Chapter 3

Conspicuous Public Goods and Policy Rivalry

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3.1 Introduction

In the previous chapter, the focus was on public goods which have beneficial externalities on bordering regions. However, it is clear that there are many policies that impose costs on other regions. For example, lax environmental regulation may result in excess pollution that spills over to other regions. Stringent regulations to obtain asylum in one country may increase congestion for migration in other countries. Private security in rich neighborhoods may increase burglary in poorer areas.

With some additional analysis, the reader may have noticed that many of the results of the previous chapter also apply for negative externalities. The novelty of this chapter is that we focus on the psychological externalities that can be generated from conspicuous public goods consumption. In contrast to material spill-overs, when citizens care for status, the relative supply of public goods in their region when compared to other regions matters. We will argue that in such a setting centralization of policy making not only introduces an incentive for strategic delegation – as in Chapter 2 – but *reverses* the

incentives for strategic delegation when compared to decentralized policy making. The reason is that with decentralized policy making, the median voter in each group realizes that a leader with preferences equal to himself overproduces public goods and therefore will elect a leader with a preference for a lower level of public goods. Alternatively, in a centralized setting the median voter will realize that the overall production of public goods in the two countries will be restricted. For this reason, he votes for a leader with a preference for a higher level of local conspicuous public goods. In this way, the median voter will hope to gain at the expense of the other group. Hence, this chapter can explain why policy centralization in conflictual societies may not produce the desired results.

The psychological externalities that provide the main motivation for this chapter have given rise to a literature on the 'keeping up with the Joneses' (KUJ) effect of private goods. The notion that individuals value their consumption of private goods relative to others is the focus of the well-known book by Frank (1985) and applications have emerged in the finance literature (Abel 1990, Gali 1994, Campbell and Cochrane 1999). In the latter, relative consumption of snob goods serves to explain the equity premium puzzle by showing that persons take too high gambles in the financial markets. It is easy to envisage yuppies gambling on dot-com stocks to finance a newer BMW than their peers. Chang and Kogan (2002) allow for heterogeneous consumption preferences for stock market gambles. Dupor and Liu (2003) argue that, with regard to consumption externalities, 'keeping up with Joneses' should be distinguished from jealousy. The first effect occurs when consumption by others raises an individual's own marginal utility from the consumption of certain types of goods. Jealousy implies that humans simply envy other people's consumption.

If individuals could commit to lower spending on conspicuous consumption goods, this would increase social welfare. However, for individual consumption it is hard to see how, in the absence of government intervention, this may come about. In any case, if citizens could draw up a contract, they would restrain themselves and each other from spending too much on conspicuous goods by regulation or progressive taxation, as in Lommerud (1989)

and Konrad and Lommerud (1993). Clearly, there is a role for government to provide such a binding contract if the KUJ effect results in too high a level of conspicuous goods consumption (Ljungqvist and Uhlig 2000).[1]

In our case, where we analyze conspicuous public goods, a commitment devise in the form of the preferences of the policy maker is at hand. Voters may strategically select a leader who has preferences different from that of their own so as to bind their own hands. This mechanism of strategic delegation of policy making has been well known since Rogoff's conservative central banker (Rogoff 1985). Strategic delegation in an election setting was analyzed in Besley and Coate (1997). In Besley and Coate (2003) these authors show that strategic delegation of policy making authority in a centralized setting may result in perverse policy outcomes. The reason is that the median voter may delegate bargaining authority to a leader who cares more for public goods than she does herself. By doing so, the median voter commits to obtaining a higher share of the centralized funds that are spent on public goods. Dur and Roelfsema (2005) extend this analysis to allow for non-shareable cost in public goods provision. They argue that this may lead to the delegation of 'conservatives' to the centralized decision making body so as to avoid these costs, while at the same time benefitting from positive spill over effects of public goods produced in other jurisdictions.

