The political economy of public income volatility: With an application to the resource curse ☆

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ABSTRACT

In recent years many countries have witnessed a great deal of volatility in public budgets, be it due to volatility in the access to foreign loans in Greece, or to unstable oil prices in Venezuela. We study the political consequences of such public income volatility. As is standard, in our model political incentives create inefficient policies to increase re-election probabilities, but we show that making public income uncertain creates specific new effects. Future volatility reduces the benefit of being in power, making policy more efficient. Yet at the same time it also reduces the re-election probability of an incumbent and since some of the policy inefficiencies are concentrated in the future, this makes inefficient policy, such as patronage public employment, less costly. Our model highlights a new political economy connection between the volatility of the public budget and economic growth. In the case where volatility comes from natural resource prices, a characteristic of many developing countries, we show that volatility in itself may be a source of inefficient resource extraction, jointly interacting with increased patronage employment.

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1. Introduction

How does volatility affect political and economic equilibria? In recent years, a number of countries have experienced a great deal of volatility in economic variables, be it output fluctuations in Spain, volatility in the ability to borrow on the part of the public sector in Greece, or oil price volatility in Venezuela. A main effect of these types of volatility is that they translate into volatility in public budgets and therefore policy volatility. As testified by the various street protest movements, strikes and riots against current governments in these societies, such policy volatility and its associated uncertainty are clearly perceived as costly by voters as well as politicians. But while a lot of attention has been given to the political economy effects of public income, public wealth, or natural resource abundance, hardly any literature has studied the political economy of

volatility in public budgets. In this paper we develop a first political economy approach to examine the consequences of such volatility. We particularly focus on the extent to which volatility may influence the efficiency of public policy.

The literature on the political economy of public policy has highlighted many mechanisms through which equilibrium policies chosen through a political process deviate from what is socially desirable. This is true even in simple models where the median voter theorem applies and when median and mean income differ (Romer, 1975; Roberts, 1977). In models where elections are modelled more explicitly many types of inefficiencies stem from the fact that incumbent politicians have an incentive to move policy away from what is socially desirable either because the probability of losing power makes them discount the future too much (Alesina and Tabellini, 1990a, b; Leblanc et al., 2000), or because this allows them to manipulate their re-election probability in a favorable way (Aghion and Bolton, 1990; Besley and Coate, 1998; Biais and Perotti, 2002; Robinson and Torvik, 2005; Robinson and Verdier, 2013).

These models tend to have simple and appealing comparative statics. For example, anything which increases the benefits of being in power or holding office tends to make policy less efficient. Anything which makes the election outcome less sensitive to policy,

such as changes in the distribution of shocks in a probabilistic voting model, tends to make policy more efficient.

In this paper we develop a model of what to our knowledge is a new type of comparative static in a canonical political economy model of inefficient policy. Specifically we consider society to be divided into two groups: one associated with an incumbent, and one with an opponent. The two groups value different sorts of public goods which gives the members of a particular group a desire to elect their politician since only then will they benefit from the public goods that he and they value. In addition the incumbent uses patronage employment, which is socially inefficient, to induce voters to support him. In this set-up, for standard reasons policy is set inefficiently because this helps to raise the re-election probability of an incumbent.

The main innovation however is to embed this framework into an environment where government revenues are stochastic and future revenues, after re-election, are uncertain. We highlight two main channels though which the volatility of public resources affects the dynamics of political outcomes and the efficiency of policymaking. On the one hand, uncertainty about future government income tends to reduce the expected benefit of being in power to an incumbent, something which makes policy more efficient. On the other hand, when revenues and future public good provision are uncertain, the continuation expected utility that members of an incumbents group get from having him being re-elected is lower. This in turn reduces his re-election probability. With a lower probability of re-election, inefficient policy becomes less costly to the incumbent politician, since some of the costs are concentrated in the future. We show that this latter effect dominates when the incumbent politician is from the group which values public goods highest and when preferences for public goods are sufficiently heterogeneous between groups, or when public sector wages are not too high compared to private sector productivity. When this is true, higher volatility of government revenues reduces national income.

