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# Constitutional "Rules" and Intergenerational Fiscal Policy

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**Abstract.** This paper analyzes the impact of alternative political institutions on sustainable fiscal policies. We study the choice of intergenerational transfers as outcomes of an infinite social security game among successive selfish median voters. Majoritarian systems accord the current median voter maximum fiscal discretion but no direct influence over future policy. This political arrangement sustains, among others, dynamically inefficient transfers and volatile, non-stationary sequences. Constitutional "rules" award to the minorities veto power over fiscal policy changes proposed by the majority. This unanimity provision is equivalent to partial precommitment. Under constitutional "rules," sustainable fiscal policies feature Pareto efficient, non decreasing transfer sequences.

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## 1. Introduction

In the past fifty years a large strand of economic literature has been produced in an attempt to evaluate advantages and drawbacks of discretionary and fixed-rules economic policies. Ever since Milton Friedman (1948) and Finn Kydland and Edward Prescott (1977), discretionary policies have been blamed for fluctuations, volatility, and inefficient allocations; whereas rules have been praised for stable, time-consistent outcomes. Here we analyze another aspect of this long-lasting debate by examining discretionary and constitutional-rules political arrangements under which economic policies can be determined.

In this setting, "discretion" refers to majoritarian systems in which subsequent generations of voters can modify fiscal policy at no cost. Constitutional "rules", on the other hand, identify political arrangements characterized by a constitutionally awarded veto power which limits the otherwise absolute discretion of the policymaker or median voter.

In particular, we examine the evolution of intergenerational transfer schemes in the context of a simple life-cycle model in which agents' preferences over fiscal policies are single-peaked. Intergenerational transfers are decided every period, and represent outcomes of an infinite social-security game among successive generations of selfish median voters. We analyze the impact of these alternative political institutions on sustainable transfer systems.

The economic environment consists of an overlapping generations model of pure exchange in which the government has a definite role to play. Agents value consumption in both periods of their life, but receive one unit of endowment in youth only. No store of value, such as fiat money or other outside assets, is available. And the economy remains at autarky unless the government intervenes.

Fiscal policy decisions represent outcomes of a voting process which can occur under two alternative political arrangements, majoritarian systems or constitutional rules.

In a majoritarian system, preferences over economic policy outcomes are aggregated by simple majority. Every period, the median voter determines the current transfer level. Previously voted fiscal policies place no restriction on current choices, since they can be modified at no cost. As policymakers are forward-looking, current decisions depend on expectations about future policies. In this context, cooperation among successive generations can only be achieved through the contrivance of a social norm or asset. As we shall discuss, social norms can be interpreted as an implicit contract which specifies conditions under which subsequent generations of voters agree to an intergenerational transfer of resources. However, since social norms are not able to precisely pin down the behavior of future median voters, the equilibrium economic policy is indeterminate and can display volatile and inefficient allocation outcomes.

Constitutional political arrangements limit the discretion of the median voter by introducing an endogenous mechanism of partial commitment. The constitutional award of a veto power to a minority of the voters restricts the policymaker's freedom to alter previously adopted fiscal policies. Current policymaker's beliefs about the behavior of future median voters are sharpened. The indeterminacy implicit in the social norms is thus reduced, and all fluctuating and inefficient intergenerational transfer schemes are eliminated from the set of sustainable social security systems.

Section 2 briefly describes the economic environment. Section 3 and 4 examine the equilibrium intergenerational transfer schemes which can arise respectively under majoritarian and constitutional rule systems. Section 5 concludes.

## 2. The Economic Environment

To keep the focus on the political aspects, we adopt the simplest life-cycle model in which the government can play a socially useful role. At any point in time, the economy is populated by two generations, young and old. Agents are homogenous within generations, and population grows at a constant rate. The young are endowed with one unit of the only consumption good; no endowment is given to the old. The endowment received in youth is perishable and cannot be stored for old-age consumption. Agents value consumption in both periods of their life. And they would optimally decide to save in youth and have some consumption in old age.

To introduce a role for the government, and justify the institution of intergenerational transfer schemes, we assume that outside assets, such as currency or public debt, do not exist. No store of value is available in this economy. Because of this market incompleteness, the economy remains at autarky, with consumption taking place only in youth, unless the government intervenes.

The government can set up a self-financing, unfunded social security system. This system consists of a sequence of transfers from young to old generations. Each individual in her youth pays a lump-sum tax to the system and the total collected resources are divided up among the old. Because of population growth, the young constitute the majority in this

economy. Thus, each beneficiary of the transfer, i.e. each old person, will receive more than the amount each young individual pays.

