Fox (2000) have made a significant advance towards incorporating mechanisms of party discipline within a legislative bargaining model that they extend to a repeated game (in this case one which does not end once an initial set of policies is chosen). In their model party members can pursue non-stationary strategies that involving sanctioning any member who deviates from an agreed party platform. The sanctioned member thus goes into "bad standing", implying exclusion from benefits shared by the party. The punishment strategy used is limited in the sense that a player only remains in "bad standing" for a finite number of periods.[29]

The model developed by Calvert and Fox (2000) is clearly appealing in that it more explicitly models how real-world political parties function. This also involves additional complexity, though, in terms of extending the Baron-Ferejohn framework to a repeated game context. They deal with this problem in part by restricting their attention to a game where preferences are homogeneous and legislators bargain over how to divide a fixed sum of benefits. In order to consider how parties influence the credibility of capital taxation, however, it is necessary to assume heterogeneity of preferences between owners of land and capital.

[29] Jackson and Moselle propose an alternative definition of a "stable" party as being the party which provides each member with greater utility than could be obtained from any other potential party.

A further problem involves the reversion outcome in the event that no policy receives majority support. In the purely distributional game modeled by Calvert and Fox (2000), this problem is avoided by the fact that in each period the reversion outcome is a payoff of 0 for all players, since in each period there is a fixed sum of resources to be divided. When one considers issues such as taxation and religious toleration, in contrast, the reversion payoff may not be equal to 0. It may be the payoff which players derive from the policy which received majority support in the previous period. This adds a further degree of complexity, since it implies modeling a dynamic game where each period is not identical.[30]

In order to pursue the issues investigated by Calvert and Fox (2000), but in a context of heterogeneous preferences, I briefly consider whether players who form a party can enforce cooperation by the use of trigger punishment strategies. I do this to demonstrate how a party could be sustained as an equilibrium strategy profile of a repeated game, while recognizing that constructing a fully satisfying model in a context of heterogeneous preferences remains a subject for future research. In example 2, if player B formed a party with player A, she might subsequently defect by proposing her own ideal point rather than the agreed party platform, but A could respond by reverting to its equilibrium strategy from the one-shot non-cooperative game. If one retains the assumption that the reversion payoff is zero, then it is straightforward to show that as long as their discount factor is not too low, A and B can sustain party cooperation based on the knowledge that defections will be punished by the other player reverting to non-cooperative behavior. Each period of the repeated bargaining game proceeds in the following sequence

1. Players who own capital choose whether to consume their capital endowment or to save it
2. One of the three players is chosen at random to propose a set of policies (θ-τ and ρ) which is then voted on, without possibility for amendment, under simple majority rule. If two players vote in favor of the proposal, the policy is implemented.

[30] Baron and Herron (1999) have examined bargaining under these conditions in a finitely repeated game, finding that the game is "remarkably poorly behaved".

3. If two players do not support the proposal, each player receives a payoff of 0.

If players A and B follow a strategy of cooperating unless a defection occurs, and subsequently reverting to non-cooperative behavior for the rest of the game, then the following inequality needs to be satisfied in order for B not to have an incentive to defect from a party with A in equilibrium (given that 4 would be the one period payoff for B if it is recognized, which is true for examples 2-4). In examples 2, 3, and 4 it is possible to satisfy this inequality for some range of discount factors.[31]

$$U_{b2}^{party}/(1-\delta) > 4 + \delta(U_{b2}^{NC})/(1-\delta) \qquad (12)$$

Satisfying the above inequality demonstrates that a party of A and B *could* be sustained as an equilbrium set of strategies in an infinitely repeated game, but this does not of course demonstrate that party cooperation *will* be sustained. What's more, it is also possible in examples 2-4 for B and C to sustain a party for some range of discount factors. As a result, while modeling parties as equilbrium strategy profiles in a repeated game allows one to demonstrate possibilities for party formation, this cannot predict unambiguously which party will form. Finally, if a party is modelled as a non-stationary strategy profile in a repeated bargaining game, then it is also important to note that there are multiple party platforms which could be sustained for either a party AB or a party BC. This corresponds closely to the result in Bawn (1999) where different divisions of payoffs between two members of a coalition correspond to different "ideologies".

