

Chapter 6: The Economics of Constitutional Exchange: Taxation and Constitutional Reform

The theory of governance developed to this point provides a rational choice explanation for the general architecture of European governance, for peaceful governmental reform, and for the existence of divided governance. To explain the transition to the contemporary architecture of Western Democracy, however, requires analysis of a few more specific aspects of governance and opportunities for reform within the king and council template. This more focused analysis is undertaken in the next three chapters.

Regional governments have the ability to impose binding rules and fees (taxes) on persons throughout their territories, whether members of government, voluntary customers, or not. This—perhaps surprisingly—provides additional economic reasons for divided governance and other opportunities for constitutional exchange. Of particular interest is that territorial governments can exchange more or less permanent changes in taxes and other revenues for new political authority. Such bargains can explain particular forms of divided governance that were common in medieval Europe and similar bargains that played a central role in the rise of Parliament-dominated governance in the nineteenth century. Mathematics from rational choice-based political science and economics is used to demonstrate these possibilities, although again the prose provides the intuition that motivates the models and the results.

A. Why an Almost Omnipotent Territorial Ruler Might Grant Veto over Taxes to a Council

As a point of departure, consider one of the polar cases of the king and council template: one-man rule with an advisory council. Suppose that the king can collect any taxes that he wishes and spend the money as he sees fit without necessarily taking account of the policy interests of his advisors or others outside government. The council is initially

used as a source of information and advice, but plays no direct role in policy formation. For purposes of analysis, assume that the king has a utility function defined over his own private consumption, X , and two government services, guns, G_1 , and butter, G_2 :

$$U = u(X, G_1, G_2) \quad (6.1)$$

The king's budget constraint is determined by his own household wealth, W , which is usually considerable; the taxes that he levies, T ; the cost of government services; and his personal consumption. Using personal consumption as the numeraire good allows the constraint to be written as $T + W = X + c(G_1, G_2)$, or

$$X = T + W - c(G_1, G_2) \quad (6.2)$$

where c is a separable convex cost function of the two government services. Substituting for personal consumption and differentiating with respect to the control variables T , G_1 , and G_2 yields the following first-order conditions that characterize the unfettered king's preferred fiscal policy:

$$U_{G1} - U_x C_{G1} = 0 \quad (6.3)$$

$$U_{G2} - U_x C_{G2} = 0 \quad (6.4)$$

$$U_x = 0 \quad (6.5)$$

The first two first-order conditions imply that the king sets public service levels so that the marginal utility of the service equals its marginal cost in terms of his diminished personal consumption of the private good. This implies that taxes will be collected until the marginal utility of his additional personal consumption falls to zero.

Taxation and Creditable Commitments

Note that the marginal utility of consumption reaches zero only if the king has sufficient household and tax revenue to *achieve satiety in all goods*. ($U_x = 0$, implies that both U_{G1} and U_{G2} also equal zero at the utility-maximizing public policy.) Whether this is feasible or not depends both on the king's preferences and the extent to which tax revenue may be "squeezed" from the kingdom. The tax base of the kingdom is clearly constrained by the wealth of the kingdom, which in most cases derives from the

productive abilities and efforts of the king's subjects as well as the country's endowment of natural resources. If the king's tastes are not such that satiation occurs within the feasible range of the kingdom's output, he will be disposed to tax away the full surplus of the kingdom.⁵²

Unfortunately for the king, if every subject in the kingdom expects all of their production above subsistence to be taken by the government, there is no private incentive to produce a taxable surplus and none will be produced.⁵³ To obtain the hypothetically maximal tax revenue, the king must essentially enslave the entire population of the kingdom. If generalized slavery is not feasible or is very expensive to realize, the king's control over tax revenues will necessarily be less than absolute, even though he has complete control of tax instruments and rates.

The possibility of tax resistance creates an opportunity for constitutional exchange between a nearly all-powerful king and those who pay the taxes. In exchange for a commitment to take only a specific fraction of the surplus, the subjects might agree to provide more tax revenue by producing more surplus. To make the promised tax limitation credible (and *creditable*), the king may also promise to seek the approval of those taxed before increasing tax rates in the future.⁵⁴ Institutionalized veto power over taxation makes the promise of leviathan credible, because it provides council members who represent the interests of (major) taxpayers with a method of avoiding future tax increases,

and once enacted the king has incentives to abide by the new procedures. In effect, the king trades veto power on future tax increases for additional tax revenues. The subjects pay greater taxes than they would have in the absence of veto power, but they receive a more creditable promise of lower future tax rates, which allows the subjects a more certain and greater share of their own future surplus production.⁵⁵

Granting Veto Power to a Council of Taxpayers

The value added by a tax council can easily be demonstrated. In the case in which the council lacks veto power, the process of taxation can be represented as a three-stage game. In the first stage, the king announces a tax rate; in the second, the subjects produce their output; in the third, the king collects his taxes. In a one-shot game, the king would announce a very low tax in period 1, but subsequently, take the entire surplus produced in period 3 regardless of the tax announced in period 1. Forward-looking subjects would anticipate the final confiscatory tax and produce no taxable surplus. Consequently, the king's tax revenue in period 3 would be zero in equilibrium. Constitutional gains to trade are clear. A tax institution that increases the income of taxpayers and revenue for the king makes each better off.

The existence of a council with veto power over tax increases transforms the three-stage into a four-stage game. In the fourth stage, the council may veto any increase

⁵² Mancur Olson (1993, 2000) uses the residual claimant status of the king to argue that the king has an encompassing interest in the economic output of his kingdom. He will consequently invest in infrastructure, education, and a court system to the extent that these "inputs" lead to greater national output and tax revenue.

⁵³ This is intuitively obvious, but can easily be demonstrated. Consider a typical farmer-taxpayer whose utility is $U = u(L, Y)$ where $Y = (1-t)f(H-L, G_1, G_2)$, t is the marginal tax rate, f is the taxpayer's strictly convex production function of farm output, L is leisure, and H is the available hours in the day. $H-L = W$, the hours spent farming. Y can be regarded as income greater than subsistence income. The taxpayers work $H-L^*$ hours, and L^* is such that $U_L - U_Y(1-t)F_W = 0$. Note that given U monotone increasing, twice differentiable, and concave, whenever $t = 100\%$, a corner solution emerges with $L^* = H$. Subsistence output, $Y=Y^S > 0$, is required to survive, so leisure is $L^* = H - f^{-1}(Y^S)$.

⁵⁴ North and Weingast (1989) argue that the transfer of control over government finances from the king to the British Parliament in the Glorious Revolution made the king substantially more creditworthy. Veto power over new taxes had existed in England since the signing of the Magna Carta in 1215, which granted such power to an elected council of 25 barons (section 61). Similar arrangements were commonplace throughout Europe during the late Middle Ages. These veto powers, however, had eroded somewhat as kings and queens attempted to void their medieval tax constitutions.

