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Inflexible Rules Against Political Discretion

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Democratic life is governed by majority rule. Interest groups are successively well represented or not by the majority in power. Once in power a majority will attempt to favor its electorate under the constitutional constraints, at least in countries where a constitutional control is effective. Note that, even without such an effective control, as long the rule of majority is preserved, future elections put constraints on how much a majority will want to favor the interest groups supporting it.

The point we want to make in this note is that this fluctuation of power quite natural in a democracy is harmless in a world of complete information, but socially costly when the decentralization of information among strategic economic agents is taken into account. It follows that it may be ex ante efficient to impose constitutionally inflexible rules which give up some efficiency in the allocation of resources to limit the discretion of successive majorities and the excessive fluctuation of decisions they take.[1]

Even though the paper will remain quite abstract examples of such inflexible rules abound: the balanced budget rule in public finance, the non discrimination rule in pricing, the balanced budget rule of regulated firms, the ban on public ownership of firms in some countries...

In the next section, we construct an economy with two types of consumers who must decide on the level of a costless public good. The number of consumers of each type fluctuates over time creating an alternance of majorities. Each period, the level of public good and monetary transfers between types are decided by the type of consumers who has the majority, under the constraint of voluntary participation (called individual rationality constraint) of the other type. Consequently, the levels of utilities of the two types fluctuate according to the majority in place.

However, under complete information about consumers' tastes and under the implicit assumption of an optimal distribution of income, we can assume that there is no income effect from the political

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1. See Laffont (1995) and Boyer and Laffont (1996) for other examples than the one taken up in this paper.

redistributions due to the transfers associated with the public good decisions. The Pareto frontier is then linear and the fluctuation of majorities entails only a fluctuation of money incomes and not of public good levels, with no welfare loss. The democratic rule has no social cost. In section three, we assume that consumers' tastes are private knowledge. Each majority must now optimize its own welfare under the other type's participation constraint, but also under the incentive constraints which ensure truthful revelation of the other type's private information. The major consequence of the incentive constraints is that they convexify the Pareto frontier. In other terms, there is now a deadweight loss of transfers between types because of asymmetric information. The fluctuation of majorities implies now a fluctuation of public good decisions which has a social cost, because of decreasing marginal utility for the public good.

This inefficiency of the democratic rule opens the possibility of the superiority of a more inflexible decision rule, less sensitive to consumers' tastes but with no fluctuation of public good decisions. Proposition 1 gives the precise condition under which this bureaucratic rule dominates the democratic rule.

Section 4 extends the analysis by deriving the whole Pareto frontier under incentive constraints to show more clearly the convexification effect of the Pareto frontier due to asymmetric information, which is behind the trade-off between inflexibility of rules and political discretion.

Section 5 concludes by reconsidering the role of economists in a world where economic decisions are delegated to politicians who have some discretion to favor interest groups.

A Simple Model

To illustrate our thesis, a very simple model will be considered. After making precise our argument in this sketch, it should be easy for the reader to grasp the generality of the argument. We consider an economy with two agents only who have different tastes about a public good decision. Each agent can be viewed as a black box representing a large number of similar voters. Each period the level of a public good must be decided. Agent 1 has preferences represented by the utility function:

$$\theta_1 x - \frac{x^2}{2} + t_1$$

where x is the quantity of public good (whose cost is imbedded in the utility function for simplicity or assumed to be zero), t_1 is a quantity of private good (money) and $\theta_1 \in [\underline{\theta}, \bar{\theta}]$ is a taste parameter which is private knowledge of the agent.

Each period, θ_1 is drawn from a probability distribution with a cumulative distribution function $F(\cdot)$ on $[\underline{\theta}, \bar{\theta}]$ with the regularity condition $\frac{1-F(\theta)}{f(\theta)}$ non increasing.

