On the dynamics of interest group formation and endogenous policymaking

Sadiraj, V.; Tuinstra, J.; van Winden, F.A.A.M.

On the Dynamics of Interest Group Formation and Endogenous Policymaking

Vjollca Sadiraj*, Jan Tuinstra†and Frans van Winden*

January 2000

Abstract

We present a dynamic model of the interaction between interest groups and policymakers, featuring endogenous interest group formation. We show that complicated dynamic patterns in economic policies may arise once interest group formation is taken into account.

KEYWORDS: Interest groups, Aspiration level, Endogenous fluctuations

JEL CLASSIFICATION: D23; D72; D78; E32; H30

1 Introduction

Interest groups seem to play an increasingly important role in economic policymaking (a nice illustration is provided by The Economist (1999)). A dramatic manifestation, involving NGO's, occurred during the recent WTO conference in Seattle. The importance of this phenomenon is reflected in the remarkable upsurge of so-called endogenous policy models, concentrating on the interaction between interest groups and economic policymakers (for a survey, see van Winden (1999)). These models typically focus on the Nash equilibria of a properly defined game, with complete information, where interest groups and the government are the (fully rational) players. They do not provide an explanation, however, for the emergence and size of interest groups, nor do they look into the dynamics of the interaction between these organizations and the policymakers (government). These issues are of obvious empirical relevance, since neither the set of interest groups (or their objectives) nor their sizes appear to

*CREED and Department of Economics, University of Amsterdam, Roetersstraat 11, 1018 WB, Amsterdam, the Netherlands, E-mail: vjollca@fee.uva.nl, fvwinden@fee.uva.nl

†CeNDEF and Department of Quantitative Economics, University of Amsterdam, Roetersstraat 11, 1018 WB Amsterdam, the Netherlands, E-mail: tuinstra@fee.uva.nl, Financial support under a NWO-Pionier grant is gratefully acknowledged.

be constant over time. In fact, organizational maintenance and attracting new members are a continuing concern for such groups (cf. Rothenberg (1988)). Moreover, the realism of assuming complete information and sophisticated strategic behavior can be seriously questioned given the complexity of the environment being dealt with. In particular, for understanding the decision of individuals to join or leave interest groups, a boundedly rational, decision theoretic approach would seem to be more appropriate. As a starting point, in this paper we take as an important determinant of this decision the (dis)satisfaction of the individual with the observed political outcomes. Allowing for costly contribution fees and the consequent free-riding problem, it seems plausible to assume that the propensity to join or leave is related to the gap between the individual's aspiration level concerning economic variables and their realization. Success of an interest group would then be like a double-edged knife, since it could negatively affect its membership. For illustrative historical examples one could think of the anti-slavery, anti-segregation or voter enfranchisement lobbies, which were practically dissolved once their objectives were realized. Our approach resembles in this respect those models of voter behavior in large-scale elections where the probability of voting for an opposing party (an interest group of its own kind) is related to the dissatisfaction of the voter with the economic situation under the existing government (see e.g. Paldam (1997)). In this short paper we introduce, in a simple redistribution framework, a model that incorporates these dynamical features of interest groups. It will be shown that the feedback effect generated by the process of interest group formation may inhibit the occurrence of a stable political economic equilibrium, leading to surprising dynamics in the interaction between the organization of social groups into interest groups and economic policy determination.

2 The model

We consider an economy with two sectors, A and B, each employing a large number of agents. All individuals working in sector i $(= A, B)$ earn a given income of w_i. There is no mobility across sectors and the number of agents working in each of the sectors is exogenously given as m_i. Furthermore, all individuals are assumed to have the same, strictly concave, indirect utility function $V(.)$. We assume that the government can redistribute income by a, possibly negative, lump-sum tax of τ_A on the individuals working in sector A, implying a lump-sum tax or subsidy to the individuals in sector B equal to $\tau_B = -\frac{m_A}{m_B}\tau_A$, in order to balance the government budget. Individuals of each sector can organize into an interest group, entailing a contribution c_i per individual. For individual j working in sector i indirect utility equals $V(w_i - \tau_i - c_j)$, where $c_j = c_i$ $(i = A, B)$ for interest group members and $c_j = 0$ for the non-members.