In the online appendix we extend this model by including public sector investment in the initial period, which can raise private sector productivity in the second period. Though this may be desirable from a social point of view it has an immediate unappealing political effect for the incumbent. By driving up private sector productivity, public investment reduces the gap between public sector wages and the returns in the private sector. This makes patronage employment less effective as a tool for influencing election results. At the same time though, an increase in private sector productivity leads to higher public resources through tax revenues raised on that sector. As these additional resources can be used for future public policies, this tends to stimulate public investment by the incumbent. In the plausible case where the return to holding power is large, we show that patronage employment and public investment are strategic substitutes in the following sense: when income volatility increases patronage employment, it simultaneously tends to decrease public investment. Interestingly, the intuition for the effect of volatility on patronage employment and on public investment are closely related.[1] Indeed, increased volatility that reduces the reelection probability reduces the expected future cost of patronage. At the same time, it also reduces the incentives for public investments as increased future tax revenues are less likely to benefit the incumbent politician. Consequently, the effects of volatility on patronage and public investment are pretty much the mirror image of one another. This makes the policy equilibrium even less efficient.

This model therefore produces a new mechanism which can help explain some important stylized facts. A large empirical literature documents a strong negative correlation between the volatility of

output and economic growth (see the seminal work of Ramey and Ramey (1995), and Aghion and Banerjee (2005), Loayza et al. (2007) for overviews of this literature). The existing explanations emphasize the link between volatility and credit constraints (Aghion and Banerjee, 2005; Aghion et al., 2010). Recently however Fatas and Mihov (2013) presented empirical evidence that fiscal policy volatility exerts a strong and direct negative impact on growth.[2] Consistent with these results, our analysis provides an explicit politico-economic mechanism through which public policy volatility may influence economic growth. While most of the existing evidence typically looks directly at the impact of GDP volatility on growth, in our set-up anything which generates income volatility, such as shocks to total factor productivity or aggregate demand, would convert into shocks to the government budget via their impact on tax revenues. The higher volatility of public resources then creates lower GDP per-capita by inducing more wasteful patronage and lower public investment according to the political economy incentives we emphasize here.

For poor and developing countries, an important source of public budget volatility comes from the fact that they are highly dependent on natural resource rents and that natural resources have notoriously volatile prices. For instance, Bleaney and Halland (2010) find that a high share of resources in exports is associated with high economic and fiscal volatility and low growth. Similarly, van der Ploeg (2011) points out that resource revenues are much more volatile than GDP and he suggests several mechanisms via which the volatility of resource prices could translate into poor economic performance. For example, van der Ploeg and Poelhekke (2009) argue that commodity price volatility makes liquidity constraints more likely to bind and thus reduce innovation and growth. They present evidence that the adverse growth effect of natural resources results mainly from the volatility of commodity prices, though there are important heterogeneous effects.[3] Leong and Mohaddes (2011) also find robust evidence that volatility, rather than the level of natural resource rents, is negatively associated with economic growth. These evidences suggest a need to shift the focus of the resource curse literature from level impacts of resource abundance to volatility effects in resource income.

With these empirical connections in mind, we extend our model to take into account the fact that government revenues may be generated from natural resources, the prices of which are subject to uncertainty. This is particularly interesting since the revenues generated by resources in the future depend not just on the stochastic nature of the resource price, but also on the endogenously derived extraction path. We first show that even when there is no patronage employment, the path of natural resource extraction determined in a political equilibrium tends to deviate from the socially efficient (utilitarian) path. Part of the reason for this has nothing to do with uncertainty and relates to the simple fact that an incumbent choosing the amount of resource extraction today may not be re-elected in the future. In these circumstances, he tends to over-extract resources relative to the efficient path (Robinson et al., 2006, 2014).

More interestingly, when resource extraction is chosen by a politician, rather than a benevolent social planner, the politician only provides the type of public goods that he and his own client

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