To motivate our assumption that public goods consumption can be conspicuous and that it matters to voters, consider stories regarding grandiose public goods projects that serve the goal of making the nation feel proud (and the policy maker popular). Examples may include organizing the Olympics, the European soccer championship, or having the highest skyscraper in the world. Very often such projects cannot be justified on material cost-benefit analysis alone. For example, *The Economist* in an article 'Portugal's football-freaked election' describes how the rivalry between Lisbon and Oporto to build the best infrastructure for Euro2004 dominated the election campaign of the major political parties in 2002. After the event, in a contribution with

[1] This may already have been foreseen in the Bible by making the Sunday a mandatory work-free day, possibly to restrain individuals from working too hard to keep up appearances (Dupor and Liu 2003).

the suggestive subtitle 'What price euphoria?' *The Economist* writes "Even so, it seems a bit extravagant to blow €660m on new stadiums for a four-week tournament in a country that is just emerging from its deepest recession in three decades [...] Indeed, the economic arguments for hosting big sporting tournaments are largely spurious. The real case for Portugal taking on Euro 2004 is that sporting success seems to make people feel marvelously good."[2]

Our model applies most to conflictual societies engaged in political negotiation when voters care about the payoffs of the other group or region compared to those of their own. Our model predicts that when groups cooperate, voters elect more extreme policy makers, while they select a leader who shows restraint when they take decisions noncooperatively. Voting behavior of Protestants and Catholics in Northern Ireland are a case in point. Elections in Northern Ireland since the signing of the Belfast Agreement in 1998 have shown a movement towards the more extreme Democratic Unionist Party (DUP) and Sinn Fein and away from the more moderate Ulster Unionists (UUP) and Social Democratic and Labor Party (SDLP). Table 3-1 shows vote shares in Westminster elections since 1983 and demonstrates the point.[3]

Table 3-1: Election results for Northern Ireland, 1983-2005.

	1983	1987	1992	1997	2001	2005
UUP	34	37.8	34.5	32.7	26.8	17.7
DUP	20	11.7	13.1	13.6	22.5	33.7
SDLP	17.9	21.1	23.5	24.1	21	17.5
Sinn Fein	13.4	11.4	10	16.1	21.7	24.3
Alliance	8	10	8.7	8	3.6	3.9

Perhaps the electorate of Northern Ireland prefers to elect hard-line negotiators when they believe that there is little likelihood of a resumption of political violence, but are inclined to vote for moderates when conflict exists in an effort to secure peace. The irony of the Northern Ireland example is that before the Belfast Agreement the province was governed by direct rule from

[2]See 'Portugal's football-freaked election', March 14th 2002, and 'The effect of Euro2004 and the Olympics', July 1st 2004.

[3]Data from http://www.ark.ac.uk/elections.

Westminster. But now that legislation is in place for devolved government, the two communities have selected leaders who cannot agree upon sharing power, so Northern Ireland is, once again, governed directly from Westminster. This is precisely the sort of outcome that this chapter predicts. The movement from non-cooperative to cooperative environments may not bring as significant a change as one might expect.[4]

3.2 The model

Consider two countries indexed by i, each inhabited by citizens indexed by j. The typical citizen has a utility function of:

$$U^j(g_i, g_{-i}, p_i, \lambda^j) = y - cg_i + h(g_i, g_{-i}, \lambda^j) \tag{3.1}$$

where g_i are the public goods in the home country, g_{-i} are public goods in the foreign country, y is income that is identical for all individuals, c is the constant marginal production costs of a unit of g_i (so that $y - cg_i$ is the consumption of private goods p_i), and $\lambda^j > 0$ is the preference parameter for public goods. For the h-function we assume the following derivative properties: $h_{g_i} > 0$, $h_{g_{-i}} < 0$. In the following, we focus on the case where public goods are strategic complements such that $h_{g_i g_{-i}} > 0$. This captures the 'keeping up with the Joneses' effect, as the marginal utility of public goods in country i increases in the level of public goods in country $-i$. For simplicity, to capture these effects we propose a more specific utility function and make some additional assumptions on the distribution of policy preferences

[4]Bosnia is another example where support for nationalism exists despite the wishes of the international community (Burwitz 2002). Perhaps, in part, this can be explained by the existence of the political institutions formed at the 1995 Dayton Accord. Note also that the analysis here differs from that of Cukierman and Tommasi (1998) in their effort to explain why a Nixon goes to China. Their explanation focuses on the need for a hawk to implement a policy associated with a dove, in order to convince the electorate of the merit of the policy. In our paper, an agreement is already assumed to exist, there is no asymmetry of information and the choice of hardliners is made to gain at the expense of the other group.

and the range of the KUJ-effect. Consider the utility function:

$$V_i^j = y - cg_i + \lambda_i^j \log(g_i - \alpha g_{-i}) \tag{3.2}$$

A person with a high λ cares more for the relative level of public goods when compared to the other region. We assume that the parameter λ is uniformly distributed over the population with a median value of λ^m. From this assumption, it also follows that policies that maximize the sum of utilities of the median voters also maximize social welfare in the two countries. The parameter α measures the extent to which the public goods are strategic complements and is assumed to be identical for all citizens. We consider $0 < \alpha < 1$, which implies that higher public good provision in the foreign country raises the marginal utility from home production of public goods. This effect is stronger for higher values of α. Hence, a useful interpretation of α is that foreign production creates the KUJ effect.[5] Further, producing one unit of g_i involves a fixed marginal cost per unit c, that for simplicity in the following we normalize to unity.

