SOLIDARITY AND FISCAL DECENTRALIZATION*

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There is a striking difference between the U.S. and most countries in Europe in willingness to redistribute resources among regions. Indeed, the word "solidarity," which is commonly invoked in Europe to describe policies that aim for equality among regions, has little resonance in the U.S. where sub-national governments have both the responsibility and the authority to determine tax and spending levels, with only limited assistance and restrictions from the federal government.

In this paper we study why the U.S. and most European countries have chosen such different approaches to sub-national governments and their finances. Our premise is that differences in preferences for regional solidarity may help explain another important difference between the two sets of countries: the degree of fiscal decentralization. We devise a model in which residents of regions have preferences for solidarity and show that, with such preferences, regions redistribute voluntarily. We argue that, for administrative ease, the implementation of inter-regional transfers is centralized. We use examples to illustrate how a centralized system of inter-regional grants may become untenable as economic and political changes occur and tensions develop between the regional governments and the central government. We conclude with thoughts about future research.

I. The U.S. model versus the European model

The U.S. model of fiscal federalism is distinguished by a heavy reliance on fiscally empowered sub-national levels of government and by a limited role for re-distributive grants from the central government to lower levels of government. In contrast, the European model of fiscal federalism, while admitting a large variety of

financing schemes, enforces regional solidarity. Sub-national governments tend to have little independent taxing authority and to be highly dependent on grants from the central government, grants which are often re-distributive in nature. In those cases where local governments are empowered with taxing authority, they tend to face many constraints on their taxes and to be overruled by a national re-distributive grant system.

We can think of two partial explanations for these different systems arising in these seemingly similar countries. First, the U.S. arose out of a union of strong states, whereas most European countries, at different points in history, became strong nation-states with highly centralized fiscal authority. While many European countries have devolved fiscal authority and responsibility to sub-national governments, their central governments have retained primary responsibility for revenue-raising and exert strong influence over the spending levels of lower-level governments.[1]

Second, individuals are much more mobile in the U.S. than across regions or countries in Europe. This implies that, within a region in the U.S., residents are likely to be homogeneous in their preferences for public goods, while at the same time preferences are likely to differ significantly across regions. The standard efficiency advantages of decentralization apply under these circumstances (Oates 1972). In Europe, on the other hand, the lack of mobility across regions is likely to limit sorting by tastes for public goods. While there may be important differences in preferences across regions in Europe stemming from differences in local identity, language and culture, the lack of mobility prevents Europeans from sorting themselves along dimensions such as the level and composition of public goods and services. Thus, median-voter preferences for public

[1] As Bardhan (2002) points out, centralized revenue raising authority with decentralized spending responsibility is also the most common fiscal arrangement in fiscally decentralized developing countries.

goods across regions in a European country are likely to be similar. Under these circumstances, there is not a strong efficiency argument for decentralization. Rather, decentralization may occur as a result of political demands related to differences in regional identity. If this characterization is accurate, we would expect to see greater autonomy for sub-national governments in the U.S. than in Europe so that state and local governments in the U.S. could better tailor their public goods to local preferences.

In this paper we develop a third reason – a taste for solidarity – to explain why fiscal systems are generally more centralized in European countries than in the U.S. In the next section we develop a model in which regions are fiscally empowered to choose levels of public goods for their residents. We capture a taste for solidarity through an argument in the utility function that depends on the variance of spending on public goods across regions.

II. A model of solidarity

By modeling solidarity as a desire to decrease the variance of the provision of public goods and services across regions, we assume that people care about relative levels of public services between regions of the same country. Implicitly we are assuming that the solidarity principle does not apply to consumption of private goods. Rather, people care about others' consumption of basic public goods such as education, health care and public safety. This concern is not related to potential externalities of public goods provided at the local or regional level. While such externalities may be present, we abstract from them in this paper in order to focus on solidarity.

For a given region *i,* with income per capita above the country's average, we portray the regional government utility function as $U_i(G_i, C_i, S_i)$, where $\partial U_i / \partial G_i > 0$, $\partial U_i / \partial C_i > 0$, $\partial U_i / \partial S_i < 0$, and $S_i = g \frac{1}{n} \sum_{r=1}^{n} \left(G_r - \overline{G}\right)^2$, where $\overline{G}$ is the mean of public goods across regions, and G_i and C_i are per capita consumption of public and private goods respectively. S_i, our measure of solidarity, consists of a preference parameter g for solidarity multiplied times the variance across states in levels of public goods.

For a given region *j,* with per capita income below the country's average, the utility function is simply $U_j(G_j, C_j)$, where $\partial U_i / \partial G_i > 0$ and $\partial U_i / \partial C_i > 0$. By specifying the two utility functions in this asymmetric fashion we are assuming that rich regions care about the well being (specifically, the public goods consumption) of residents of poor regions, but that poor regions are not envious of the level of public good consumption realized by rich regions.

For simplicity, we model a country with two regions of equal size but different, exogenously-given incomes. We thus have one rich region with a solidarity argument in its utility function, and one poor region with no preferences over solidarity. Both regions maximize the utility of their representative constituent, choosing the level of private and public consumption. The rich region also decides on transfers to the poor region. These transfers aim at reducing differences in the provision of public goods among regions that may arise because of differences in regional incomes.[2] The rich region takes into account the use of these transfers by the poor region. We consider a Stackelberg solution where

[2] Differences in the provision of public goods among regions may also arise because of differences in regional preferences for public goods. We abstract away from these differences in our model as we do not believe such differences are the basis of preferences for solidarity.

the poor region takes interregional transfers as given, and the rich region sets up transfers taking into account the optimal choice of the poor region for any given level of transfers.