Due to the self-financing nature of the system, the choice of the tax rate determines the transfer level as well, since there is only one independent decision variable.

## 3. Majoritarian Systems

In democracies most economic policy decisions only require simple majority approval, usually fifty percent plus one vote in the chamber(s) of deputies. Sometimes, however, a formally majoritarian representation might not be sufficient to carry out the wants of a majority of the electorate. Bureaucracy, interaction among different political bodies and pressure groups, among others, may constitute powerful deterrents.

Majoritarian political systems represent nevertheless a useful benchmark because of their practical relevance and analytical tractability. In this regard, if voters' preferences over policy decisions are single-peaked, the median voter theorem applies. And the equilibrium outcome of the majority voting process can be represented by the median voter's most preferred outcome. In the remainder of the analysis we shall exploit this result.

In this economy, majoritarian systems are synonymous with discretional economic policy, as the power of the median voter over current fiscal policy is unrestricted. Aggregation of individual preferences over economic policies takes place through voting. Elections are held every period to determine the current fiscal policy. The fiscal variable to be set is the current intergenerational transfer level, or equivalently the lump-sum tax. Current policy decisions do not directly affect future elections, since no commitment technology is available under this political arrangement. The electorate consists of both generations. Due to population growth, the median voter belongs to the young. If we assume an electorate composed of voters between the ages 18 and 85, our model would identify the 18 to 52 years old electors as "young," and the 53 to 85 years old electors as "old." Indeed, despite a much higher election participation rate among the middle aged and old voters, calculations based on US-Census data suggest that the median voter's age for Presidential elections is around 44 years. Thus, according to our partition, the US-median voter would actually belong to the young.

The voting behavior of the sequence of median voters determines the existence and the shape of the social security system. Median voters care about both current and future consumption. Their economic policy decisions clearly affect current consumption, since a positive tax rate transfers lifecycle income from the current young to the current old. And it might indirectly affect future consumption as well, depending on its impact on future median voters' choices.

As a starting point in our analysis, consider a simple, static median voter's strategy[1]. Suppose that the median voter determines today's fiscal policy independently of past median voter's actions and of its impact on future decisions. If median voters believe that their decisions have no future effect, then a transfer to the old represents a mere cost. There is no room for intergenerational cooperation, and autarky[2] arises as a political outcome.

In our economy, efficient fiscal policies are clearly feasible, since there exist some Pareto-improving sequence of transfers from the young to the old. Their implementation, however,

can only be based on enforceable social contracts which require cooperation among successive generations of selfish median voters. These social contracts or norms can be interpreted as an implicit scheme of punishments and rewards.

An implicit contract specifies the conditions under which successive generations of young median voters agree to transfer resources to the old. The median voter might find it optimal to endorse this contract and thus to follow the suggested strategy, if she believes that awarding a transfer to the old will guarantee her a corresponding transfer in her old age. In particular, this norm requires median voters to approve positive intergenerational transfers if previous young generations have already done so. Departures from the contract can easily be punished by refusing to make transfer payments to the deviating cohort in its old age. Moreover, to guarantee that such defections are always punished, the norm has to provide the median voter who is in power after the deviation with an incentive to carry out the punishment. Specifically, this median voter would still receive a transfer in her old age, even if she does not make any payment to the deviating cohort.

This set of social norms can achieve cooperation among successive generations of egoistic voters by promoting a sequence of individually rational actions which enhance every median voter's utility. In particular, any sequence of intergenerational transfers can be sustained by an implicit social contract of this form, if it guarantees to each generation of median voters a weakly higher utility than the one associated with autarky.

This powerful result[3] suggest that social security systems can be interpreted as implicit social norms establishing mutual trust among subsequent generations of voters. Moreover, it implies that almost any intergenerational transfer sequence can be supported by a set of norms. Examples of sustainable social security systems are:

- Zero-transfer sequences;
- Pareto-inefficient constant transfer sequences;
- Pareto-efficient constant transfer sequences; and
- Fluctuating, cyclical and volatile sequences.

All these are implementable as long as they can guarantee every median voter at least the utility level associated with autarky.