Similarly agent 2 has preferences represented by

$$\theta_2 x - \frac{x^2}{2} + t_2$$

where θ_2 is also drawn (independently of θ_1) from the distribution $F(\cdot)$.

The efficient public decision rule is defined by

$$x^*(\theta_1, \theta_2) = \frac{\theta_1 + \theta_2}{2} .$$

The democratic life of this admittedly quite simple country is summarized by the fact that each period agent 1 (or agent 2) controls the government, and therefore the decision over the public good, with probability[2] 1/2.

There is no discount factor, and the "majority" controlling the government must respect constitutional rules which we take here to be that the individual rationality (IR) constraints of the "opposition" must be preserved.

Let us see first what would happen in such a simple world under complete information.

If type 1 has control (has the majority) he maximizes his utility under the constraint that type 2 has a non zero utility level[3], the IR constraint, or:

$$\text{(1)}\quad \max_x \quad \theta_1 x - \frac{x^2}{2} + t$$

$$\theta_2 x - \frac{x^2}{2} - t \geq 0 \qquad (1)$$

(1) is the IR constraint. We have written transfers in a form which expresses the fact that agent 1 has power and can impose a transfer in private good to agent 2 as long as, with the choice of public good, agent 2's IR constraint is satisfied.

The solution of program (I) is immediately:

$$x^{CI}(\theta_1,\theta_2) = \frac{\theta_1 + \theta_2}{2} \qquad (2)$$

$$t^{CI}(\theta_1,\theta_2) = \theta_2 x^{CI}(\theta_1,\theta_2) - \frac{[x^{CI}(\theta_1,\theta_2)]^2}{2} \; . \qquad (3)$$

When agent 1 is in power the expected utility of agent 2 is[4]

$$U_2^{M1} = 0$$

and the expected utility of agent 1 is

$$U_2^{M1} = E_{\theta_1\theta_2}\{\,\theta_1 x^{CI}(\theta_1,\theta_2) - \frac{[x^{CI}(\theta_1,\theta_2)]^2}{2} + t^{CI}(\theta_1,\theta_2)\}. \qquad (4)$$

Substituting (2) and (3) in (4) we obtain:

$$U_2^{M1} = (E\theta)^2 + \frac{1}{2}\, Var\,\theta, \qquad (5)$$

where

$$E\theta = \int_{\underline{\theta}}^{\bar{\theta}} \theta dF(\theta) \quad Var\,\theta = \int_{\underline{\theta}}^{\bar{\theta}} (\theta - E\theta)^2\, dF(\theta).$$

By symmetry, we have

$$U_1^{M2} = 0 \quad U_2^{M2} = (E\theta)^2 + \frac{1}{2}\, Var\,\theta$$

and finally for each agent an expected utility of

$$\frac{1}{2}(E\theta)^2 + \frac{1}{4}\, Var\,\theta.$$

Figure 1 summarizes the analysis.

M_1^* (resp. M_2^*) represents the expected utilities conditionally on 1 (resp. 2) having control. M^* represents the vector of global expected utilities.

Note the essential point that M^* belongs to the ex ante Pareto optimal frontier under complete information. It corresponds to the efficient public decision with a symmetric treatment of the agents.

2. The democratic alternance may reflect very small random changes of the sizes of the two populations, changes which can be neglected in the welfare analysis.
3. We assume that the public project can be realized only if both agents participate.
4. The upper-index M_1 (or M_2) refers to the fact that majority 1 (or 2) is controlling the government.