A final point to add to this discussion involves what happens if the reversion payoff in each period is some value other than zero. In practice, the reversion payoff is likely to be that associated with the policy chosen in previous periods. Given the configuration of preferences in examples 2-4, this could decrease possibilities for A and B to sustain a political party based on trigger

[31] And the range of discount factors for which the inequality can be satisfied is consistently larger than the range of discount factors for which A,B, and C could sustain a moderate rate of capital taxation in a repeated game where taxation was the only issue considered. As such, the presence of a second issue dimension and possibility for players to form a political party

strategies. Say the reversion point is the policy agreed to in the previous period, then B defects from a party with A by proposing its own ideal point to C, who accepts. For subsequent periods there is no point which would offer both A and C a higher payoff. However, any policy which lies on the diagonal between (1,1) and (-1,-1) would offer both A and C an equivalent payoff. This raises the possibility that A could respond to B by proposing one of these policies. As already mentioned, modeling this possibility would add a considerable degree of complexity to the model, however, because once the reversion payoff becomes history-dependent, the interaction between A, B, and C could no longer be modeled as a standard repeated game where the structure of each period is identical.

6. Extensions

So far, I have considered the politics of capital taxation in a context where there is a single representative assembly, where the economic environment is static, and where there is no possibility for delegating any policy functions to bureaucratic authorities. This section considers several possible extensions to the model.

Multiple veto points

A common argument made by North and Weingast (1989) and others is that establishing multiple veto points in government increases possibilities for credible commitment. Multiple veto points can involve institutional mechanisms, such as a crown sharing sovereignty with parliament, bicameralism, the sharing of power between a democratically elected executive and a legislature, and more generally, the establishment of any institution which makes it necessary to obtain the assent of more actors than the simple majority of a single legislative chamber. One tractable way of modeling these effects is to consider how expected levels of capital taxation change when one of the three players in the game presented above is given the right to veto any proposal.[32]

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significantly expand opportunities for commitment beyond those described in more simple reputational equilibria of the sort described in section 2.

[32] See Nolan McCarty (2000)

This veto right might be taken as proxying for a player's enjoying majority control within a second legislative chamber.

If it is specified in advance which player has veto rights, then, not surprisingly, expected capital taxation is significantly lower when capital owners (player A) have veto power. In Example 1, where players care only about the tax dimension of policy, if Player A can veto any proposal, then the expected rate of capital taxation is 0.67 for all discount factors. This represents a significant reduction in expected taxation when compared with the result when A does not enjoy veto power.[33] In Example 2 where players give equal weight to both the issue of taxation and religious toleration, the effect of granting A veto power is also significant, as expected capital taxation tends towards 0 as $\delta \rightarrow 1$ (further detail is presented in the appendix).

While in some contexts owners of capital faced with investment decisions may know which legislators will enjoy veto power, in many cases it seems likely that there will be significant uncertainty about future control of veto points. As a result, it makes sense to consider how expected capital taxation would be affected if veto power in the future is assumed to be allocated randomly. If one player is randomly assigned veto power but capital owners must make their investment decision before veto power is assigned, then in Example 1 expected taxation is only marginally lower than when there is no veto player.[34] The effect of a random veto player on capital taxation is much more significant in Example 2, as expected capital taxation ranges between 0.65-0.70 for all discount factors.[35]

Clearly, these conclusions with regard to veto players are specific to the preference profile I have assumed, but they nonetheless suggest that in cases where a majority has an incentive to act opportunistically, creating multiple