⁵⁵ Buchanan and Brennan (1980) analyze the tax code and tax base that might be adopted at a constitutional convention of all taxpayers. Although their analysis clearly influences the approach taken here, their research neglects institutional features required to constrain "leviathan." No mention of a tax council to enforce the tax code is, however, mentioned. In the present analysis, the tax code and tax council are adopted by leviathan, rather than a constitutional convention, although clearly similar institutions would be adopted by a council of taxpayers that hires a chief executive to oversee the production of their local public services.

in taxes announced by the king in period 3.⁵⁶ In the four-stage game with a council veto over tax increases, an income-maximizing king announces the revenue-maximizing proportional tax rate in period 1, given the productive propensities of his subjects, or perhaps announce a lump-sum or head tax that allows a substantial surplus to be realized by tax-paying subjects.⁵⁷ Because the revenue-maximizing tax rate is less than 100%, the subjects produce a surplus above subsistence, knowing that they will be able to keep a part of it, and the king collects taxes according to the announced tax schedule.

It bears noting that *no vetoes will be observed* when the system is working smoothly; consequently, such councils may well appear to be “toothless.” Nonetheless, in the absence of the council’s veto power over new taxes, both the king and the kingdom would have been substantially poorer. The mutual advantages achieved by this constitutional reform are clear.

This institutional arrangement is surprisingly stable once in place because the institutional structure is (often) subgame perfect. The king cannot formally reduce the veto power of the council without substantially undermining the tax base. For example, the king cannot simply add another stage to the game in which the king can accept or reject the council’s veto. In such a game, an income-maximizing king would always be inclined to raise taxes in period 3 and then overturn the council’s veto in period 5, taking the entire surplus. Production would again fall to near subsistence levels, and the taxable base would again approach zero.

Nor can the king occasionally renege on his assignment of veto power to the council by suddenly calling out the army, because his future tax receipts would tend to fall in future periods. Producers would simply discount the constitutional promise and produce

less to be taxed in future periods, because the anticipated interventions of the army or royal tax collectors increase the effective rate of taxation.

The taxpayer response to confiscatory taxation—reduced production—is credible as long as production is a costly activity for the subjects and the king is not able to reduce his subjects to abject slavery.⁵⁸

The discrete strategy sets of these games exaggerate the productivity of medieval tax constitutions, somewhat, although they illustrate the financial advantage that a king may realize from adopting a tax constitution in reasonably stable economic circumstances. Nonetheless, this theoretical possibility has several real-world counterparts.

To secure a more predictable or less costly tax revenue stream, medieval kings often agreed to create councils or parliaments composed of major taxpayers and to vest those councils with substantial veto power over taxation. Perhaps the most famous of these formal agreements is the British Magna Carta of 1215, which among other provisions established a representative council of 25 barons that made decisions via majority rule and had the power to veto new royal taxes. Similar political arrangements that formally vested veto power in councils representing taxpayer interests were also adopted in France, Spain, Germany, and Sweden at around the same time (Palmer and Colton 1965: 29–31). These tax constitutions were amazingly stable, lasting for many centuries in most cases. Indeed, the tax councils were often far more stable than the territories governed by them.

B. Creating a Legislature through Constitutional Exchange

Granting veto power over taxation is a significant shift of power from the king to the council, even if the king continues to dominate other aspects of policy formation in the

⁵⁶ Taxpayer utility always diminishes in t whenever tax receipts are increased to support additional consumption for the royal household. Given $U = u(L, Y)$ and $Y = (1-t)f(H-L, G_1, G_2)$, after tax utility can be written as $U^* = u(L^*, (1-t)f(H-L^*, G_1^*, G_2^*))$. The envelope theorem implies that $U^*_t = U_Y [-f(H-L^*)] < 0$.

⁵⁷ Note that a lump-sum tax cannot be truly lump sum when it is bounded by production of the taxable base. If no more than is produced can be taken, farmers will produce a surplus only when the net of tax utility realized after tax is greater than that associated with subsistence.

⁵⁸ I neglect many aspects of long-term continuous dealings to avoid the ambiguities of the folk theorem, which demonstrates that a wide range of equilibria are possible if one or both parties is able to make creditable commitments to particular intertemporal responses. Note, however, that the equilibria developed above are consistent with the folk theorem. For example, if the taxpayers can make a creditable commitment to reducing their taxable surplus to zero, the behavior assumed above would be equilibrium strategies in infinitely repeated games as well.

ensuing regime. We now examine circumstances under which a king might voluntarily agree to cede some direct control over government programs to the council. Such transfers of power *transform a tax council into a legislature*.

To do so, four possible transfers of policymaking power from a strong king to a weak council are analyzed below: (a) partial veto power over policy proposals, (b) complete veto power, (c) partial agenda control over policy proposals, and (d) complete agenda control. The focus of the next four subsections is the extent to which shifts of power may potentially decrease the king's welfare and increase that of the council. The analysis parallels that of the previous chapter, but focuses attention on decisive councils in circumstances in which changes are thought possible and the council has veto power over new taxes. The aim is to develop a more rigorous and tractable model of the market for power between the king and parliament.

More on the General Disinterest in Constitutional Reform in Stable Political and Economic Circumstances

As a point of departure, suppose that the tax constitution developed above has been adopted and the king has complete policymaking power. A secure king with complete control over public policy will use "his" revenue to secure his ideal combination of public services G_1 and G_2 , given his veto-constrained tax revenue, T^0 , and his household income, Y . Substituting the veto-constrained tax revenue into his budget constraint, solving for personal consumption, and substituting the result into his utility function yields:

$$U = u(T^0 + Y - c(G_1, G_2)), G_1, G_2 \quad (6.6)$$

which has two control variables, G_1 and G_2 , and two first-order conditions similar to those above:

$$U_{G1} - U_x C_{G1} = 0 \quad (6.7)$$

$$U_{G2} - U_x C_{G2} = 0 \quad (6.8)$$

Together the first-order conditions imply that the king's optimal policies are determined by his household income and the constraint imposed by the tax constitution:

$G^{1*} = g(Y + T^0)$ and $G^{2*} = h(Y + T^0)$. As long as the king's personal income and the tax constitution are stable, these expenditure policies remain ideal as far as the king is concerned. The subjects may prefer more butter and fewer guns, or perhaps more of each with a more modest level of personal consumption by the king, but, under the existing institutional arrangements, they have no power to influence government services levels.

At this equilibrium, there may be unrealized potential gains from fiscal exchange. The council members may wish that a different combination of public services had been provided. Given this, the tax council is, in principle, willing to exchange higher permanent taxes in exchange for a new pattern of expenditures. It is clear, however, that the king's "agreement" is not sufficient to achieve this fiscal bargain. The king may accept a permanent increase in tax revenue from T^0 to T^1 , but fail to change public policies once he has the additional tax receipts.

Moreover, granting the council veto power over *public* expenditures does not, in this case, necessarily secure the king's promise. The king may accept the additional revenue, but use it to build a new wing on his castle, rather than to increase either public service. Insofar as no new government service levels are proposed, *the council has nothing to veto*. The same logic holds for agenda control for cases in which the king retains veto power. Here the council may propose a new pattern of expenditure, and the king may simply veto it, leaving the status quo service levels unchanged, but increasing his personal consumption. Neither veto power nor agenda control are sufficient to secure the king's promise when existing public policies are already optimal for the king.

Consequently, as noted above, it is clear that the king can offer veto power or even agenda control to the council in a stable political and economic setting at very low personal cost. Such partial transfers of "power," however, would obtain little of value from the council, in that the council would recognize that these procedural powers are ineffective in stable political and economic circumstances.