This indeterminacy reflects the generic, comprehensive nature of the social norm. Implicit contracts do not constraint voters' beliefs about future policy decisions. This inability to exactly pin down future agents' actions can generate inefficient and volatile intergenerational transfer schemes. Consider for example a young generation of voters which believes that it needs to devote a large proportion of its endowment to the current old, in order to obtain a small transfer in its old age. If the successive generation holds opposite beliefs, i.e. they vote a small transfer today to receive a large one in old age, the corresponding equilibrium sequence will feature an oscillating pattern between large and small transfers. Alternatively, voters could believe that they will obtain a positive although small payment in old age only if they make a small one today. The associated sequence is likely to be Pareto inefficient, as successive median voters could gain from coordinating on a better designed, and more generous, social security system.

## 4. The Role of Constitutions

Some economic policies may require approval by a qualified majority of the legislative body. This circumstance is particularly common in the case of economic policies that are expected to harm the interests of some politically powerful social groups. Uncertainty about the identity or the preferences of future policymakers may also trigger qualified majority approval. This, for instance, is the case of current median voters who devise commitment technologies in order to carry out their preferred policy in the future.[4]

We study a political system of "constitutional rules" which awards to a minority of voters veto power over fiscal policy proposed by the majority. This constitutional design translates into a two-step preference aggregation process. Every period the current median voter sets the political agenda by proposing a social security transfer level. A minority, the old generation, has then to decide whether to accept the proposed transfer, or to use its constitutionally awarded veto power to reject it. In the case of veto, the fiscal policy reverts to the status quo level.

This constitutional arrangement provides partial commitment. Young generations have more information to form their beliefs about future policymakers' decisions. In fact, old generations are known to have a powerful instrument, the veto, to shield the intergenerational transfer scheme from the median voter's discretion.

To describe the equilibrium outcome of this new political process, we need to analyze the voting strategies followed by median voters and by old generations. The old face a trivial decision. Since their utility is increasing in the amount of transfer, they will choose the largest between the transfer proposed by the median voter and the status quo level. Therefore, due to the veto power, equilibrium transfer sequences can never decrease. The young generation's voting behavior is also affected by veto power. In contrast to the majoritarian system case, the current median voter's decision has now a direct impact on future policies because it determines one of two elements on the next period political agenda: the status quo. By using or by threatening to use their veto in old age, median voters can guarantee themselves an old age transfer at least as large as the social security payment they vote to the current old. This partial commitment device allows young generations to smooth consumption over time and to obtain at least the utility level associated with their optimal constant intergenerational transfer.

For any economy in which the endowment is concentrated in youth, the optimal constant transfer is Pareto-efficient: it maximizes the welfare of the median voter in the steady state. Under this political arrangement, a social norm can be interpreted as a scheme of punishments and rewards which coexists with the constitutional rule. An implicit contract among subsequent generations requires the median voters to propose a transfer which is weakly larger than the existing level, if previous generations have already done so. The punishment of defectors is less dramatic than in the majoritarian case. In fact, due to veto power, the deviating generations cannot be held to zero old-age consumption or awarded a zero transfer.[5] The proposed transfer level will be at most equal to the status quo. Finally, to guarantee that punishment always takes place after a defection, the median voter who carries out the punishment is rewarded with an old age transfer.

The existence of a constitutional rule allowing for partial commitment eases the intergen-

erational cooperation promoted by the social norm. With respect to the majoritarian case, the set of sustainable intergenerational schemes shrinks to include only transfer sequences which guarantee the median voters a utility at least as large as the golden-rule (Pareto-efficient) level. Under this political regime, equilibrium social security systems feature non-decreasing transfer sequences all of which converge to the golden-rule transfer level.

The intuition is straightforward. Suppose we start at autarky, with a zero status-quo transfer level. The young can always secure themselves the golden-rule utility by voting for the appropriate tax when young and vetoing all changes when old. They could sometimes do better when the transfer level they vote in youth is less than what they receive in old age. In which case they would be willing to accept some increasing sequences. However, since transfer sequences are bounded by the endowment, and since no stationary allocation gives more utility than the golden rule, it follows that no median voter will ever propose a larger transfer than the golden rule. Thus all increasing sequences have to converge to the golden rule.

The constitutional award of veto power to a minority of voters works as a partial commitment device which reduces the indeterminacy implicit in the social norm. In our economic environment, the induced reduction is particularly valuable because it eliminates all fluctuating, cyclical and inefficient intergenerational transfer schemes. This constitutional arrangement only supports Pareto-efficient transfer systems.

## 5. Conclusions and Extensions

We introduced a simple economic environment which implements Pareto-improving intergenerational transfer schemes and keeps the economy out of the inefficient autarky allocation. Economic policy decisions are outcomes of voting processes that take place under two alternative political arrangements, majoritarian systems or constitutional rules.