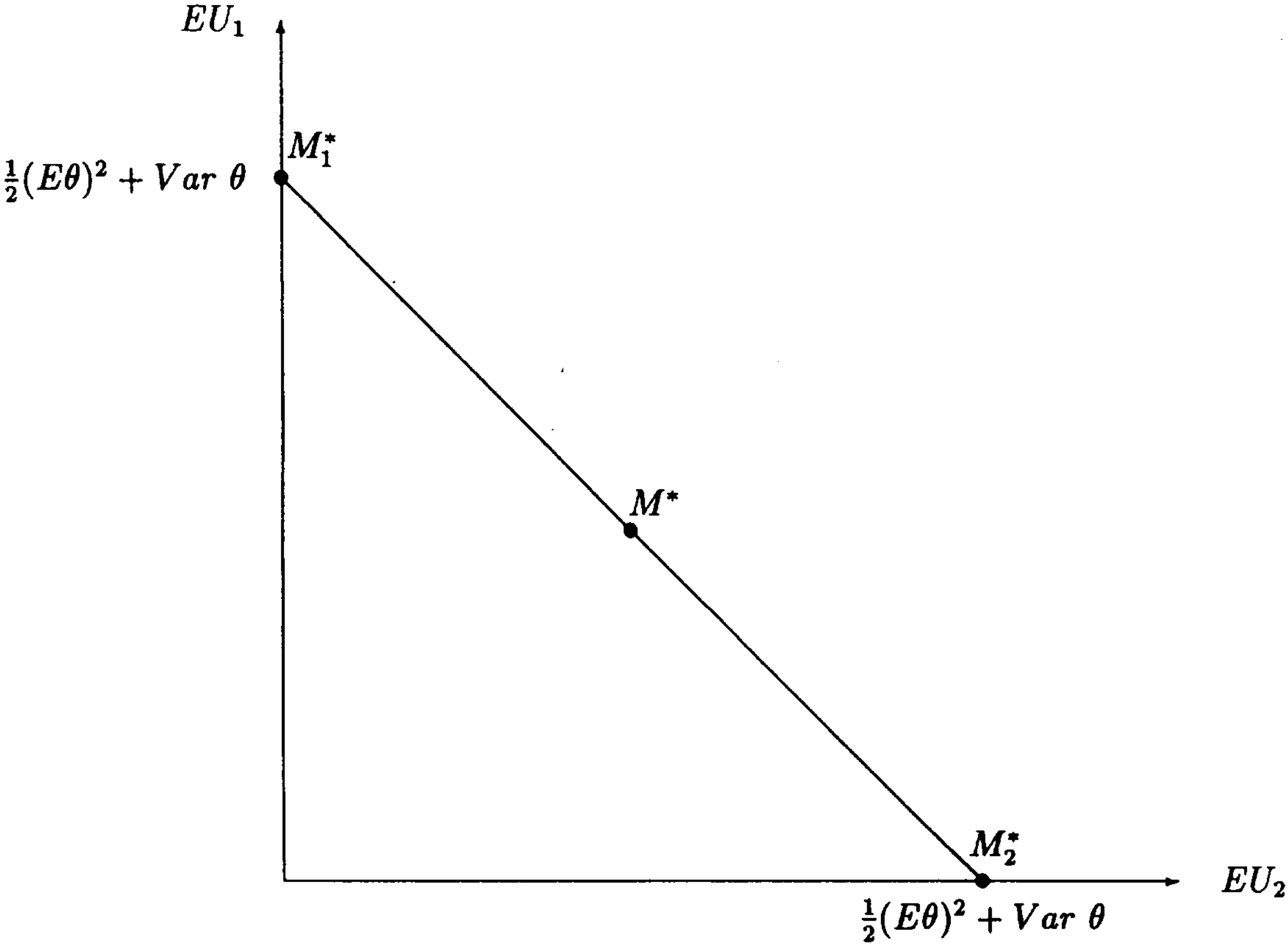


Figure 1

In such a world the fluctuation in the allocation of resources due to the democratic rule (restricted here to the fluctuation in transfers) has no social cost.

Remark 1: We have assumed risk neutrality in transfers motivated by an optimal redistribution of income. Introducing asymmetric information à la Mirrlees (1971) in an income redistribution problem for an economy with income effects would yield an analysis similar to the one which follows. Our modeling choices are dictated by simplicity.