3.3 Sincere delegation

Suppose that, as a starting point, in a decentralized political system the median voter $j = m$ is elected as policy maker. From the first-order condition for maximization of (3.2) it follows that:

$$\frac{\lambda_i^m}{g_i - \alpha g_{-i}} - 1 = 0 \qquad \Rightarrow \qquad g_i = \alpha g_{-i} + \lambda_i^m \tag{3.3}$$

In equilibrium, the optimal level of public goods is:

$$g_i = \frac{1}{1-\alpha^2}\lambda_i^m + \frac{\alpha}{1-\alpha^2}\lambda_{-i}^m \tag{3.4}$$

[5] This specification focusses on the relative supply of public goods only. Hence, jealousy, KUJ, and negative externalities are intrinsically wed. See Leibenstein (1950) and Dupor and Liu (2003) for discussion on how to separate these effects.

The first-order condition (3.3) and the decentralized supply (3.4) show two properties that will later prove useful in building intuition for the results. First, (3.3) implies that an increase of one unit of g_{-i} raises the desired public goods by α that amount. Hence, for $\alpha < 1$ the median voter in i does not demand full compensation for the increase in public goods in the other country.

This result carries over to (3.4). Stronger preferences of the median voter in home as well as in the foreign country increase equilibrium public goods supply in the home country. In equilibrium $dg_{-i}/d\lambda_i = \alpha dg_i/d\lambda_i$, hence, stronger preferences for the public good of the home policy maker increases public goods in the foreign country by a fraction α of the increase in the home country**.** The reason is that stronger preferences for the public good in the home country raises public goods supply. This, in turn, raises the marginal benefits of foreign public goods as perceived by the foreign median voter, and so raises foreign public goods supply.

Also note that, as $dg_i/d\lambda_i = 1/(1-\alpha^2) > 1$, stronger home preferences for public goods result in a more than proportional increase in equilibrium public goods supply. Recall that stronger preferences not only increase the marginal benefits from public goods supply directly, they also increase the desired public goods supply in the foreign country. This, in turn, raises the optimal level of home production. This effect also manifests itself in the foreign country, so that $dg_{-i}/d\lambda_i = \alpha/1-\alpha^2 > \alpha$. This means that, as the increase in public goods supply in home is higher than proportional to the increase in preferences, the increase in foreign public goods supply is also higher than the fraction α that results from (3.3). In the symmetric equilibrium ($\lambda_i^m = \lambda_{-i}^m$) equation (3.4) reduces to:

$$g_i = \frac{\lambda_i^m}{(1-\alpha)} \tag{3.5}$$

Clearly, the decentralized equilibrium level of public goods supply is increasing in the preferences λ of the median voter and increasing in the level of α.

When $0 < \alpha < 1$ there is oversupply of local public goods. To see this,

consider what will happen with centralized policy making and sincere delegation. We assume that when countries cooperate, the two policy makers with median preferences maximize their joint welfare $V_s = V_i^m + V_{-i}^m$. Following the assumption on the distribution of the preferences, maximizing V_s implies also socially efficient production. The first-order conditions for g_i and g_{-i} are:

$$\frac{dV_s}{dg_i} = \frac{\lambda_i^m}{g_i - \alpha g_{-i}} - \alpha \frac{\lambda_{-i}}{g_{-i} - \alpha g_i} - 1 = 0 \tag{3.6}$$

$$\frac{dV_c}{dg_{-i}} = \frac{\lambda_{-i}^m}{g_{-i} - \alpha g_i} - \alpha \frac{\lambda_i^m}{g_i - \alpha g_{-i}} - 1 = 0 \tag{3.7}$$

After some manipulation we find that in equilibrium:

$$g_i = \frac{1}{1+\alpha}\lambda_i^m + \frac{\alpha}{1+\alpha}\lambda_{-i}^m \tag{3.8}$$

In the symmetric equilibrium ($\lambda_i^m = \lambda_{-i}^m$ and $g_i = g_{-i}$) equation (3.8) reduces to:

$$g_i = \lambda_i^m \tag{3.9}$$

Clearly, this is identical to the decentralized level of public goods provision when $\alpha = 0$, in which case there is no KUJ effect. In this last case, there is no 'national pride' argument for public goods and both centralized and decentralized provision of public goods is socially efficient.[6]