[33] The results are unchanged in example 1 if B or C have veto power, since they have identical preferences and even in the absence of veto rights, a majority cannot be formed without either the agreement of B or C.
[34] The maximum reduction in expected capital taxation is by 0.12 which occurs when $\delta=1$.
[35] This result might seem surprising. The explanation lies in part in the fact that relative to the non-veto player equilibrium, A modifies her proposed $(\theta-\tau)$ less when C is a veto player than does C when A is a veto player. In addition, relative to the non-veto player equilibrium, B lowers her proposed $(\theta-\tau)$ when A is drawn as a veto player, while she cannot raise her proposed $(\theta-\tau)$ when C is a veto player, because B already proposes $(\theta-\tau)=1$ in the no veto player equilibrium. Finally, when drawn as a veto player C does not raise her equilibrium proposal for $(\theta-\tau)$ either, because she too already proposes $(\theta-\tau)=1$ in the no veto player equilibrium.

veto points may have a greater impact on commitment when political bargaining involves multiple dimensions of policy.

Revenue shocks

My consideration of capital taxation to this point has assumed a situation where there are no economic shocks to complicate policy planning. In reality, exogenous events frequently oblige policy makers to make adjustments in policies such as the level of taxation. For example, the amount of finance yielded by government taxes on land income and capital income will vary with trends in economic growth. If taxes produce less revenue than projected, then a government will either have to decide upon new taxes, cancel certain spending items, or decide to borrow to cover the shortfall.

Uncertainty over how much finance a given tax rate will yield has significant implications for the credibility of debt repayment. Take a situation where an actor has purchased a government bond based on the expectation that legislative bargaining will result in a tax rate on capital which is sufficiently low to make the investment profitable at prevailing interest rates.[36] If subsequently a negative economic shock results in a shortfall in revenues, then repaying debts may require a decision on tax increases or new loans. This could undermine the bargaining position of bond holders if they risk going without repayment for one or more periods.

Exogenous shocks to government revenues could be incorporated into the model by adding a stochastic component ε to the government budget constraint, as in equation 13 below, and by having this stochastic component only be revealed after decisions regarding taxation have been made. Any realization of ε other than zero will require a new round of bargaining, either to distribute the surplus if ε is positive, or to levy new taxes if ε is negative.

$$g = \tau l + \theta k_2 + \varepsilon \qquad (13)$$

[36] This would of course also be predicated on the expectation that the government will not vote to default on its bonds.

If the realization of ε is negative, and government spending g is allocated to both provision of a public good, such as security, and to repayment of debt, then players may face different costs of delay in reaching a new agreement. In particular, if the revenue shortfall leads government bond-holders to go unpaid, then, the reversion payoff for bond holders if there is no agreement will be lower than otherwise.

Bureaucratic Delegation

One way of reducing the uncertainty provoked by revenue shocks is to establish bureaucratic procedures which ensure that first priority in allocation of revenues is given to servicing of government debt. In the simplest case this could be established in the form of a rule requiring debt repayment to receive priority over other expenditure items. A complementary possibility would be to give an independent bureaucratic agency the responsibility for managing government revenue collection. The most common mechanism in Early Modern Europe for achieving this goal was to grant government creditors the right to directly collect specific taxes.[37] After 1688 in Great Britain a number of new institutional steps were taken to ensure that debt repayments received priority allocation of revenues.

The potential problem here is that in practice, a decision to delegate can be reversed, and it has been recognized since Weingast and Moran (1983) and before that political principals can use the implicit or explicit threat of revising an agency's statutes in order to influence bureaucratic behavior. Drawing on the sizeable political economy literature on bureaucratic delegation, we can make three predictions about the impact of a decision to delegate management of revenues.[38] First, if owners of capital lack either majority control of at least one representative assembly, or if they otherwise lack the power to veto a decision to reverse delegation, then bureaucratic delegation will be meaningless, because landowners will find it easy to override any decision made by a nominally independent bureaucratic authority. Second, if owners of capital control all veto points in a political system, then bureaucratic delegation will be superfluous. Capitalists will have the power to block any decision to override a

