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A note on public goods in a decentralized fiscal union: Implications of a participation constraint ☆

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ABSTRACT

This paper re-examines the question of whether federal ex-post redistribution in terms of public funds leads to under-provision of public goods when member states may leave the economic federation. We show that federal ex-post redistribution under a binding participation constraint does not necessarily mean under-provision of local and federal public goods.

1. Introduction

The question of how ex-post redistribution by a central (or federal) government affects the incentives for public good provision at lower levels of government has been addressed in several previous studies. These studies focus on economic federations with decentralized leadership, where ex-post redistribution means that the higher level of government redistributes across lower level jurisdictions *after* it observes the policies decided upon by the lower level governments. This scenario might be exemplified by the fiscal structure in a given country, where cities and other municipalities levy local taxes and supply public services to their respective residents, and the central government redistributes public funds through an intergovernmental transfer system (and possibly also provides national public goods).[1] If the redistribution policy aims at accomplishing (reasonably) equivalent living conditions in the country as a whole according to constitutional (or other) requirements, there is a commitment problem for the central government through an incentive to adjust the transfer payments after the lower level governments have made their policy choices. In turn, this creates an incentive for the lower level governments to act strategically in order to gain from this redistribution policy. Another example is the European Union (EU), which plays an important fiscal role in Europe by redistribution between the member states and provision of certain public goods like services. Since the EU is still in its infancy as a fiscal union, and (at least some of) the member countries may have had the opportunity to commit to their own tax policies or expenditure programs, the EU most likely shares the characteristics of an economic federation with decentralized leadership. Earlier research shows that ex-post redistribution in terms of private consumption across citizens in different regions may under certain

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[1] Sweden may serve as an example here, where the municipalities supply a variety of public services such as child care, education, and elderly care, and where the central government redistributes public funds through an intergovernmental redistribution system.

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conditions lead to efficient provision of public goods (Caplan et al., 2000; Caplan and Silva, 2011), whereas ex-post redistribution in terms of public funds typically leads to under-provision of local public goods as it undermines the local incentive to collect tax revenue (Köthenbürger, 2004, 2007).[2]

Yet, these previous studies assume that the number of local jurisdictions in the economic federation is fixed and does not depend on the redistribution (or other) policy chosen by the federal government. The present paper re-examines the effects of federal ex-post redistribution in terms of public funds under the assumption that membership in the economic federation is voluntary by adding a participation constraint to the decision-problem faced by the higher level government. This change of assumption is clearly relevant from the perspective of the EU, where each member state is (at least in principle) free to leave the union,[3] but may also be relevant from the perspective of a single country. For instance, regional movements of autonomy or independence (such as in northern Spain and northern Italy) may induce national governments to change their redistribution and other policies in response to the outside options faced by the residents in these regions. The same argument applies to urban and rural secession movements, where cities or rural areas strive to form their own regional jurisdictions (or enter into other regional jurisdictions) instead of settling with the existing fiscal structure.[4] This paper attempts to address the consequences of such threats for redistribution policy and public good provision, based on the assumption that the higher level government wants to avoid secession.[5] As such, our study is also important from a theoretical point of view, i.e., for our understanding of policy incentives, by showing that federal ex-post redistribution in terms of public funds may have implications different from those presented in earlier studies. This will be discussed more thoroughly below.

We consider a scenario where (i) the lower level jurisdictions are heterogenous, (ii) the participation constraint may bind for a certain group of such jurisdictions without being binding for others, and (iii) the ability to commit vis-a-vis the federal/central level may also differ across lower level jurisdictions. Although the earlier theoretical literature on decentralized leadership referred to above assumes that all lower level governments are first movers vis-a-vis the higher level, empirical evidence suggests that the expectations of additional resources in case of failure may, nevertheless, differ among local jurisdictions.[6] This suggests to us that it might be useful to consider a model where the lower level governments are allowed to differ in such commitment power, and also compare the results with those that follow if all lower level governments are first movers.

We show that if the group of lower level governments for which the participation constraint does not bind is acting first mover vis-a-vis the central level, while the group of lower level governments where the participation constraint binds instead treats the central level as a Nash-competitor, there will be efficient provision of local public goods as well as efficient provision of federation-wide public goods. On the other hand, if the participation constraint binds for the group of lower level governments which is acting first mover, then the outcome will not in general be efficient. As such, it is not just the ability to commit by the lower level of government that is important for the outcome; the threat of secession also matters.