Interest groups lobby for a tax schedule that favors members as well as non-members working in the respective sector. Notice that the sector specific public good (bad) nature of the tax schedule introduces a free-riding problem, which is

characteristic for many types of interest groups. We now provide the following simple model for the formation and development of interest groups. Each individual has to decide whether to join the interest group or not. We assume that the contribution fees c_A and c_B are given and remain constant.[1] We now have to determine the total level of lobbying expenditures from each of the interest groups, or equivalently, the size of the interest groups. Here we assume that the propensity of individuals to join is related to the gap between their actual utility and a prespecified aspiration level. It seems natural to take as aspiration level $V(w_i - c_i)$. This implies that people are more inclined to join the interest group the more the contribution fee falls short of the tax they have to pay under the current regime. Specifically, for each of the agents of sector i the probability of joining that sector's interest group is assumed to be equal to

$$\Pr[\text{joining}]_i = \frac{\exp \beta V(w_i - c_i)}{\exp \beta V(w_i - \tau_i) + \exp \beta V(w_i - c_i)}, \qquad i = A, B,$$

where $\beta > 0$ measures the behavioral sensitivity to deviations from aspirations. The evolution of the size of the interest group is now modelled as follows. First, assuming some organizational inertia, with probability λ the individual considers joining the interest group and with probability $1 - \lambda$ (s)he stays put. Given that there are a large number of agents in each sector, the sizes of the interest groups evolve deterministically as

$$n_{i,t+1} = (1 - \lambda) n_{i,t} + \lambda \frac{m_i}{1 + \exp \beta [V(w_i - \tau_i) - V(w_i - c_i)]}, \qquad i = A, B. \qquad (1)$$

For simplicity λ and β are assumed to be the same across sectors.

We now turn to the government. According to the literature on endogenous policy models, governmental policymakers are assumed to be interested in political survival and therefore (but also for other reasons) in contributions from interest groups. The relative amount of contributions and relatedly the relative size of these groups therefore impact on the extent to which the interests of social groups in society are taken into account. (See e.g. Dixit et al. (1997), Nitzan (1999) and the survey in van Winden (1999).) In short, organization and contributions matter for the policies selected by the government. Since our focus here is not on the precise mechanism relating interest group activity to policy determination, we take a reduced-form approach by assuming that the government maximizes the following interest function

$$G(\tau_A) = \frac{C_A}{C_A + C_B} m_A V(w_A - \tau_A) + \frac{C_B}{C_A + C_B} m_B V\left(w_B + \frac{m_A}{m_B} \tau_A\right),$$

where the weights attached to the interests of the individuals in the different sectors are determined by the respective total contributions of the interest groups, $C_i = c_i n_i$. For given levels of the contributions c_i this implies that the sizes of the interest

[1] An alternative interpretation of the model would be that people do not decide upon whether to join or not, but everybody is a member and has to decide on the amount to contribute.