C. The Value and Cost of Partial and Complete Veto Power in Unstable Settings

Vesting the Council with Partial Veto Power

The possibility of political shocks increases the value of partial transfers of policymaking power to the council and the cost of such transfers for the king. Consider the case in which the king's ideal combination of government services changes and the council has secured partial veto power over changes in G_2 , "butter." In this case, the king faces two constraints, his budget constraint $T^0 + Y - c(G_1, G_2) = C$, and a new *procedural constraint* $W(X^c, G_1, G_2) - W(X^c, G_1, G_2^0) \geq 0$, where W is the utility level (welfare) of the pivotal council member, and X^c is the after-tax consumption of the decisive member of the council. The superscript "0" denotes the initial status quo policies.

The council's veto power over policy G_2 requires the new policies to make the pivotal council member at least as well off as he would have been at the status quo level for the policy over which the council has veto power. The king realizes this, of course, and so will only propose public policies that satisfy the council in the sense that they will not veto them. Policies that maximize the king's welfare, while preserving that of the council, can be characterized by differentiating the implied Kuhn-Tucker control function:

$$U = u(T^0 + Y - c(G_1, G_2), G_1, G_2) - \lambda [W(X^c, G_1, G_2) - W(X^c, G_1, G_2^0)] \quad (6.9)$$

The tangency solution(s) requires G_1 and G_2 such that:

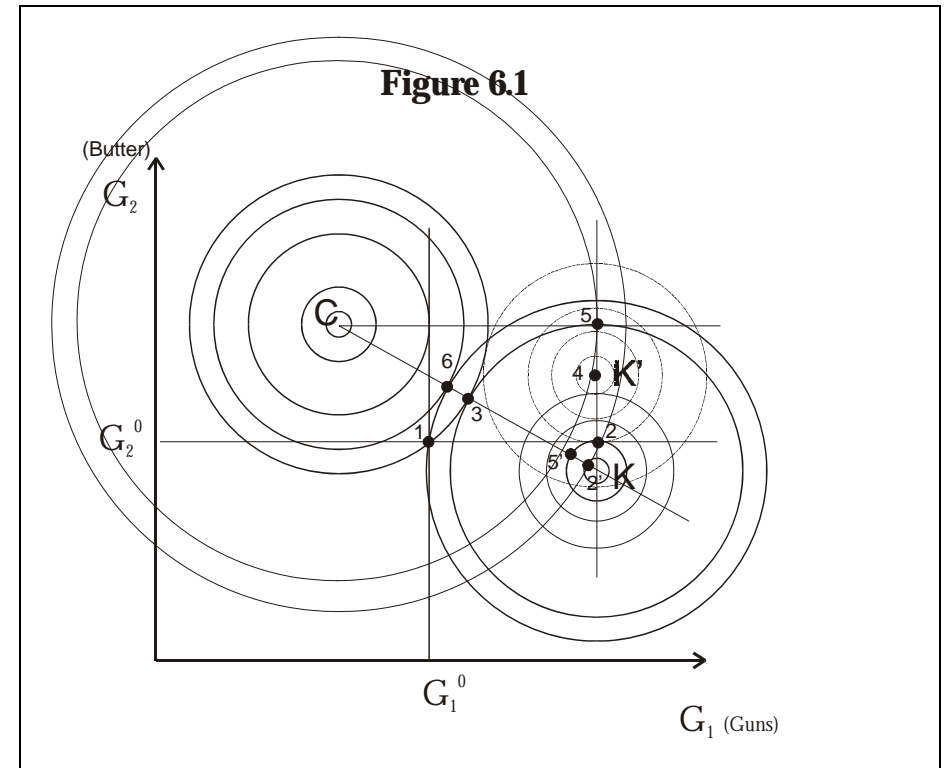
$$U_{G_1} - U_x C_{G_1} - \lambda (W_{G_1} - W_{G_1}^0) = 0 \quad (6.10)$$

$$U_{G_2} - U_x C_{G_2} - \lambda (W_{G_2}) = 0 \quad (6.11)$$

$$W(X^c, G_1, G_2) - W(X^c, G_1, G_2^0) = 0 \quad (6.12)$$

Figure 6.1 illustrates the geometry of the partial veto procedural constraint in the $G_1 \times G_2$ plane. For purposes of the illustration, the pseudo-indifference curves of both the king and pivotal council member in the $G_1 \times G_2$ plane are represented as concentric circles, as generally assumed in spatial voting models and in other work relying on quadratic loss

functions.⁵⁹ These iso-utility lines are not conventional indifference curves in that effects of changes in the king's private consumption are implicitly taken into account. Iso-utility curves denote utility levels associated with policies that differ from their respective wealth-constrained ideal policies. Given values of T^0 and Y , both the pivotal council member and the king have a wealth-constrained ideal policy combination that geometrically resembles the highest point of their respective utility mountains in the $G_1 \times G_2$ plane.



Given complete control over public policy, these ideal points characterize the policy combinations that the council and king would select if they faced no binding procedural constraints. These are the polar outcomes of the king and council constitutional template; however, if the procedural constraint is binding, even partial veto power tends to affect

⁵⁹ The assumed trace of the king's utility function in the $G_1 \times G_2$ plane is $U = U^* - (G_1^c - G_1)^2 - (G_2^c - G_2)^2$.

the king's policy decisionmaking after changes in circumstances have occurred. In that case, neither λ nor W_{G_2} is equal to zero and the new first-order conditions clearly differ from those of the tax-constrained conditions.

Consider the effect of a change in the king's tastes or circumstances that lead him to prefer the policy combination labeled K to all others, including the status quo policy combination 1. If the king has both agenda and veto power over guns and butter, he would adopt the policy combination at K. On the other hand, if he has granted the council veto power over one of the policy dimensions, here G_2 , he will not necessarily be able to adopt his ideal policy combination, because any policy proposal that he makes can be partially blocked by the council. Given the council's partial veto power, the king's policy proposal, (G_1, G_2) , has to make the pivotal member of the council at least as well off as he (or she) would have been at the status quo level of the service over which they have veto power, (G_1, G_2^0) . In the case depicted, the king can only achieve policy combination 2, which is some distance from his new ideal. This policy combination is clearly "veto proof," because G_2 remains at the status quo level, which leaves the council nothing to veto.

The mathematics of the tangency solution appears to suggest that the king can do a bit better than this by proposing a policy combination like 2', which makes the pivotal member of the council as well off as he would have been at policy 2. Both inspection and mathematics imply, however, that this is not so. Recall that the veto player chooses last. Consequently, policy 2' would be vetoed by the council to realize a policy outcome that is a bit better than either 2' or 2 from the point of view of the council, although worse than 2' or 2 for the king. The king recognizes this and will propose policy combination 2, which is the best the king can achieve in this new political setting.⁶⁰

Granting the council veto power over G_2 often makes the king a bit worse off. However, this is not always the case. For example, had the king's preferred policy combination moved to K', rather than to K, his new ideal policy combination, 4, would have been accepted by the council, because policy combination 4 is preferred by the council's pivotal member to policy combination 2, the result if G_2 reverts to the status quo level. Partial veto power can interfere with a king's policymaking power, but it does not constrain the king in every case, even when the king's preferred policy changes from time to time.