Remark 2: Note that the allocation has been obtained as an ex post Pareto optimum. It is also an ex ante Pareto optimum, because agents are risk neutral in transfers.

Incomplete Information

We assume now that, when agent 1 has control, he does not know agent 2's taste characteristic.

The revelation principle tells us that there is no loss of generality in restricting the policies of agent 1 to choosing in the family of revelation mechanisms, i.e. public good decision functions $x(\theta_1,\theta_2)$ and transfer functions $t(\theta_1,\theta_2)$ which induce truthful revelation of agent 2's taste as a Bayesian equilibrium.

Then, agent 1's best policy is to maximize his expected (with respect to θ_2) welfare under the incentive and individual rationality constraint of agent 2. Let us first derive these constraints

$$\hat{U}_2(\theta_2,\tilde{\theta}_2)=E_{\theta_1}\theta_2 x(\theta_1,\tilde{\theta}_2)-\frac{[x(\theta_1,\tilde{\theta}_2)]^2}{2}-t(\theta_1,\tilde{\theta}_2)$$

is agent 2's expected utility when he is of type θ_2 and envisions to claim he is a $\tilde{\theta}_2$ type in a revelation mechanism $x(\tilde{\theta}_1,\tilde{\theta}_2)$, $t(\tilde{\theta}_1,\tilde{\theta}_2)$.

Let $U_2(\theta_2) = \hat{U}_2(\theta_2,\theta_2)$, i.e., his utility when he tells the truth.

The first order condition of incentive compatibility tells us that the rate of increase of agent 2's utility level, $\dot{U}_2(\theta_2)$, equals the expectation of the level of public good decision:

$$\dot{U}_2(\theta_2) = E_{\theta_1} x(\theta_1,\theta_2).$$

A necessary link exists between the use which is made of agent 2's information (namely the public good decision) and the rent that must be given up to him to induce truthtelling.

The second order condition of incentive compatibility puts a sign constraint on the public good decision function, which does not matter if the objectives of the two agents are not too conflictual:

$$E_{\theta_1} x(\theta_1,\theta_2) \quad \text{non decreasing.}$$

The individual rationality constraint[5] is:

$$U_2(\theta_2) \geq 0 \qquad \text{for any } \theta_2 \in [\underline{\theta},\bar{\theta}].$$

Agent 1's optimization program can then be written[6] (by noting that

$$t = E_{\theta_1}(\theta_2 x - \frac{x^2}{2} - U_2)$$

$$\max_{x(\cdot,\cdot)} E_{\theta_1\theta_2}((\theta_1+\theta_2)x(\theta_2,\theta_2)-[x(\theta_2,\theta_2)]^2- \mathrm{U}_2(\theta_2))$$

s.t.

$$\dot{U}_2(\theta_2) = E_{\theta_1} x(\theta_2,\theta_2),$$
$$U_2(\theta_2) \geq 0 \text{ for any } \theta_2 \in [\underline{\theta},\bar{\theta}]$$
$$E_{\theta_1} x(\theta_1,\theta_2) \text{ non decreasing.}$$

The solution of this problem[7] is

$$x^{M1}(\theta_1,\theta_2) = \frac{1}{2}[\theta_1+\theta_2-\frac{(1-F(\theta_2))}{f(\theta_2)}].$$

Hence,

$$\dot{U}_2(\theta_2) = \frac{1}{2} E_{\theta_1}[\theta_1+\theta_2-\frac{(1-F(\theta_2))}{f(\theta_2)}]$$

5. This IR constraint is a interim constraint, i.e., it is written after agent 2 has discovered his private information, but before knowing agent 1's information.
6. We assume here that majority 1 chooses the mechanism before knowing its private information parameter. However, the mechanism is played after agents learn their information.
7. We make assumptions on $F(\cdot)$ and $[\underline{\theta},\bar{\theta}]$ such that x^{M1} is always non negative. Note that we can also add constants to the utility functions when the public good is realized to make sure that the IR constraints are satisfied for the chosen probabilistic specifications. See Guesnerie and Laffont (1984) for the methodology used below. The distortion obtained in the public good choice illustrates the Laffont-Maskin (1979), Myerson-Satterthwaite(1983) result according to which efficiency and interim individual rationality are not achievable in general.