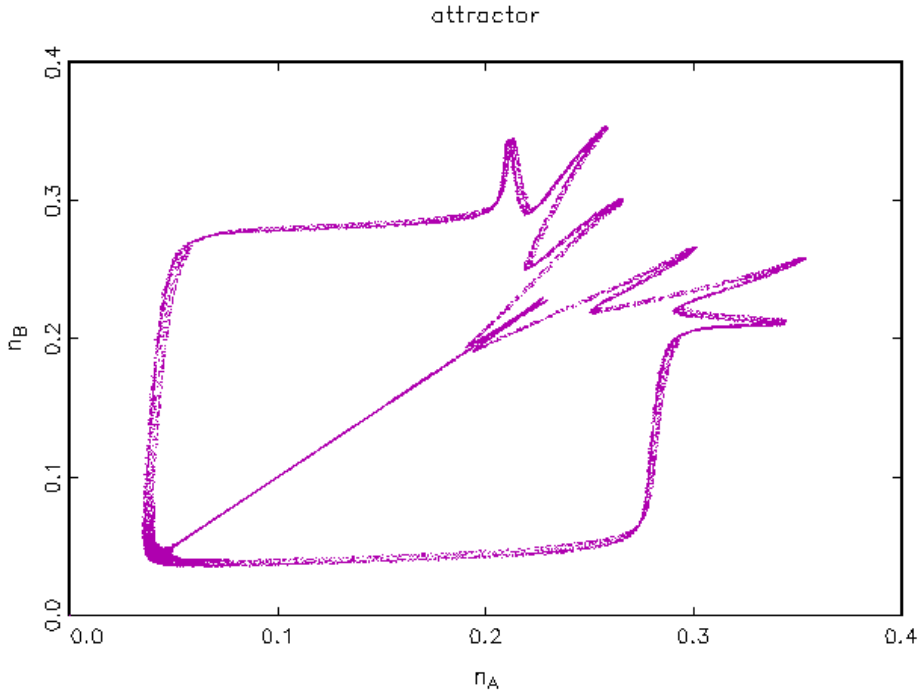

Figure 1: The attractor for the model with $w = 3$ and $\beta = 6$.

groups n_i are determinant. Now let us consider the optimal tax rate. The first order condition for an optimum is

$$C_A V'(w_A - \tau_A) = C_B V'\left(w_B + \frac{m_A}{m_B}\tau_A\right). \tag{2}$$

Notice that if total contributions per sector are the same ($C_A = C_B$), the government will equalize the after-tax income across sectors.

In the rest of this paper we will use as indirect utility function $V(x) = \frac{1}{1-\alpha}x^{1-\alpha}$, with $0 < \alpha < 1$. The first order condition (2) then leads to the following tax rule

$$\tau_A(C_A, C_B) = \frac{C_B^{\frac{1}{\alpha}} w_A - C_A^{\frac{1}{\alpha}} w_B}{C_A^{\frac{1}{\alpha}} \frac{m_A}{m_B} + C_B^{\frac{1}{\alpha}}}. \tag{3}$$

3 Dynamics

The main issue that we are interested in in this paper concerns the dynamics of the model consisting of (1) and (3). Let us concentrate on the following specification of the model: $m_A = m_B = 1$ (thus n_i can be interpreted as the fraction of people