3.4 Strategic delegation

With respect to the policy making process, we follow Besley and Coate (2003) in that the median voter in the first stage of the game strategically delegates policy making to an agent. The point is that the median voter sees delegation as a strategic choice, as it may affect public goods supply in the other country. Delegation serves as a commitment to a policy stance that would not be credible when the median voter himself would be in office. The set up of the

[6] Although we do not offer a formal proof, if voters care about the relative tax levels between countries one may imagine that this would result in sub-optimally low provision of public goods.

policy making game is that in the first stage a policy maker is selected by the median voter taking account of how the preferences of this policy maker affect the policy outcome. Following Besley and Coate (2003) and most of the recent papers that use strategic delegation to analyze policy choice, we assume that the median voter can choose from a set of potential policy makers where the optimal candidate is interior to this set and is available for office.[7]

In the second stage the delegate in each district decides on the optimal level of local public goods. The crucial assumption is that policy makers once in office are free to choose the appropriate actions that maximize their individual 'intrinsic' utility from policy. This means that policy actions by the delegate are neither contractible by offering monetary rewards nor does the delegate care for re-election.

3.4.1 Decentralized decision making

Suppose that the median voter in i has a continuum of candidates with $\lambda_i^d > 0$ at her disposal for delegation of policy making. Given the preferences of the delegate in country j, the optimal candidate in country i is described by:

$$\frac{\partial V_i^m}{\partial \lambda_i^d} = \frac{dh(g_i, g_{-i}, \lambda_j)}{dg_i}\frac{\partial g_i}{\partial \lambda_i^d} + \frac{dh(g_i, g_{-i}, \lambda_j)}{dg_{-i}}\frac{\partial g_{-i}}{\partial \lambda_i^d} - \frac{\partial g_i}{\partial \lambda_i^d} = 0 \tag{3.10}$$

From (3.4) the median voter in i anticipates that the equilibrium provision of public goods will be:

$$g_i = \frac{1}{1-\alpha^2}\lambda_i^d + \frac{\alpha}{1-\alpha^2}\lambda_{-i}^d \tag{3.11}$$

$$g_{-i} = \frac{1}{1-\alpha^2}\lambda_{-i}^d + \frac{\alpha}{1-\alpha^2}\lambda_i^d \tag{3.12}$$

Combining (3.10), (3.11), (3.12) and using (3.2) we obtain:

[7] In contrast to our paper and to Besley and Coate (2003), Besley and Coate (1997) consider endogenous entry of candidates.

$$\frac{\partial V_i^m}{\partial \lambda_i^d} = \frac{\lambda_i^m}{g_i - \alpha g_{-i}} \frac{1}{1-\alpha^2} - \frac{\alpha \lambda_i^m}{g_i - \alpha g_{-i}} \frac{\alpha}{1-\alpha^2} - \frac{1}{1-\alpha^2} = 0$$

From (3.3) we know that $g_i - \alpha g_{-i} = \lambda_i^d$ so that the optimal preferences of the delegate in country i are described by:

$$\lambda_i^{d*} = \lambda_i^m \left(1 - \alpha^2\right) \tag{3.13}$$

Using (3.5), in the symmetric equilibrium public goods supply will be:

$$g_i = (1+\alpha)\lambda_i^m \tag{3.14}$$

This result carries an important intuition. As $0 < \alpha < 1$, the median voter delegates to a policy maker who cares *less* for conspicuous public goods supply than she does herself. The reason is that by doing so, the median voter commits to lower public goods spending in the home country *and lower spending in the foreign country.* Hence, the benefits from lower tax costs in home plus the gain in utility from lower public goods in the foreign country are higher than the loss in utility from lower home public goods supply. When compared to the decentralized equilibrium without delegation in (3.5), the level of conspicuous public goods is lower in the presence of strategic delegation. However, decentralized public goods supply is too high when compared to the socially optimal level.