$$U_2^{M1} = E_{\theta_1} U_2(\theta_2) =$$

$$\frac{1}{2}\int_{\underline{\theta}}^{\bar{\theta}}\int_{\underline{\theta}}^{\bar{\theta}} [\int_{\underline{\theta}}^{\theta_2} (\theta_1 + \tilde{\theta}_2 - \frac{(1-F(\tilde{\theta}_2))}{f(\tilde{\theta}_2)} d\tilde{\theta}_2]\ dF(\theta_2) dF(\theta_1)$$

$$U_1^{M1} = E_{\theta_1\theta_2}[(\theta_1+\theta_2)x^{M1}(\theta_1,\theta_2) - [x^{M1}(\theta_1,\theta_2)]^2 - U_2^{M1}$$

In particular

$$U_1^{M1} + U_2^{M1} = (E\theta)^2 + \frac{1}{2} Var\,\theta - E\{\frac{1}{4}(\frac{(1-F(\theta_2))}{f(\theta_2)})^2\}.$$

Note that by symmetry

$$U_1^{M2} = U_2^{M1} \quad U_2^{M2} = U_1^{M1}$$

Since $U_1^{M1} + U_2^{M1} < (E\theta)^2 + \frac{1}{2} Var\theta$, the allocation M_1 which corresponds to expected utilities under majority 1 is now below the complete information Pareto frontier.

The global expected utility of agent 1 is

$$\frac{1}{2}U_1^{M1} + \frac{1}{2}U_1^{M2} = \frac{1}{2}(U_1^{M1} + U_2^{M1}).$$

Figure 2 summarizes the analysis. M_1 and M_2 represent the expected utility allocations under majority one and two respectively and M the average of those. The incomplete information generates a loss with respect to the full information Pareto frontier.

Define now the *bureaucratic rule*

$$x = E\,\frac{\theta_1 + \theta_2}{2}$$

with no transfer which maximizes ex ante social welfare and leaves no discretion to politicians. Then:

$$EU_1 + EU_2 = (E\theta)^2.$$

$\hat{M}$ represents in Figure 2 the associated expected utility allocation. $\hat{M}$ can Pareto dominate or be Pareto dominated by M according to the following proposition.

Proposition 1: *The bureaucratic rule dominates the democratic political discrimination if*

$$Var\,\theta < E\,\frac{1}{2}(\frac{(1-F(\theta_2))}{f(\theta_2)})^2.$$

If the importance of asymmetric information measured by $Var\ \theta$ is not too great, the bureaucratic rule which is not responsive to private information but avoids the excessive fluctuations of majority decision making dominates the more informed democratic decision rule