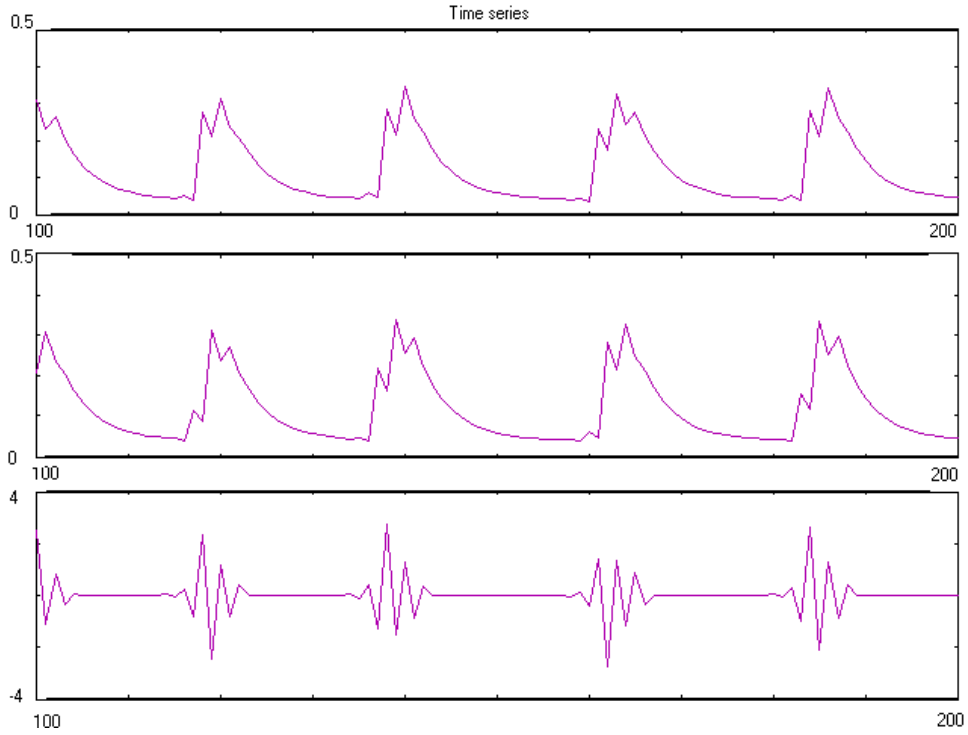

Figure 2: Time series for the model with $w = 3$ and $\beta = 6$. The graph shows the development of n_A, n_B and τ from period 100 to period 200.

organized in sector i), $c_A = c_B = 1$, $\alpha = \frac{1}{2}$ and $\lambda = \frac{1}{4}$. Furthermore, assume that income in both sectors is equal to w. We will now investigate how the dynamics of interest group sizes and the optimal tax rate evolve as the sensitivity parameter β varies. For this symmetric model a unique symmetric equilibrium exists with $n_A = n_B = \frac{1}{1+\exp\beta[V(w)-V(w-c)]}$ and $\tau = 0$. For very low values of β, that is, when people are not very likely to join or leave an interest group on the basis of the economic situation, this equilibrium is stable. However, if β increases the equilibrium becomes unstable and a period two cycle emerges (provided that $n_{A,0} \neq n_{B,0}$). For $w = 3$ this *flip-* or *period-doubling bifurcation* happens at $\beta \approx 0.58$. This period two cycle corresponds to the situation where in one period interest group A is large and interest group B is small, and the latter group is taxed to the benefit of people in sector A, while in the next period the situation is reversed. For higher values of β more complicated dynamic patterns emerge. Figures 1 and 2 illustrate the occurrence of a strange attractor and the corresponding complicated time series that we obtain for $w = 3$ and $\beta = 6$. The intuition for these time series is the following. An increase in the size of one of the interest groups leads to a new tax, which is more beneficial to this interest group. This leads to an increase in the size of the other interest group which induces a tax rate more beneficial to this interest group. In this fashion the

sizes of the interest groups keep on increasing until a certain point where the process loses momentum, due to a diminishing effect on the tax schedule, and is eventually reversed.

4 Concluding remarks

We have presented a dynamic model of the interaction between interest groups and policymakers, featuring endogenous interest group formation. This model shows the restrictiveness of, on the one hand, the usual assumption of fixed sizes of interest groups and, on the other hand, the concentration on equilibria in the literature. Clearly, our model is very stylized. However, it suffices to convey our basic message, namely that interest groups rise and decline as a function of government behavior and that complicated dynamic patterns in economic policies may arise once interest group formation is endogenously taken into account.

References

[1] Dixit, A., Grossman, G.M., Helpman, E., 1997. Common agency and coordination: General theory and application to government policy making. Journal of Political Economy 105, 752-769.

[2] The Economist, 1999. The non-governmental order. Will NGOs democratise, or merely disrupt, global governance? December 11, 18-19.

[3] Rothenberg, L.S., 1988. Organizational maintenance and the retention decision in groups. American Political Science Review 82, 1129-1152.

[4] Nitzan, S., 1994. Modelling rent-seeking contests. European Journal of Political Economy 10, 41-60.

[5] Paldam, N., 1997. Political business cycles, in: D.C. Mueller (ed.), Perspectives on Public Choice. Cambridge University Press. Cambridge.

[6] van Winden, F., 1999. On the economic theory of interest groups: Towards a group frame of reference in political economics. Public Choice 100, 1-29.