[37] See Tracy (1985)
[38] See McCubbins, Noll, and Weingast (1989), Epstein and O'Halloran (1999).

bureaucratic authority, but they would also have the power to protect themselves against opportunistic changes in taxation even in the absence of delegation. Following the logic of this argument, then, the principal circumstance under which bureaucratic delegation can make a difference is if owners of capital lack majority control to set tax policy in an unconstrained manner, but they do control at least one veto point, thus allowing them to block any attempts to override bureaucratic decisions.

7. Conclusion

Whether representative political institutions improve a government's ability to credibly commit depends fundamentally on the partisan preferences of the legislators who control these institutions. Given that in many cases the (re)establishment of parliamentary prerogatives over policy making has actually handed power to a majority which has an incentive to default on debt, I have argued in this paper that bargaining over additional issues, such as the degree of religious toleration, can lead to lower rates of taxation on capital owners than one would otherwise expect. In addition, political parties, conceived as mechanisms to cement deals between heterogeneous interests, can improve possibilities for commitment by reducing both the expected rate of capital taxation and uncertainty over bargaining outcomes.

References

Aldrich, John (1995), *Why Parties?,* University of Chicago Press.

Almond, Gabriel (1956), "Comparative Political Systems", *Journal of Politics*, pp.391-409.

Banks, Jeffrey and John Duggan (2000), "A Bargaining Model of Collective Choice", *American Political Science Review*

Baron, David (1989), "A Non-Cooperative Theory of Legislative Coalitions", *American Journal of Political Science*, vol.33, pp.1048-1084.

Baron, David (1991), "A Spatial Bargaining Theory of Government Formation in Parliamentary Systems", *American Political Science Review*, vol.85, no.1, pp.137-164.

Baron, David and John Ferejohn (1989), "Bargaining in Legislatures", *American Political Science Review*, vol.89, pp.1181-1206.

Baron, David (1994), "A Sequential Choice Theory Perspective on Legislative Organization", *Legislative Studies Quarterly*, vol.19, no.2, pp.267-296.

Baron, David and Michael Herron (1999), "A Dynamic Model of Multidimensional Collective Choice", mimeo, Stanford University.

Binmore, Ken, Ariel Rubinstein, and Asher Wolinsky, "The Nash Bargaining Solution in Economic Modelling", *Rand Journal of Economics*, vol.17, no.2, pp.176-88.

Bulow, Jeremy and Kenneth Rogoff (1989), "Sovereign Debt: Is to Forgive to Forget?", *American Economic Review*, vol.79, no.1, pp.43-50.

Calvert, Randall and Justin Fox (2000), "Effective Parties in a Model of Repeated Legislative Bargaining", paper presented to the Annual Meetings of the American Political Science Association.

Carruba, Clifford and Craig Volden, "Coalitional Politics and Logrolling in Legislative Institutions", *American Journal of Political Science*, vol.44, no.2, pp.255-271.

Cox, Gary and Mathew McCubbins (1993), *Legislative Leviathan*, University of California Press.

Diermeier, Daniel and Timothy Feddersen (1998), "Cohesion in Legislatures and the Vote of Confidence Procedure", *American Political Science Review*, vol.92, no.3, pp.611-621.

Diermeier, Daniel and Antonio Merlo (1999), "An Empirical Investigation of Coalitional Bargaining Procedures", mimeo.

Drazen, Allan (2000), *Political Economy in Macroeconomics*, Princeton.

Elster, Jon (2000), *Ulysses Unbound*, Cambridge University Press.

Epstein, David and Sharyn O Halloran (2000), *Delegating Powers*, Cambridge University Press.

Fischer, Stanley (1980), "Dynamic Inconsistency, Cooperation, and the Benevolent Dissembling Government", *Journal of Economic Dynamics and Control*, vol.2, pp.93-107.