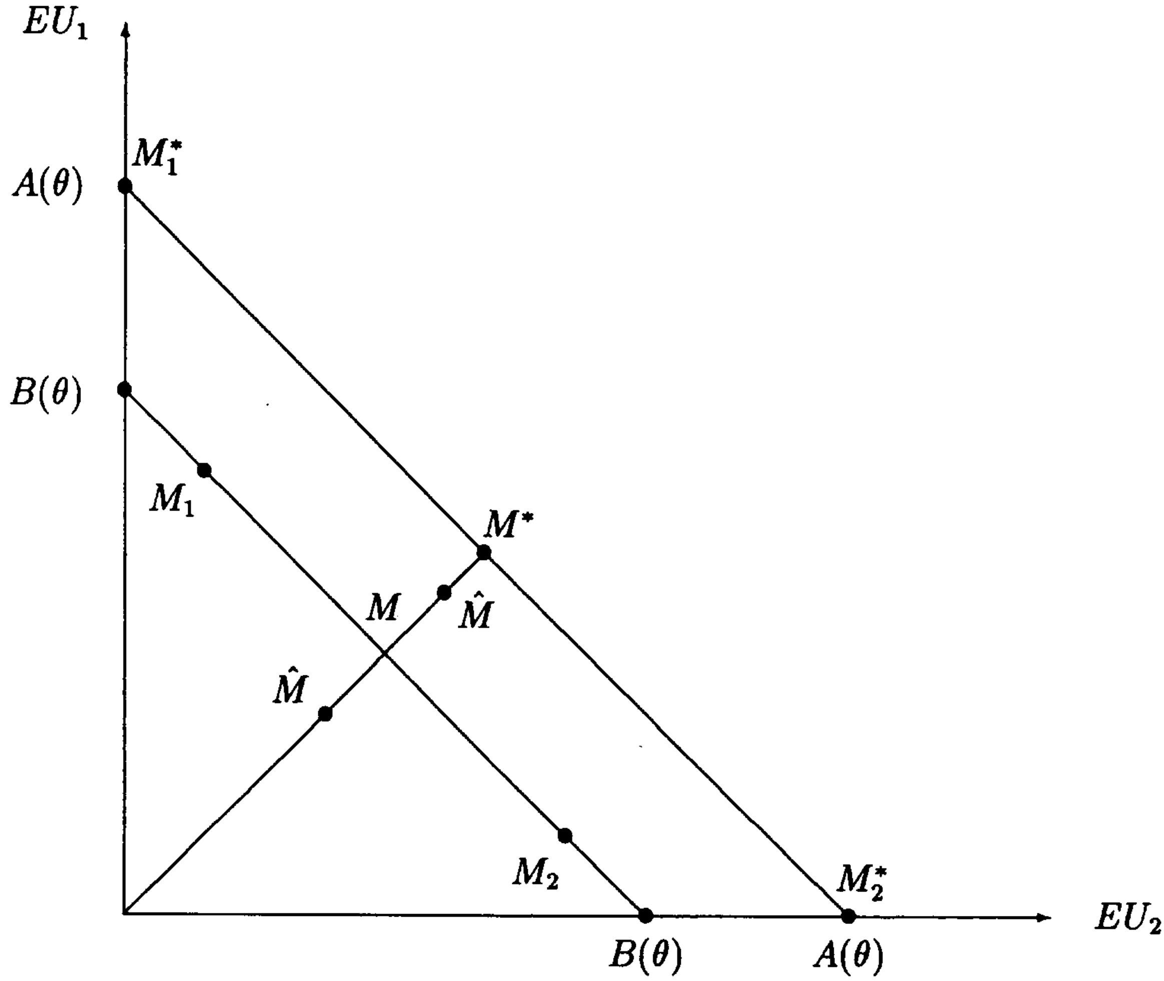
Incentive Pareto Efficiency

Under incomplete information the allocations obtained either by the democratic rule or the bureaucratic rule should not be compared with the Pareto frontier under complete information. The relevant normative benchmark is the Pareto frontier under incentive constraints, called incentive Pareto frontier, that we derive below. It is the convexity of this frontier which creates the possible trade-off between inflexibility (or insensitivity to information) of rules and political discretion inducing a socially costly risk.