Like Peter Hammond (1975) before us, we show that the introduction of a intergenerational transfer scheme requires mutual trust among successive generations. We interpreted the cooperation obtained under a majoritarian system as stemming from the existence of a social norm or contrivance. Young generations of voters agree to reduce their current consumption and to transfer part of their endowment to the current old generations because they expect to be rewarded with a corresponding transfer in old age. Implicit social contracts of this sort can sustain several intergenerational transfer schemes, since current median voters are not able to exactly pin down the behavior of future policymakers. The resulting social security systems could be inefficient (in the sense that successive median voters would be better off by coordinating on different schemes) or even highly volatile, when successive generations obtain very different transfers and consumption patterns fluctuate.

The constitutional political arrangement we propose is able to remove the volatility and the inefficiency of some majoritarian system policy outcomes by providing partial commitment.[6] A constitutional award of veto power to a minority of voters qualifies the social norm by restricting the future median voters' discretion over fiscal policies. Under this political arrangement all sustainable social security systems are Pareto-efficient, and consist of non-decreasing transfer sequences converging to the golden rule.

Constitutional rules are socially desirable in our setting. Are these results robust to

modifications in the modeling environment? We examine in particular how our analysis generalizes to a stochastic endowment pattern, an endogenous voting system, and a richer population structure.

Consider a stochastic economic environment in which endowments can either be large or small. A median voter experiencing a high realization of income could easily obtain unanimity approval to expand the intergenerational transfer system up to the "high income" golden-rule level. Constitutionally awarded veto power would then restrain the social security system from shrinking during low income periods. It follows that constitutional rules could lead to "excessive," although still Pareto-efficient, social security transfers. The same reasoning applies to stochastic population growth rates,[7] where high (low) growth rates are analogous to large (small) endowments.

By using an endogenous voting structure we allow the voters to determine the adoption or rejection of the available commitment technology. In particular, we may permit the electorate to choose a majoritarian or constitutional system and to switch from one to the other according to well-specified rules. Fiscal structures represent outcomes of an enlarged game in which the young propose both the choice of institutional arrangement (majoritarian or constitutional) and the level of the transfer. The rules of this game require that, if society is organized along constitutional lines, the consent of the old must be obtained prior to any change, e.g., before either a change in the transfer level or a switch from a constitutional to a majoritarian system. A simple majority suffices for all the other decisions. In this setting, weakly increasing transfer sequences converging to the golden rule continue to be equilibria of the "grand" constitutional game. Starting with a majoritarian system and zero transfers, the median voter can still guarantee herself the golden-rule utility level by switching to a constitution and opposing all future changes. The rest of the argument proceeds exactly as in the pure constitutional case. However, the institutional arrangement under which social security systems are sustained is indeterminate. A constitutional system does not need to be adopted. The mere availability of a partial commitment technology is sufficient to sustain Pareto-efficient transfer schemes.

Finally, to address the question of whether less than complete unanimity could sustain non-decreasing transfer schemes we need a model that allows for richer dynamics. The answer will depend crucially on several factors, like the economic and demographic structure of the model, and the veto power interpretation in a setting of more than two generations. Our intuition suggests that the results should hold, since a proposal to reduce the benefits will most likely be opposed not only by the retirees, but also by persons close enough to retirement age.

## Notes

1. The equilibrium associated to these strategies is usually referred to as "open-loop" equilibrium.
2. Clearly, if the median voter belongs to the old, there exists a unique equilibrium, in which the entire endowment of the young is transferred to the old.
3. Conjectured by Hammond (1975) and later studied by Sjoblom (1985), Esteban and Sakovics (1993), Cooley and Soares (1995), Boldrin and Rustichini (1995), and Azariadis and Galasso (1996 a, b) among others.
4. See for example Tabellini and Alesina (1990).

5. Except for the very special case of a pre-existing zero status quo transfer.
6. Ever since Hammond (1975), several scholars have analyzed alternative refinement concepts in order to reduce the indeterminacy intrinsic in these social norms. Kotlikoff, Persson and Svensson (1988), and Esteban and Sakovics (1993) restrict the social contracts to costly Markovian strategies, where current fiscal policy can only depend on last-period decisions, and an adjustment cost has to be paid to carry out any change. Boldrin and Rustichini (1995) assign the entire benefit of introducing a social security system to the generation that creates the system. Cooley and Soares (1995) restrict their analysis to the optimal constant transfer sequence chosen by the median voter.
7. See Boldrin and Rustichini (1995) for an analysis of a stochastic demographic environment.

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