⁶⁰ The Kuhn-Tucker conditions for this case are derived from the following maximand:

$$K = U^* - (G^K_1 - G_1)^2 - (G^K_2 - G_2)^2 - \lambda [(G^C_2 - G^0_2)^2 - (G^C_2 - G_2)^2]$$

Differentiating with respect to G_1 , G_2 , and λ yields the following first-order conditions:

$$-(G^K_1 - G_1) \leq 0 \quad \text{with } G_1 \geq 0 \text{ and } G_1 [(G^K_1 - G_1)] = 0$$

$$-(G^K_2 - G_2) + \lambda (G^C_2 - G_2) \leq 0 \quad \text{with } G_2 \geq 0 \text{ and } G_2 [(G^K_2 - G_2) + \lambda (G^C_2 - G_2)] = 0$$

$$[(G^C_2 - G^0_2)^2 - (G^C_2 - G_2)^2] \geq 0 \quad \text{with } \lambda \geq 0 \text{ and } \lambda [(G^C_2 - G^0_2)^2 - (G^C_2 - G_2)^2] = 0$$

The first of the first-order conditions implies that $G_1^* = G^K_1$ or $G_1^* = 0$. Whether the constraint is binding or not, the king sets service level one equal to his ideal level, G^K_1 , or equal to zero. The second of the first-order conditions implies that if $\lambda = 0$, then $G_2^* = G^K_2$ or $G_2^* = 0$. If the constraint is nonbinding, either the king sets service level one equal to his ideal or equal to zero. In the case in which the constraint is binding, that is, the threat of veto affects his policy options, $\lambda \neq 0$ and the third conditions imply that $G^C_2 = G_2$. Consequently, there are just two equilibrium strategies for the king in this setting away from the lower bound. The king always sets $G_1^* = G^K_1$. If the veto power threat is not binding, he sets the veto constrained service at his ideal level, G^C_2 , otherwise he sets service level 2 equal at the status quo level ($G^C_2 = G^0_2$).

Vesting the Council with Complete Veto Power

As might be anticipated, the effect of granting the council veto power over both policy dimensions generally has a greater constraining effect on the king's ability to get his preferred policy than granting veto power over one dimension of policy. Mathematically the effect of granting the council veto power over both government policies is very similar to that above. The procedural constraint under complete veto power is: $W(X^c, G_1, G_2) - W(X^c, G_1^0, G_2^0) \geq 0$, and the Kuhn-Tucker first-order conditions describing the best feasible policy along the constraint becomes:

$$U_{G1} - U_x C_{G1} - \lambda (W_{G1}) = 0 \quad (6.13)$$

$$U_{G2} - U_x C_{G2} - \lambda (W_{G2}) = 0 \quad (6.14)$$

$$W(X^c, G_1, G_2) - W(X^c, G_1^0, G_2^0) = 0 \quad (6.15)$$

Only the procedural constraint differs, and the constraint again may or may not be binding.

In many cases, granting the council veto power will make the king worse off relative to the unconstrained and partial veto power analyzed above. This possibility is also represented in figure 1. Given complete veto power, the council can now reject any policy combination that makes its members worse off than the status quo ante. This implies that the king cannot choose a policy combination outside the decisive council member's iso-utility line passing through the status quo (G_1^0, G_2^0) .

If the king's new circumstances lead him to prefer policy combinations K, the best that he can achieve is policy combination 3, which is inferior to policy combination 2 for the king. Policy 2 is no longer feasible. The council would now reject policy combination 2 because they prefer the original combination of services to that offered. In the case in which the council is granted complete veto power, the council also constrains the king at K', whereas, as shown above, he would not have been constrained by a council with partial veto power. The king will be blocked by the council's veto power in all cases in which his new ideal point lies further from the council's ideal than the status quo ante.⁶¹

⁶¹ The Kuhn-Tucker conditions for king in this case are derived from the following KT maximand:

$$K = U^* - (G^K_1 - G_1)^2 - (G^K_2 - G_2)^2 - \lambda [(G^C_1 - G_1^0)^2 + (G^C_2 - G_2^0)^2 - (G^C_1 - G_1)^2 - (G^C_2 - G_2)^2]$$

Differentiating with respect to G_1 , G_2 , and λ , yields the following first-order conditions:

$$-(G^K_1 - G_1) + \lambda(G^C_1 - G_1) \leq 0 \quad \text{with } G_1 \geq 0 \text{ and } G_1 [(G^K_1 - G_1) + \lambda(G^C_1 - G_1)] = 0$$

$$-(G^K_2 - G_2) + \lambda(G^C_2 - G_2) \leq 0 \quad \text{with } G_2 \geq 0 \text{ and } G_2 [(G^K_2 - G_2) + \lambda(G^C_2 - G_2)] = 0$$

$$[(G^C_1 - G_1^0)^2 + (G^C_2 - G_2^0)^2 - (G^C_1 - G_1)^2 - (G^C_2 - G_2)^2] \geq 0$$

$$\text{with } \lambda \geq 0 \text{ and } \lambda [(G^C_1 - G_1^0)^2 + (G^C_2 - G_2^0)^2 - (G^C_1 - G_1)^2 - (G^C_2 - G_2)^2] = 0$$

The first of the first-order conditions implies that if $\lambda = 0$, then $G_1^* = G_1^K$ or $G_1^* = 0$. If the constraint is nonbinding, either the king sets service level one equal to his ideal or equal to zero. In the case in which the constraint is binding, $\lambda \neq 0$ and either the status quo is chosen, $G_1 = G_1^0$ and $G_2 = G_2^0$, or both policies G_1 and G_2 lie along the indifference curve passing through the initial policy position (G_1^0, G_2^0) .

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A decisive council is clearly better off with complete veto power than with partial or no veto power, in such cases. They cannot be worse off. The king would thus demand a higher price for complete veto power than for partial veto power, and the council would be willing to pay a higher price for complete than for partial veto power at times when the king's policy preferences or circumstances are unsettled.

D. Partial and Complete Agenda Control

Granting the Council Partial Agenda Control

Agenda control is another transferable policymaking power by which gains from constitutional exchange may be realized. Veto power allows the empowered party to determine whether particular departures from the status quo will be undertaken. Agenda control allows the empowered party to suggest departures from the status quo that might be adopted. As in the case of veto power, the value of agenda control to the council depends on future changes in the king's policy preferences. Without changes in his policy preferences, as noted above, the king can costlessly shift agenda control to the council and defend the status quo by vetoing all proposed changes. The king is not always constrained by a council with agenda control, but there are many cases in which he will be, and it is because of these that a council may have an interest in securing agenda power.

We first analyze the extent to which a partial transfer of agenda control might constrain the king's future policies. Given partial agenda control, the council will attempt to maximize its own welfare given the king's veto power. Consequently, the mathematics of shifting agenda control from the king to the council, while the king retains partial veto power, can be explored using mathematics similar to that developed above for the king.