Section 2 presents the model, while the main results are discussed in Section 3. Proofs are presented in the Appendix A.

2. The model

To simplify the analysis as much as possible, we consider an economic federation comprising two groups of local jurisdictions; denoted by 1 and 2, respectively, and referred to as "states" in what follows. Since the number of states in each such group is of no importance for the qualitative results derived below, it will be normalized to one. Also, each state is populated by identical and immobile residents, whose number is normalized to one.[7] In state i ($i = 1, 2$), a state government collects tax revenue to finance a local (i.e., state-specific) public good, the benefits of which are only enjoyed by the residents of state i, while the higher level government for the economic federation as a whole – referred to as "federal government" – redistributes between the states in terms of public funds as well as provides a federal public good (whose benefits are enjoyed by all residents of the economic federation).

2.1. Consumers and firms

The utility function faced by the residents in state i is given by

$$U_i = U_i(c_i, g_i, G) = u_i(c_i) + \phi_i(g_i) + \Phi_i(G), \tag{1}$$

for $i = 1, 2$, where c_i denotes private consumption, g_i a local public good provided by the state government, and G a federal public good provided by the federal government. We assume that the functions $u_i(\cdot)$, $\phi_i(\cdot)$ and $\Phi_i(\cdot)$ are increasing in their respective argument and strictly concave. Notice that Eq. (1) implies that the preferences for private and public consumption may differ between consumers in different states. The separable structure facilitates signing key comparative statics associated with the choices made by the federal

[2] A good overview of decentralized leadership models is found in Akai and Sato (2008). See also the related literatures on environmental policy (e.g., Silva and Caplan, 1997; Caplan and Silva, 1999; Aronsson et al., 2006), and soft budget constraints and bailouts (e.g., Qian and Roland, 1998; Fink and Stratmann, 2011; Crivelli and Staal, 2013).

[3] This is further emphasized by the recent financial crisis in the Euro-area, where the option of leaving the European Monetary Union (which is part of the EU) has been discussed in some of the member states.

[4] An example taken from the Italian experience can illustrate this possibility. Italy is administratively divided into 20 regions, 110 provinces and 8057 municipalities, with each of these lower-level governmental bodies having some specific responsibilities for revenue collection and public good provision. Five of these regions are granted special autonomy under the Italian Constitution, which also means that they keep at their disposal most of the revenue from central government taxes collected within their borders. Two of these five regions, Trentino-Alto Adige and Friuli-Venezia Giulia, share borders with Austria, whereas the Veneto region, which is located between Trentino-Alto Adige and Friuli-Venezia Giulia and also shares borders with Austria, does not enjoy special autonomy. In the past decade, several small municipalities in the northern and mountainous part of the Veneto region have either threatened or taken concrete steps to leave the province of Belluno, to which they still belong, with the goal of being incorporated in neighboring provinces located in either Trentino-Alto Adige or Friuli-Venezia Giulia. Even though these attempts were often officially motivated by appealing to linguistic reasons, it is clear that another real issue at stake was the possibility to benefit from the fiscal privileges associated with special autonomy.

[5] We do not attempt to explain why secession occurs; only its policy implications as described above. In the literature on country formation, the break up of jurisdictions is typically driven by a tradeoff between efficiency gains of large jurisdictions and costs due to preference heterogeneity in the population (see the seminal papers by Alesina and Spolaore (1997) and Bolton and Roland (1997)).

[6] This question has been addressed in the related literature on soft local public budget constraints, where excessive deficits may lead to a bailout by the federal level. Although our study does not contain public debt, it contains the analogous incentive of raising too little tax revenue in anticipation of additional funds from the federal government. Based on German data, Fink and Stratmann (2011) find that states with a stronger bargaining power vis-a-vis the federal government, measured by over-representation of seats (relative to the state population) in the upper chamber of the parliament, tend to run higher budget deficits than other states, ceteris paribus, suggesting higher bailout expectations. Similarly, Atlas et al. (1995) find that over-representation of seats in the U.S. senate leads to more federal spending in these states; similar results for the EU are presented in Rodden (2002). See also Crivelli and Staal (2013), who argue that the ability of a local government to induce a federal bailout is negatively associated with the size of the local jurisdiction.

[7] Allowing for differences between the member states in terms of the number of residents does not change the qualitative results derived below.