The ex ante Pareto frontier under incentive constraints that we call the incentive Pareto frontier is determined by varying δ in [0,1] in the following program:

$$\max_{x(\cdot,\cdot)} E_{\theta_1,\theta_2}\,[\delta(\theta_1 x - \frac{x^2}{2} + t) + (1-\delta)(\theta_2 x - \frac{x^2}{2} - t)]$$

s.t.



$$A(\theta) = (E\theta)^2 + \frac{1}{2} Var\ \theta$$

$$B(\theta) = A(\theta) - \frac{1}{4} E\left(\frac{1-F(\theta)}{f(\theta)}\right)^2$$

Figure 2

$$\dot{U}_1(\theta_1) = E_{\theta_2} x(\theta_1,\theta_2)$$
$$\dot{U}_2(\theta_2) = E_{\theta_1} x(\theta_1,\theta_2)$$
$$U_1(\underline{\theta}) \geq 0$$
$$U_2(\underline{\theta}) \geq 0$$

with

$$U_1(\theta_1) = E_{\theta_2}\{(\theta_1 x(\theta_1,\theta_2) - \frac{[x(\theta_1,\theta_2)]^2}{2} + t(\theta_1,\theta_2)\}$$

$$U_2(\theta_2) = E_{\theta_1}\{(\theta_2 x(\theta_1,\theta_2) - \frac{[x(\theta_1,\theta_2)]^2}{2} - t(\theta_1,\theta_2).\}$$

If $\delta > \frac{1}{2}$, the coefficient of t in the social welfare function is negative. Consequently, the IR constraint of agent 2 is binding while the one of agent 1 is not. The optimization program can be rewritten:

$$\max E_{\theta_1,\theta_2} [(\theta_1+\theta_2)x - x^2 - \frac{2\delta-1}{2\delta} \; U_2(\theta_2)]$$

s.t.

$$\dot{U}_2(\theta_2) = E_{\theta_1} x(\theta_1,\theta_2)$$
$$U_2(\underline{\theta}) \geq 0$$

with an optimal public decision rule:

$$x(\theta_1,\theta_2) = \frac{1}{2}\;[\theta_1+\theta_2 - \frac{(2\delta-1)}{2\delta}\frac{1-F(\theta_2)}{f(\theta_2)}]$$

and a symmetric solution when $\delta < \frac{1}{2}$. When $\delta = \frac{1}{2}$, none of the IR contraints is binding and the efficient public decision is implemented.

The incentive Pareto frontier is represented by the dotted non linear curve $M_1 M_2$ (see Figure 3).

So, we see that asymmetric information convexifies the incentive Pareto frontier. The social cost of fluctuations in decision making follows from this convexity, as well as the potential superiority of a bureaucratic rule which is not even incentive Pareto efficient.

Remark 3: So far we have assumed that each majority was selecting its mechanism before knowing its private information. Suppose now on the contrary that such a selection is made at the interim stage. We have now an informed principal problem and we must take into account the information trans-