Granted agenda control over G_2 , the council will choose G_2 to maximize "its" utility given the veto power of the king and the king's choice of G_1 .

$$W = w(X^c, G_1, G_2) \quad (6.16)$$

$$-\lambda[u(T^0 + Y - c(G_1, G_2), G_1, G_2) - u(T^0 + Y - c(G_1, G_2^0), G_1, G_2^0)] \quad (6.17)$$

The Kuhn-Tucker tangency solution requires:

$$W_{G_2} - \lambda [U_X(-C_{G_2}) + U_{G_2}] = 0 \quad (6.18)$$

while the king sets the policy that he fully controls, G_1 , to maximize:

$$U = u(T^0 + Y - c(G_1, G_2), G_1, G_2) \quad (6.19)$$

which requires:

$$U_{G_1} - U_X C_{G_1} = 0 \quad (6.20)$$

given G_2 . Policy combinations that satisfy both first-order conditions simultaneously are analogous to Nash equilibria in noncooperative games.

The geometry of granting partial agenda control to a noncooperative council is also represented in figure 6.1. As in the previous cases, the vetoer goes last in full knowledge of the proposal of the agenda setter. Were it not for the veto power of the king, the Nash solution to this policymaking game would resemble policy combination 5 in figure 6.1, in which both the king and the council secure their preferred level of the service over which they exercise agenda control. Given complete veto power, however, the king can do better than policy combination 5 by vetoing the council's proposed level of "butter." The result in this case is policy combination 2, which combines the king's ideal level of "guns" with the status quo level of "butter."

The second of the first-order conditions implies that if $\lambda = 0$, then $G_2^* = G_2^K$ or $G_2^* = 0$. If the constraint is nonbinding, either the king sets service level one equal to his ideal or equal to zero. In the case in which the constraint is binding, $\lambda \neq 0$ and the third constraint implies that either the status quo is chosen, $G_2 = G_2^C$, or both G_1 and G_2 lie along the indifference curve passing through the initial policy position (G_1^0, G_2^0) . There are, thus, three possible equilibrium strategies for the king in this setting according to the location of the king's new ideal point. If the veto power threat is not binding because his new ideal point is closer to the council's ideal than the original policy combination, he proposes service levels at his ideal levels (G_1^C, G_2^C) . If the procedural constraint is binding, that is, proposing his ideal point would be vetoed, the king may choose a combination of G_1 and G_2 such that one of his iso-utility curves is tangent to that of the Council's iso-utility line passing through the original policy combination. Alternatively, he may set both service levels at their status quo levels (G_1^0, G_2^0) .

Anticipating this, the council might be tempted to moderate its proposal for “butter” service levels, but no proposal that it makes above G_2^0 would be accepted by the king, and no service level below G_2^0 would lead to a better policy combination for the council than that of 2 because the king can keep G_1 at his preferred level (under the assumed geometry, this is a dominant strategy). In this case, granting agenda control to the council leads to the same policy as a grant of partial veto power to the council.⁶² This equivalence is not universal, but depends on the preference shift of the king. Had the king’s ideal point shifted to K' , policy combination 5 would have been veto proof and agenda control would have made the council better off than partial veto power.⁶³

The king is somewhat worse off and the council is somewhat better off with partial agenda control than partial veto power. Policy combination 2 is a possible outcome under

both institutions, but policy combination 4 is preferred by the king to policy combination 5. The pivotal council member prefers policy combination 5 to policy combination 4.

Vesting the Council with Complete Agenda Control

Granting complete agenda control to the council, while retaining complete veto power, makes the king worse off than granting complete veto power to the council. Given complete agenda control, the council would propose a policy combination that maximizes:

$$W = w(X^c, G_1, G_2) - \lambda[u(T^0+Y - c(G_1, G_2), G_1, G_2) - u(T^0+Y - c(G_1^0, G_2^0), G_1^0, G_2^0)] \quad (6.21)$$

and the Kuhn-Tucker tangency solution requires:

⁶² Again, gains to fiscal exchange exist at policy combination 2; however, in this case, the agenda setter cannot capture these potential gains to trade. If the council suggests the “butter” service level required for policy 5, the king would accept this, but still opt for his preferred level of “guns.” Under the procedural institutions in place, the gains from fiscal exchange would be unrealized.

⁶³ The Kuhn-Tucker conditions for the council are derived from the following KT maximand:

$$K = W^* - (G^C_1 - G_1)^2 - (G^C_2 - G_2)^2 - \lambda[(G^{K_2} - G^0_2)^2 - (G^{K_2} - G_2)^2]$$

Differentiating with respect to G_2 , and λ , yields the following first-order conditions:

$$-(G^C_2 - G_2) + \lambda(G^{K_2} - G_2) \leq 0 \quad \text{with } G_2 \geq 0 \text{ and } G_2 [(G^C_2 - G_2) + \lambda(G^{K_2} - G_2)] = 0$$

$$[(G^{K_2} - G^0_2)^2 - (G^{K_2} - G_2)^2] \geq 0 \quad \text{with } \lambda \geq 0 \text{ and } \lambda [(G^{K_2} - G^0_2)^2 - (G^{K_2} - G_2)^2] = 0$$

The first of the first-order conditions implies that if $\lambda = 0$, then $G_2^* = G^C_2$ or $G_2^* = 0$. If the constraint is nonbinding, the council sets service level two equal to its ideal level (or equal to zero if that is less than or equal to zero). In the case in which the constraint is binding, $\lambda \neq 0$, the second constraint implies that the status quo is chosen, $G_2 = G^0_2$.

The king’s optimization problem is unconstrained for service level one and constrained by the agenda chosen by the council in stage one, which he can choose to veto or not. He chooses G_1 to maximize:

$$K = U^* - (G^{K_1} - G_1)^2 - (G^{K_2} - G_2)^2$$

which requires:

$$-(G^{K_1} - G_1) = 0 \quad \text{or } G^{K_1} = G_1.$$

The king sets service level one at his ideal level regardless of what the Council chooses for service level 2. There are, thus, two possible equilibrium budgets in this setting according to the location of the king’s new ideal point. If the king’s veto power threat is not binding, the council’s proposes its own ideal service level for G_2 , $G_2^* = G^C_2$. If the king’s veto power is binding, the council proposes the status quo level of service two is proposed, $G_2^* = G^0_2$. The separability of spatial utility functions implies that the king always chooses his ideal level of service 1, $G^{K_1} = G_1$, and, given the above option, never veto’s the council’s proposal.

$$W_{G_2} - \lambda [U_X(-C_{G_2}) + U_{G_2}] = 0 \quad (6.22)$$

$$W_{G_1} - \lambda [U_X(-C_{G_1}) + U_{G_1}] = 0 \quad (6.23)$$

At the tangency solution, the council chooses its utility-maximizing combination of guns and butter along the king's iso-utility line passing through the initial policy combination. Figure 6.1 represents the geometry of this solution as policy combination 6. This is the most favorable of the policies examined for the council and the least favorable to the king. This is essentially the mirror image of the case in which the king had agenda control and the council veto power.⁶⁴

Given complete agenda control, *nearly all changes in the king's policy preferences make the council better off*. Moreover, the council can now assure the status quo ante, thus, changes in

the king's preferences can no longer make the pivotal member of the council worse off. Overall, it is clear that ever more favorable policy outcomes tend to be obtained by the council as power over public policy is transferred to it. In principle, this process can continue until policymaking power is entirely transferred from the king to the council. At that point, the king would be reduced to an advisory post and government policies would be those that are ideal for the pivotal member of the council.