Frieden, Jeffry (1993), "Making Commitments", in Barry Eichengreen and Jeffry Frieden (eds.), *The Political Economy of European Monetary Unification.*

Grandmont, Jean-Michel (1978), "Intermediate Preferences and Majority Rule", *Econometrica*, vol.46, pp.317-330.

Hoffman, Philip, Gilles Postel-Vinay, and Jean-Laurent Rosenthal (2000), *Priceless Markets*: *The Political Economy of Credit in Paris 1660-1879*, University of Chicago Press.

Jackson, Matthew and Boaz Moselle (2000), "Coalition and Party Formation in a Legislative Voting Game", *Journal of Economic Theory*, forthcoming.

Kehoe, Patrick (1989), "Policy Cooperation Among Benevolent Governments May be Undesirable", *Review of Economic Studies*, vol.56, pp.289-296.

Knight, Jack and Itai Sened (1995), *Explaining Social Institutions*, Michigan.

Krehbiel, Keith (1993), "Where's the Party?", *British Journal of Political Science*, vol.23, pp.235-266.

Lijphart, Arend (1977), *Democracy in Plural Societies*, Yale University Press.

Lipset, Seymour Martin (1960), *Political Man*, Garden City, Doubleday.

Manin, Bernard (1997), *The Principles of Representative Government*, Cambridge University Press.

McCarty, Nolan (2000), "Proposal Rights, Veto Rights, and Political Bargaining", *American Journal of Political Science*, vol.44, no.3, pp.506-522.

McCubbins, Mathew, Roger Noll, and Barry Weingast (1989) "Structure and Process, Politics, and Policy: Administrative Arrangements and the Political Control of Agencies", *Virginia Law Review*, vol.75 no.2.

North, Douglass and Barry Weingast (1989), "Constitutions and Commitment: The Evolution of Institutions Governing Public Choice in 17th Century England", *Journal of Economic History*, vol.69, pp.803-832.

Persson, Torsten and Guido Tabellini (1994), "Representative Democracy and Capital Taxation", *Journal of Public Economics*, vol.55, pp.53-70.

Prescott, Edward (1977), "Should Control Theory be Used for Economic Stabilization" in *Carnegie-Rochester Conference Series on Public Policy*, vol.7 pp.13-38.

Przeworski, Adam (1993), "Political *Regimes* and Economic Growth", *Journal of Economic Perspectives*, vol.7, no.3, pp.51-69.

Roemer, John (1999), "The Democratic Political Economy of Progressive Income Taxation", *Econometrica*, vol.67, no.1, pp.1-19.

Roemer, John (1998), "Why the Poor do not Expropriate the Rich: an Old Argument in New Garb", *Journal of Public Economics*, vol.70, pp.399-424.

Rubinstein, Ariel (1982), "Perfect Equilibrium in a Bargaining Model", *Econometrica*, vol.50, pp.97-109.

Sargent, Thomas and François Velde (1995), "Macroeconomic Features of the French Revolution", *Journal of Political Economy*, vol.103, no.3, pp.474-518.

Schofield, Norman (1995), "Democratic Stability", in Jack Knight and Itai Sened (eds.), *Explaining Social Institutions*, Michigan.

Schwartz, Thomas (1989), "Why Parties", mimeo, UCLA (cited in Aldrich)

Sened, Itai (1996), "A Model of Coalition Formation: Theory and Evidence", *Journal of Politics*, vol.58, no.2, pp.350-372.

Shepsle, Kenneth (1979), "Institutional Arrangements and Equilibrium in Multidimensional Voting Models", *American Journal of Political Science*, vol.23, pp.27-59.

Snyder, James and Michael Ting (2000), "An Informational Rationale for Political Parties".

Stasavage, David (2000), "Political Institutions, Partisan Politics, and Credible Commitment in Early Modern Europe: North and Weingast Revisited", mimeo LSE.