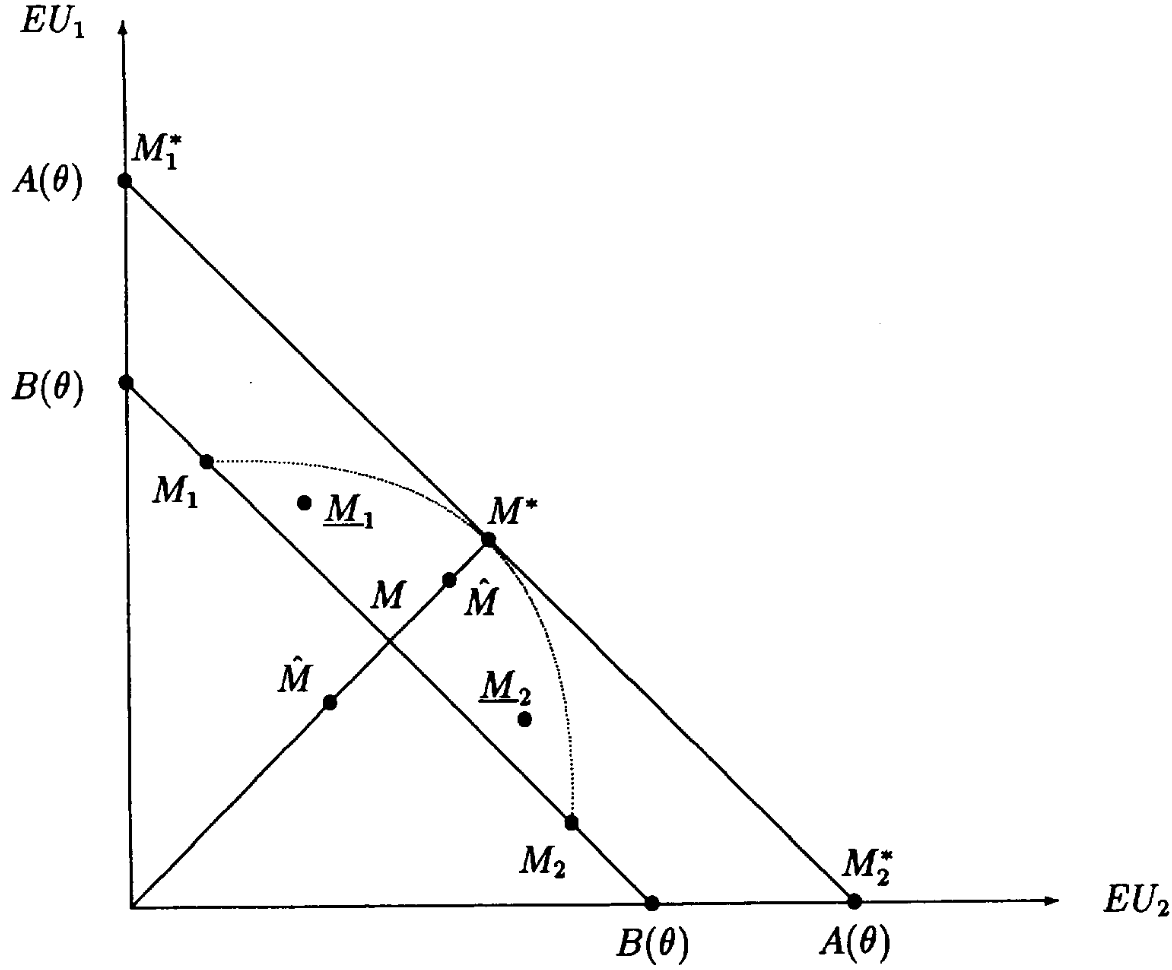


Figure 3

mitted by the ruling majority's offer of mechanism. From Maskin and Tirole (1990), we know that every thing happens as if the agent was informed about the majority's characteristics. When majority 1 occurs, this changes the IR constraint of agent 2 from an interim constraint to an ex post constraint

$$U_2(\theta_1,\theta_2) \geq 0 \quad \text{for any} \quad \theta_1,\theta_2.$$

However, it is easy to see that it does not change the decision rule and that, because of the linearity of agent 2's utility in θ_1, it does not change expected utilities either. So the information transmission is harmless.

Conclusion

The theory presented here in an example can be summarized as follows. Asymmetric information convexifies the Pareto frontier. A first implication is that the fluctuations in decision making due to the conflicts of interest groups mediated by democratic rules is socially costly. A second implication concerns the role of economists in such a world. By helping the ruling majorities further their interests (for example by enabling them to implement the incentive efficient allocations M_1 and M_2, instead of the incentive inefficient allocations $\underline{M}_1$, $\underline{M}_2$ in figure 2), economists may decrease expected social welfare. Advocating efficiency may be socially counter productive. On the other hand, a more positive role falls to economists' share. By designing at the constitutional level decision rules which take into account the perverse incentives of politicians, they can promote social welfare. Then, these rules need to be accepted by the politicians themselves. In the example above under the condition of proposition 1, both types benefit ex ante from adopting the bureaucratic rule. The US debates on the balanced budget rules illustrate (may be) the fact that a potentially welfare improving bureaucratic rule may be opposed by enough interest groups to prevent its adoption at the constitutional level.

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