⁶⁴ The Kuhn-Tucker conditions for council in this case are derived from the following KT maximand:

$$W = W^* - (G^C_1 - G_1)^2 - (G^C_2 - G_2)^2 - \lambda[(G^{K_1} - G^0_1)^2 + (G^{K_2} - G^0_2)^2 - (G^{K_1} - G_1)^2 - (G^{K_2} - G_2)^2]$$

Differentiating with respect to G_1 , G_2 , and λ yields the following first-order conditions:

$$-(G^C_1 - G_1) + \lambda(G^{K_1} - G_1) \leq 0 \quad \text{with } G_1 \geq 0 \text{ and } G_1 [-(G^C_1 - G_1) + \lambda(G^{K_1} - G_1)] = 0$$

$$-(G^C_2 - G_2) + \lambda(G^{K_2} - G_2) \leq 0 \quad \text{with } G_2 \geq 0 \text{ and } G_2 [-(G^C_2 - G_2) + \lambda(G^{K_2} - G_2)] = 0$$

$$[(G^{K_1} - G^0_1)^2 + (G^{K_2} - G^0_2)^2 - (G^{K_1} - G_1)^2 - (G^{K_2} - G_2)^2] \geq 0$$

$$\text{with } \lambda \geq 0 \text{ and } \lambda [(G^{K_1} - G^0_1)^2 + (G^{K_2} - G^0_2)^2 - (G^{K_1} - G_1)^2 - (G^{K_2} - G_2)^2] = 0$$

The first of the first-order conditions imply that if $\lambda = 0$, then $G_1^* = G^C_1$ or $G_1^* = 0$. If the constraint is nonbinding, either the council sets service level one equal to its ideal or equal to zero. In the case in which the constraint is binding, $\lambda \neq 0$ and the procedural constraint implies that either the status quo is chosen, $G_1 = G^0_1$ and $G_2 = G^0_2$, or both G_1 and G_2 lie along the indifference curve passing through the initial policy position (G^0_1, G^0_2) .

Similarly, the second of the first-order conditions implies that if $\lambda = 0$, then $G_2^* = G^C_2$ or $G_2^* = 0$. If the constraint is nonbinding, either the council sets service level one equal to its ideal or equal to zero. In the case in which the constraint is binding, $\lambda \neq 0$ and the third constraint implies that either the status quo is chosen, $G_2 = G^C_2$, or both G_1 and G_2 lie along the indifference curve passing through the initial policy position (G^0_1, G^0_2) .

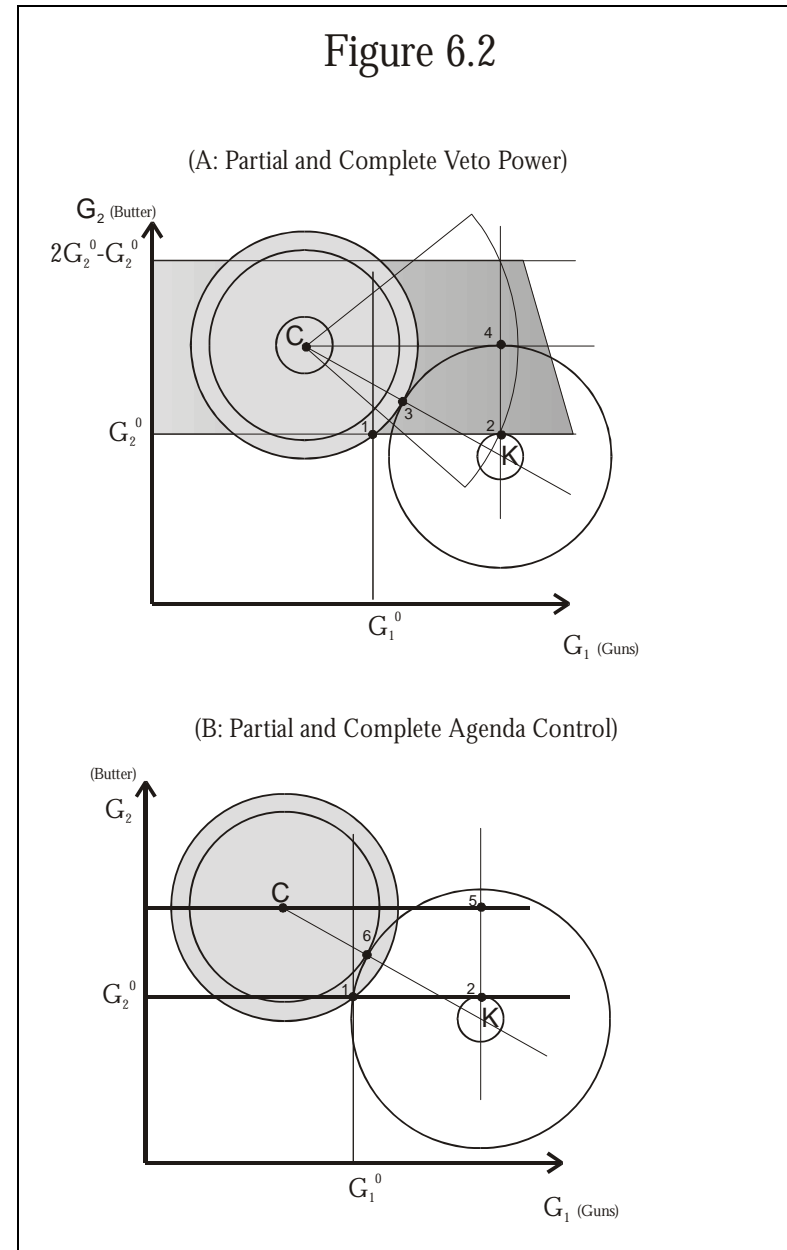
There are, thus, three possible equilibrium strategies for the council in this setting according to the location of the king's new ideal point. If the king's veto power threat is not binding because his new ideal point is closer to the council's ideal than the original policy combination, the council proposes service levels at their ideal point (G^C_1, G^C_2) . If the procedural constraint is binding, that is, proposing their ideal point would be vetoed, and away from the lower bound $(0, 0)$, the council may choose a combination of G_1 and G_2 such that the pivotal member's iso-utility curves is tangent to the king's iso-utility line passing through the original policy combination. Alternatively the council may set both service levels at their status quo levels (G^0_1, G^0_2) .

The Domain of Public Policy with Intermediate Divisions of Policy Making Power

The mathematical analysis demonstrates that the range of policies that are feasible for the king varies with the division of policymaking powers. However, since the results do not lead to simple convex feasible sets, the relationships of the feasible policy domains to one another are not intuitively obvious. Figures 6.2A illustrates the feasible set for complete and partial assignments of veto power to the committee. Figure 6.2B depicts the feasible sets of policy outcomes for complete and partial agenda control. Together these allow the restrictiveness of the four assignments of policymaking power to be readily compared.