Tracy James (1985), *A Financial Revolution in the Habsburg Netherlands*, Berkeley.

Weingast, Barry and Mark Moran (1983). "Bureaucratic Discretion or Congressional Control? Regulatory Policymaking by the Federal Trade Commission", *Journal of Political Economy* 91: 5.

Winter, Eyal (1996), "Voting and Vetoing", *American Political Science Review*, vol.90, no.4, pp.813-823.

Appendix: solving for equilibria of the bargaining game.

This appendix demonstrates that there is a sub-game perfect equilibrium with the following sequence of offers: A-->B, B-->A, and C-->B for certain ranges of parameters in the legislative bargaining game. Any equilibrium in which this sequence of offers is made will satisfy the three constraints listed below. (where subscripts indicate a policy proposed by that player).

$2+e_b(\theta-\tau)_a+z_b\rho_a=\delta/3[(2+e_b(\theta-\tau)_a+z_b\rho_a)+(2+e_b(\theta-\tau)_b+z_b\rho_b)+(2+e_b(\theta-\tau)_c+z_b\rho_c)]$

$2+e_b(\theta-\tau)_c+z_b\rho_c=\delta/3[(2+e_b(\theta-\tau)_a+z_b\rho_a)+(2+e_b(\theta-\tau)_b+z_b\rho_b)+(2+e_b(\theta-\tau)_c+z_b\rho_c)]$

$2+e_a(\theta-\tau)_b+z_a\rho_b=\delta/3[(2+e_a(\theta-\tau)_a+z_a\rho_a)+(2+e_a(\theta-\tau)_b+z_a\rho_b)+(2+e_a(\theta-\tau)_c+z_a\rho_c)]$

If the set of proposals $\{(\theta-\tau)_a,\rho_a,(\theta-\tau)_b,\rho_b,(\theta-\tau)_c,\rho_c\}$ is a sub-game perfect equilibrium, then if selected to make a proposal, none of the three players must have an incentive to unilaterally deviate. Player B, for example, would deviate by offering to Player C if she could make a proposal $(\theta-\tau)_d$, ρ_d which would satisfy the following two inequalities.

$2+ e_b(\theta-\tau)_d+ z_b\rho_d > 2+ e_b(\theta-\tau)_b + z_b\rho_b$

$2+e_c(\theta-\tau)_d+z_c\rho_d>\delta/3[(2+e_c(\theta-\tau)_a+z_c\rho_a)+(2+e_c(\theta-\tau)_b+z_c\rho_b)+(2+e_c(\theta\ \tau)_c+z_c\rho_c)]$

As a final step, I demonstrate the existence of equilibria for the multi-issue bargaining examples considered in the paper.

Example 2

Given the parameter assumptions in Example 2, we can substitute for the following parameters: $z_a=1$, $z_b=1$, $z_c=-1$, $e_a=-1$, and $e_b=1$, $e_c=1$ and obtain the following solutions.

$\theta-\tau_a = (-27+45\delta-16\delta^2)/(9-9\delta+2\delta^2)$, $\rho_a=1$

$\theta-\tau_b = 1$, $\rho_b=1$

$\theta-\tau_c = 1$, $\rho_c=(-27+45\delta-16\delta^2)/(9-9\delta+2\delta^2)$

Given the configuration of preferences in this example, it is relatively simple to show that no player will ever deviate from these proposals. B proposes her own ideal point in equilibrium, and thus cannot improve on this outcome. A will only deviate if she can make a proposal $(\theta-\tau)_d$, ρ_d to C which satisfies the following two inequalities.

$\rho_d-(\theta-\tau)_d > 1 -(-27+45\delta-16\delta^2)/(9-9\delta+2\delta^2)$

$2+(\theta-\tau)_d- \rho_d>\delta/3[(1+(-27+45\delta-16\delta^2)/(9-9\delta+2\delta^2)+(2)+(3-(-27+45\delta-16\delta^2)/(9-9\delta+2\delta^2)]$

These simplify to the following which cannot be satisfied for $0 < \delta < 1$, and the same can be demonstrated for C's proposal.

