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Economics Letters 92 (2006) 306–310
economics letters
www.elsevier.com/locate/econbase

Secession and value

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Received 15 November 2005; received in revised form 23 February 2006; accepted 6 March 2006
Available online 21 August 2006

Abstract

A model with random proposals, where secession of coalitions is the only threat, yields exploitative allocations. If proposals for coalition S involve randomization, the responders' pay off vector consists of Shapley values for coalition sizes ranging from 1 to $|S|-1$.
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Keywords: Shapley value; Bargaining

JEL classification: C71; C78; H11

1. Introduction

The right to secede is often seen as a powerful device to prevent exploitation of a minority by the majority (Buchanan and Faith, 1987). We show, however, that in a world where societies are allowed to redistribute income with no other safeguard than the right to secede, resulting distributions may well be highly inequitable and, perhaps more surprisingly, exploitative. Consider, say, a state's right to secede from the Union. If its citizens feel that as a community they pay more for services from the Union than they would if they provide for those services themselves there is the temptation for them to unanimously opt for secession.[1] They should, however, realize that once the secession has taken place, they will be able to claim within the secession only what they can defend by employing the threat of further secession

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[1] To simplify we ignore an impact of jurisdiction size on private income.

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doi:10.1016/j.econlet.2006.03.013

from the secession, and so forth.[2] We characterize stable cost allocations in a game like this. The state will stay in the Union even if its citizens end up in a situation where within the Union they pay more for the provision of services than if a secession were actually to take place.

We pursue our argument in a cost allocation framework where a coalition provides a (local) public good for its members. A proposal maker i is randomly selected to propose tax payments for coalition S. The only objection against the proposal is for a subcoalition of $R \subseteq S \setminus \{i\}$ players to secede. However, while players can commit to a secession, they cannot commit to any particular, new cost allocation. Instead they know that a tax scheme for the seceding coalition R will be proposed by a randomly selected proposal maker who proposes under the threat of further secession. We show that the equilibrium tax scheme is exploitative, i.e. any R pays more than its stand alone cost. We derive conditions under which the equilibrium proposal involves random differentiation across agents as opposed to discrimination against certain agents. If the proposal maker assigns pay offs randomly, the resulting cost allocation for the responders corresponds to the stage wise calculated Shapley value for coalition sizes running from 1 to $|S|-1$.

It is worthwhile highlighting the difference between the secession approach and the standard bargaining approach. In the bargaining game with random proposal makers by Hart and Mas-Colell (1996), if each responder can trigger the formation of the coalition $S \setminus \{i\}$ by rejecting i's proposal, agents realize their Shapley value in the "subgame" restricted to $S \setminus \{i\}$. There, coalition $S \setminus \{i\}$ can realize its stand-alone value. If, as in our case, collective action is needed which requires all agents in a coalition to partake in a secession — the power of any individual agent is reduced and the proposal maker may "buy off" some agents while making the whole coalition pay more than their stand-alone cost. Considering secession as a bargaining move is particularly appealing as it is the most natural threat of a coalition in an institution-free setting.

Our framework reverses the order of moves in Maskin (2003): In our case, players are free to leave while in Maskin they enter in an arbitrary order. The solution concept is an application of binding agreements (Ray and Vohra, 1997) to a setting where (sub)-coalitions act under the constraint that they cannot pre-commit to a final allocation. The following example illustrates our ideas:

Example 1. Suppose that $N=\{1, 2, 3\}$, $C(1)=C(2)=C(3)=6\$$, $C(1, 2)=C(1, 3)=C(2, 3)=7\$$ and $C(1, 2, 3)=11\$$.

In this example, C is subadditive but not concave and the core is empty.[3] Let 3 be the proposal maker for the grand coalition. If 1 pays 6$ this leaves her indifferent towards seceding as a singleton. Now consider the position of 2. If 2 secedes with 1, they pay 7$ together. So if they can sign a contract they can allocate 7$ between them, and given that 1's cost of staying is 6$, 2 may pay no more than 1$ in a secession. On the other hand, suppose that they cannot sign a contract but have to agree on a secession knowing that nothing else but the threat of further secession will protect them from exploitation in the society $\{1, 2\}$. After a secession, 1 and 2 have an equal chance of imposing an allocation in their society. That is, if 1 imposes, the cost allocation is

[2] Buchanan/Faith raise the issue of exploitation within a secession in a footnote but they do not consider differentiation between potential seceders. Atkinson (1995) shows that if the seceders are constrained in the choice of the tax system, redistribution is sustainable in the original society.

[3] In order to be in the core, individual payments x_1, x_2, x_3 would have to satisfy $x_1+x_2 \leq 7\$$, $x_1+x_3 \leq 7\$$, $x_2+x_3 \leq 7\$$. Summing up these conditions gives $2(x_1+x_2+x_3) \leq 21\$$ violating the break even requirement $x_1+x_2+x_3=11\$$ (see Young, 1994).

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