Figure 6.2A depicts the range of policies that may arise for the council under complete and partial veto power. In the case of complete veto power, the council can block any move that will make it worse off than the status quo ante (again labeled policy combination 1). Thus, the range of possible policy outcomes under complete veto power consists of those policy combination that lie inside the decisive council member's indifference curve through the status quo policy. This is the shaded circular area in figure 6.2A. In the case of partial veto power, the council will also accept all these policies, but cannot block some policies that make it worse off. The council will veto any policy proposal made by the king in which the status quo level of the service over which it exercises veto power is preferred to that of the policy proposed by the king. For the spatial preference ordering used in the figures, this implies that only policies within the trapezoid will be accepted. (The budget constraint of the king determines the upper bound of the trapezoid in the uncontrolled dimension.)

Figure 6.2B depicts the range of policies that may arise under complete and partial agenda control. In the case of complete agenda control, the council will only propose policies that make it better off relative to the status quo ante. (If none of these are veto proof, the council would propose the status quo ante!) Consequently, the range of possible policies is again limited to those within the council's indifference curve passing through



the initial policy position. For spatial preferences used in our illustrations, the feasible set is a circular shaded area similar to that shaded in figure 6.2B. The solutions to partial

agenda control include that area plus other policy combinations that may emerge from the king's area of control given the council's proposals for the policy over which it exercises agenda control. The geometric and mathematical results above suggest that the council will either propose its own ideal service level or the service level of the status quo. Consequently, the range of policy outcomes that can arise under partial agenda control is the circular area plus two line segments. (The upper bound of the line segments in the uncontrolled dimension is again determined by the king's budget constraint.)

Note that the more restrictive the procedural constraints, the smaller average distances to the council's ideal point tend to be and the larger they tend to be for unfortunate kings. In this case, the council's reservation offer is least for partial veto power, followed by partial agenda control, then by complete veto power, and thereafter by complete agenda control. The king's reservation prices have the same rank order; the least binding is also the least costly of the policymaking powers turned over to parliament. Moreover, given these rank orders, the marginal reductions in the feasible domain of policy become smaller, which suggests that the marginal cost of ceding additional powers to the parliament declines.

E. The Demand and Supply of Policy Authority

We now characterize the willingness of the council or parliament to pay for additional control over public policy and the reservation price that the king or president requires for such reallocations of policymaking power. The procedural constraints, together with the royal budget constraint, bound the range of policies that can emerge as time passes. This property can be used to assess the expected value of alternative procedural rules for given expectations about the future political environments.

The reservation price for the executive to shift policymaking power to the council and the reservation value to the council for shifts of power to the council can be assessed given a probability density function that describes likely shifts in the king's preferences (or political circumstances) and/or policy outcomes with and without procedural bounds on

policies. Let $j(G_1, G_2)$ be the probability function that describes the range of policies that the king may wish to pursue if not constrained and $k(G_1, G_2, R_i)$ the probability function describing the range of policies that the king may wish to pursue under procedural restraint R_i , for which the domain in which k has non-zero values is a subset of that of j . The lowest offer that the king would accept to adopt R_i is O^{k*} such that:

$$\int \int j(G_1, G_2) u(T^0 + Y^k - c(G_1^{**}, G_2^{**}), G_1^{**}, G_2^{**}) dG_1 dG_2 - \int \int k(G_1, G_2, R_i) u(T^0 + O^{k*} + Y^k - c(G_1^*, G_2^*), G_1^*, G_2^*) dG_1 dG_2 = 0 \quad (6.24)$$

Similarly, the highest offer that the council would be willing to make would be:

$$\int \int j(G_1, G_2) w(Y^c - T^0 - c(G_1^{**}, G_2^{**}), G_1^{**}, G_2^{**}) dG_1 dG_2 - \int \int k(G_1, G_2, R_i) w(Y^c - T^0 - O^{c*} - c(G_1^*, G_2^*), G_1^*, G_2^*) dG_1 dG_2 = 0 \quad (6.25)$$

where policies are set at the king's ideal for the cases of interest, as developed above. For bounded and continuous probability and utility functions, the implicit function theorem applied to equation 23 implies that lowest offer that the king will be willing to accept can be written as:

$$O^{k*} = s(R_i, T^0 + Y^k) \quad (6.26)$$

and, from equation 24, the highest that the council is willing to be make as:

$$O^{c*} = d(R_i, T^0 + Y^c) \quad (6.27)$$

As in ordinary markets the exchange occurs when the reservation price of the party demanding more power exceeds that of the party that currently possesses the power of interest.

For a wide range of probability functions, it is also clear that the rank order of these prices will parallel the restrictiveness of the procedural constraints. The equilibrium allocation of power can be represented geometrically as the intersection of the reservation price schedules of the king and council. In the initial position assumed here, the king possesses complete power over spending, which implies that the reservation price for transfers of power to the king is too great for the council to compensate the king for his losses, whether by increasing tax payments or through providing other in-kind services, such as at S^k_0 and D^c_0 . For constitutional bargaining between the king and council to be mutually beneficial, there must be a shock of some kind that alters the positions of one or

both reservation price schedules. For example, the supply and demand curves for political authority are systematically affected by changes in wealth. A decline in the king's wealth causes his reservation price to fall.

$$O^{k*}_{Yk} = [\iint j(G_1, G_2) u_{Yk} - k(G_1, G_2, R_i) u_{Yk} dG_1 dG_2] / - [U^e_{oo}] < 0 \quad (6.28)$$

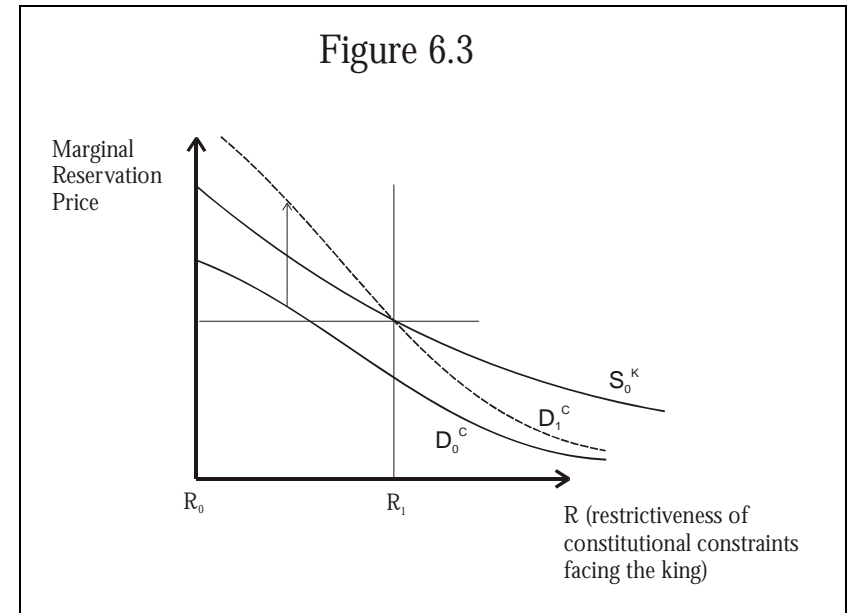
Similarly, an increase in the council's wealth causes its reservation price for political power to increase.

$$O^{c*}_{Yc} = [\iint j(G_1, G_2) w_{Yc} - k(G_1, G_2, R_i) w_{Yc} dG_1 dG_2] / - [W^e_{oo}] > 0 \quad (6.29)$$

Constitutional exchange takes place when $O^{c*} > O^{k*}$.