3.4.2 Centralized equilibrium

When policies are coordinated at the centralized level, we assume that the delegates maximize their joint welfare. However, the delegation decision itself is not coordinated. Again the median voter solves (3.10). Recall also that in equilibrium the delegates set policy according to (3.8). Therefore we find that in equilibrium:

$$\frac{\partial V_i^m}{\partial \lambda_i^d} = \lambda_i^m \left[\frac{1}{g_i - \alpha g_{-i}} \left(\frac{1}{1+\alpha}\right) - \frac{\alpha}{g_i - \alpha g_{-i}} \left(\frac{\alpha}{1+\alpha}\right) \right] - \left(\frac{1}{1+\alpha}\right) = 0 \tag{3.15}$$

The first term within the square brackets shows the increase in welfare of increasing the preferences of the home delegate by raising public goods supply in the home country. The second term shows that delegating to a policy maker with a higher λ increase foreign public goods by $\alpha/(1+\alpha)$, which in turn reduces welfare by $\alpha/(g_i - \alpha g_{-i})$ times that amount. The last term shows the increase in tax cost of increasing public goods supply in home. By imposing symmetry in equilibrium, from (3.8) we find that $g_i = g_{-i} = \lambda_i^d$, which gives the optimal preferences of the delegate of:

$$\lambda_i^{d*} = (1+\alpha)\lambda_i^m \tag{3.16}$$

In the symmetric equilibrium, public goods supply will be:

$$g_i = \lambda_i^m (1+\alpha) \tag{3.17}$$

The main result is that if $0 < \alpha < 1$, the median voter delegates leadership to a politician who cares more for public goods than she does herself. The intuition is as follows. The median voter anticipates that centralization will reduce public goods supply in home and foreign when compared to the decentralized equilibrium. Hence, the tax costs fall. Given this anticipated reduction in tax costs, and given the preferences of the policy maker in the foreign country, the median voter benefits from higher public goods supply in home. The means to do so are to commit to slightly higher spending in the home country by delegating to a leader who cares more for conspicuous public goods than she does herself. However, in doing so, the median voter in home anticipates that sending a more nationalistic leader induces the foreign policy maker to demand more public goods as well. This effects mitigates the incentives for strategic delegation. Overall, public goods supply will be higher than the socially optimal level.

Note also that because of the specific set up of the model, public goods supply with centralized decision making equals that of decentralized provision as presented in (3.14). The more general interpretation of this result is that the potential benefits of centralization are absorbed by the adverse delegation

effect. The intuition for this result is that, although policies are coordinated, the leadership selection is not. With decentralized decision making there are two strategic decisions: relative public goods supply and delegation of policy making. With centralization, the strategic decision shifts to the delegation stage only. However, at the margin, the incentives of the median voter for conspicuous public goods supply do not differ between decision making modes and, hence, it may happen that the equilibrium allocation of public goods remains unaltered if policies are centralized.

3.5 Concluding remarks

In a theoretical model we showed that when public goods are conspicuous by nature, decentralized decision making causes supply to be too high. Centralization of decision making potentially solves this problem. However, when we allow for endogenous leadership selection, the picture changes. In the decentralized case, voters may realize the externality and the resulting perverse symmetric outcome. Hence, they have an incentive to commit to lower spending by electing a more moderate leader than the median of their group. Consequently, overspending on conspicuous public goods will be lower. This delegation effect is reversed under centralized decision making. Voters anticipate that the externalities are internalized. Therefore, they have an incentive to select a more extreme leader to obtain more public goods than the other group. Hence, centralization and policy coordination may not solve the conspicuous public goods problem. By endogenizing leadership selection we showed that centralization may fail to improve social welfare.

The implications of this chapter with respect to the effectiveness of cooperation might be depressing at first sight. However, there may be options in the constitutional stage to resolve the problem. First, when policies are coordinated, in the constitutional stage it might be possible to impose spending limits on the production of conspicuous public goods. With uniform spending limits, the incentive to delegate strategically is reduced, so that in equilibrium voters may be more inclined to select leaders that have median preferences.

A second option is to ex ante impose policy uniformity. Our results cru-

cially depend on the assumption that centralized conspicuous public goods supply can be differentiated among groups. If there is no scope for differentiation, this takes away the incentive for strategic delegation.

A third related solution is to delegate to a single policy maker who does not originate from one of the countries. This last option implies that if public goods are conspicuous, it may be best to delegate to a centralized institution that has low regard for the jealous spirits of the citizens that they govern.

A novelty in this chapter is that decentralized policy making may trigger strategic delegation when there is policy rivalry. We have seen that strategic delegation reduces the inefficiencies from non-cooperative decision making. In the next chapter we analyze in more depth decentralized policy making in an area where the race to the bottom is prevalent: environmental policy making in oligopolistic product markets. As in this chapter, we will see that strategic delegation may mitigate a race to the bottom in environmental standards. However, depending on the preferences of the median voter, the opposite can also happen so that delegation results in even worse policy outcomes.