$\rho_d -(\theta-\tau)_d > 1 - (-27+45\delta-16\delta^2)/(9-9\delta+2\delta^2)$

$2+(\theta-\tau)_d - \rho_d > 2\delta$

Example 3

Given the parameter assumptions in Example 2, we can substitute for the following parameters z_a=1, z_b =1 z_c =-1, e_a= -1, and e_b =0.6, e_b =1 and obtain the following solutions.

$\theta-\tau_a = (-36+54\delta-17\delta^2)/(6-6\delta+\delta^2)$, ρ_a =1

$\theta-\tau_b = 1$, ρ_b =1

$\theta-\tau_c = 1$, ρ_c =$(-15+24\delta+8\delta^2)/(6-6\delta+\delta^2)$

Example 4

Given the parameter assumptions in Example 2, we can substitute for the following parameters z_a=0.6, z_b =1 z_c =-1, e_a= -1, and e_b = 1 e_c = 1, and obtain the following solutions.

$\theta-\tau_a = (-135+219\delta-76\delta^2)/(45-45\delta+8\delta^2)$, ρ_a =1

$\theta-\tau_b = 1$, ρ_b =1

$\theta-\tau_c = 1$, ρ_c =$(-135+219\delta-76\delta^2)/(45-45\delta+8\delta^2)$

Equilibrium outcomes with veto players

Example 1

In this case when A is a veto player three constraints will need to satisfied. A will need to offer either B or C at least their continuation value, and B or C if recognized will need to offer A at least her continuation value

$1+ \theta-\tau_a = \delta/3[3+ \theta-\tau_a+\theta-\tau_b+ \theta-\tau_c]$

$1-\theta-\tau_b = \delta/3[3 - \theta-\tau_a- \theta-\tau_b- \theta-\tau_c]$

$1-\theta-\tau_c = \delta/3[3 - \theta-\tau_a- \theta-\tau_b- \theta-\tau_c]$

Which leads to the following equilibrium proposals

$\theta-\tau_a = 4\delta/3 - 1$

$\theta-\tau_b = 1-2\delta/3$

$\theta-\tau_c = 1-2\delta/3$

Example 2

In example 2 is A is a veto player, then in equilibrium A will offer to B, and both B and C will offer to A. The following continuation constraints will be satisfied. In order to solve this system of equations I have assumed that $\rho_c = -(\theta-\tau_c)$. If I had specified utility functions with a degree of risk aversion, then the equilibrium proposal by C would satisfy this constraint.

$3+(\theta-\tau_a) = \delta/3[(3+(\theta-\tau_a))+(3+(\theta-\tau_b))+(2+(\theta-\tau_c)+\rho_c)$

$2-(\theta-\tau_c) +\rho_c = \delta/3[(3-(\theta-\tau_a))+3-(\theta-\tau_b))+(2-(\theta-\tau_c)+\rho_c)$

$3-(\theta-\tau_b) = \delta/3[(3-(\theta-\tau_a))+3-(\theta-\tau_b))+(2-(\theta-\tau_c)+\rho_c)$

This leads to the following equilibrium proposals

$\theta-\tau_a = -(27-51\delta+25\delta^2)/(9-9\delta+\delta^2)$

$\theta-\tau_b = (27-45\delta+17\delta^2)/(9-9\delta+\delta^2)$

$\theta-\tau_c = (9-18\delta+8\delta^2)/(9-9\delta+\delta^2)$

If C is instead chosen as a veto player, then both A and B will offer to C, and C will offer to B with the following tax rates in equilibrium.

$\theta-\tau_a = -(9-18\delta+8\delta^2)/(9-9\delta+\delta^2)$

$\theta-\tau_b = 1$

$\theta-\tau_c = 1$