Figure 6.3 illustrates how a change in demand for policymaking power can lead to a partial transfer of power from the king to the council. A sufficient increase in the reservation price of the council can make it willing to purchase partial policymaking power from the king, and as illustrated, the king may be willing to sell it. The council's demand shifts from D^c_0 to D^c_1 with the result that R_1 powers are transferred to the council, perhaps complete veto power over policy. Within the context of the model, such exchanges also involve amendment of the tax constitution, but in practice, other forms of support might be accepted in exchange for new procedural powers, particularly in relatively stable times or at the end or beginning of a king's reign.⁶⁵

The king may also "buy back" some or all of the council's constitutional powers, in cases in which his wealth increases relative to that of the council. Even in peaceful and lawful political circumstances, the road to parliamentary democracy is not a one-way street, nor one that always leads to full parliamentary rule. In the absence of systematic



trends favoring one or the other center of policymaking power, a random walk of power-sharing arrangements between king and council may arise as weather, disease, and technology change through time, with periods during which the council increases its power and others during which the king becomes less subject to council vetoes and agenda control.⁶⁶

⁶⁵ Constitutional exchange involving councils that represent other interests, for example religious or ideological or religious ones may yield different outcomes from those developed below.

⁶⁶ The shift in power from king to council is not always irreversible, nor is it always the case that the bulk of policymaking power initially is vested in the king. For example, the shift from the first U.S. constitution, the Articles of Confederation, to the modern one can be interpreted as a peaceful shift of power from a council-dominated system—the Congress—to a mixed system with an executive sharing policymaking power—the new constitution created the office of president and vested it with substantial powers.

F. Increases in General Prosperity and the Transition from Royal to Parliamentary Rule

Among the systematic trends that have been observed in rapidly industrializing countries are those affecting the extent and distribution of wealth.⁶⁷ Consider the effect of taxpayer income or wealth on the level of taxation incorporated into the tax constitution. The council realizes that public services are set at $G^{1*} = g(Y + T^0)$ and $G^{2*} = h(Y + T^0)$ by the king after a tax limitation is adopted. If the council knows the king's objective function, is assured of veto power over taxes, and the pivotal member must pay a given share of the taxes agreed to, $s(T)$, the council will accept a new tax system that maximizes:

$$W = w[Y^{CO} - s(T), g(Y + T), h(Y + T)] \quad (6.30)$$

which will normally exceeds the pre-reform level of taxation. Consequently, the council's preferred level of taxation in this constitutional environment requires:

$$-W_{CS_T} + W_{G1} g_T + W_{G2} h_T = 0 \quad (6.31)$$

which implies that the tax agreed to is:

$$T^0 = t(Y^{CO}) \quad (6.32)$$

and the pivotal council members welfare is:

$$W^* = w[Y^{CO} - s(T^0), g(Y + T^0), h(Y + T^0)] \quad (6.33)$$

Of interest here is the extent to which the council's willingness to pay for additional public policymaking power is affected by a subsequent increase in the wealth of the groups represented by the council. It is clear that any move from the service levels initially

set by the king toward the ideal policy combination of the council makes the council better off whenever function w is continuous and concave. Moreover, it is clear that as council income increases, the council's optimal tax constitution becomes less restrictive in that it implies greater taxation:

$$T^*_{Yc} = [-W_{CCS_T} - W_{CS_{TT}}] / -[W_{TT}] > 0 \quad (6.34)$$

Given W concave and $s_T > 0$ and $s_{TT} \geq 0$. The king's own welfare also increases with tax revenue:

$$U^*_T = U_C + U_{G1} g_T + U_{G2} h_T > 0. \quad (6.35)$$

Consequently, a sufficiently large increase in the wealth of those represented in parliament produces new gains to constitutional exchange that can be realized through tax reform. The council is also willing to pay more taxes to secure additional control over public policy, whenever uncertainty about the king's future policy agenda increases. Political insurance clearly becomes more valuable in such circumstances. In this manner, economic development that increases income and transforms traditional patterns of life can induce shifts toward parliamentary rule. Insofar as parliaments are representative, this may be said to be a shift in the direction of democracy, as often argued by economists and political scientists.⁶⁸

Implications for the Nineteenth Century

During the eighteenth and nineteenth centuries, ideological shifts tended on average to increase resistance to the king's policies both inside and outside government, which increased the bargaining power of parliament. New economies of scale in production and new liberal political and economic ideologies tended to make parliament both more

⁶⁷ Data for the English experience are assembled by Lindert (1986). Lindert's table 1 indicates that the value of noble estates averaged 2032£ in 1810 and had risen to 9,855£ in 1875. Merchant estates averaged far less, 608£, in 1810, but by 1875 had risen to 11,804£, both in constant 1875 British pounds sterling. Other classes/occupations also had significant increases in wealth, although not as great as those of merchants or "titled persons." Overall, however, the fraction of wealth controlled by those *outside the nobility* clearly increased substantially during this period. The population of nobles was essentially stable between 1810 and 1875 (rising from 22,000 to 25,000), whereas that of merchants, professionals, and industrial and building trades increased substantially (rising from 42,000–61,000 to 638,000–2,835,000). Lindert's analysis focuses on a different point than the one made here. What matters for the purposes of the present paper is the change in royal wealth versus nonroyal wealth, rather than changes in the concentration of wealth per se.

⁶⁸ Eighteenth- and early nineteenth-century parliaments were more representative than the royal council, and thus in this sense, political liberalization and development are predicted to be correlated, as found in Paldam and Gundlach's (2008) analysis of contemporary transition data.

decisive and less satisfied with the status quo, while the power of the purse allowed it to trade tax revenue and increase royal allowances for increased policymaking authority. Royal demands for revenues increased as the cost of competitive navies and armies increased. All these changes favored constitutional reforms that shifted political authority from kings to their parliaments.⁶⁹

Most of the changes in the assignment of political authority that took place were negotiated, rather than accomplished through violent means, and in those cases in which rebellions played a significant role, as in France, negotiations prior to surrender often generated terms that were broadly advantageous to both the king and council, given the new circumstances.⁷⁰

⁶⁹ It is clear that when constitutions are considered social compacts, bargaining power and original circumstances are likely to play an important role in constitutional design. For example, Buchanan and Tullock (1962) demonstrate that the particular collective-choice mechanisms agreed to will tend to vary with the particular choice setting in which the policymaking method will be applied. Voigt (1999), extending Buchanan (1987), suggests that bargaining processes and bargaining power be taken seriously in institutional analysis. The analysis below demonstrates that a bargaining model of institutions, together with a particular “template” for constitutional design, can explain a good deal of constitutional history.

⁷⁰ Of course, technology, ideology, and political crises may also move in directions that favor rule by a strong leader, in which case power would tend to shift back toward the executive branch of government. Note that, even today, increases in the policymaking authority of the executive are often granted during times of war and other national crises. In such cases, parliament may cede authority to the executive branch as a means of increasing decisiveness and speed or to take advantage of the executive’s better information about the problems at hand. Such reforms are often temporary, but not always so.