The problem of the rich region is:

$$\begin{aligned} &\underset{G_1, C_1, T_{12}}{Max}\, U(G_1, C_1, S_1) \\ s.t.\ \ & G_1 + C_1 + T_{12} = Y_1 \\ & G_1 \geq 0,\ C_1 \geq 0, T_{12} \geq 0 \end{aligned} \tag{1}$$

where $S_1 = g\,\frac{1}{2}\sum_{r=1}^{2}\left(G_r - \overline{G}\right)^2 = g\,\frac{1}{4}(G_1 - G_2)^2$ and T_{12} is the transfer from rich region 1 to poor region 2.

Assuming an interior solution, the first-order conditions are:

$$\frac{\partial U_1}{\partial G_1} - \frac{\partial U_1}{\partial C_1} + \frac{\partial U_1}{\partial S_1}\frac{g}{2}(G_1 - G_2) = 0 \tag{2}$$

and

$$-\frac{\partial U_1}{\partial C_1} + \frac{\partial U_1}{\partial S_1}\frac{g}{2}(G_2 - G_1)\frac{\partial G_2}{\partial T_{12}} = 0 \tag{3}$$

The first-order conditions can be rearranged to yield the following expression for the marginal rate of substitution between public goods and private consumption:

$$\frac{\partial U_1 / \partial G_1}{\partial U_1 / \partial C_1} = 1 + \frac{\partial U_1 / \partial S_1}{\partial U_1 / \partial C_1}\frac{g}{2}(G_2 - G_1) \tag{4}$$

which can also be written as:

$$\frac{\partial U_1 / \partial G_1}{\partial U_1 / \partial C_1} = 1 + \frac{1}{\partial G_2 / \partial T_{12}} \tag{5}$$

As expected, region 1's decisions will depend on how region 2 changes the provision of public goods in response to a change in the interregional transfers received.

The problem for region 2 is:

$$\begin{aligned} &\underset{G_2, C_2}{Max} U(G_2, C_2) \\ s.t.\ \ &G_2 + C_2 = Y_2 + T_{12} \\ &G_2 \geq 0,\ C_2 \geq 0 \end{aligned} \tag{6}$$

The first-order conditions yield the standard condition that the marginal rate of substitution between public goods and private consumption equal one, that is:

$$\frac{\partial U_2 / \partial G_2}{\partial U_2 / \partial C_2} = 1 \tag{7}$$

We can also derive the reaction of region 2 to an interregional transfer. After total differentiation of the first-order conditions and rearranging terms we obtain:

$$\frac{dG_2}{dT_{12}} = \frac{\left[\frac{\partial^2 U_2}{\partial C_2^2} - \frac{\partial^2 U_2}{\partial G_2 \partial C_2} \right]}{\left[\frac{\partial^2 U_2}{\partial G_2^2} - \frac{2\partial^2 U_2}{\partial G_2 \partial C_2} + \frac{\partial^2 U_2}{\partial C_2^2} \right]} \tag{8}$$

Under standard concavity assumptions on the utility function, with private and public goods being substitutes, the numerator of expression (8) is negative. Second order conditions imply that the denominator is also negative. Therefore region 2 will increase the provision of public goods if it receives transfers from region 1.

Transfers from the rich to the poor region will be positive as far as condition (3) evaluated at $T_{12} = 0$ is positive. Note that the second term of equation (3) is positive and will be larger the stronger is solidarity in region 1 (determined by the size of g and the marginal disutility of increasing the variance in the provision of public services), and the

bigger is the difference in public goods provision in the two regions. For given preferences, under the assumption that transfers are zero, and considering that public goods are normal goods, that distance in the provision of public goods will be larger the more unequal is the distribution of incomes across regions. We therefore can state that for large enough differences in regional incomes, and strong enough solidarity preferences, the optimal solution implies that the rich region will decide voluntarily to transfer some resources to the poor region.

The solidarity preferences we have portrayed for the rich region also imply that at the optimum the marginal rate of substitution between public and private consumption will be larger than one, as can be seen in equations (4) and (5). The rich region will tend to substitute away from public consumption for private consumption in order to reduce the public consumption differences between the rich and the poor region. This reallocation between public and private consumption in region 1 will be smaller the larger is the increase in public consumption in region 2 in response to an increase in interregional transfers. If region 2 uses the received transfers to boost public goods provision, regional transfers will be an effective way for region 1 to fulfill its solidarity concerns. If transfers are diverted in large part to increase private consumption in the poor region, then the only way to decrease the variance is to reduce the own provision of public goods in the rich region.

The solution implies that regions will voluntarily redistribute resources. Interregional transfers are an optimal decision of regional governments, and are not necessarily the result of a decision of a central government or a benevolent planner that cares about the well being of all regions and thus transfers resources across regions.

If we assume that solidarity is not an argument in the utility function, that is if $g = 0$, interregional transfers will be zero, and each region will allocate its own resources between public and private consumption so that the marginal rate of substitution between public and private consumption is equal to one. In this simple model we contrast the U.S. with Europe by setting ? equal to zero for the U.S. and to a positive value for a European country. Our model predicts that we would not see inter-regional transfers in the U.S. where preferences for solidarity are assumed not to exist.

The implications of the model fit well with what we observe in the U.S., where states are responsible for raising their own resources to finance the public goods and services they provide, and where interregional transfers are a small component of the fiscal federal system, with the important exception of elementary and secondary education. They only partially fit with what we observe in European countries where there is limited fiscal decentralization. Regional transfers are present, but, in general, it is the central government that administers these grants, and in most cases restricts the fiscal autonomy of the regional governments. In the next section we speculate on why this may be the case, and what consequences it has.

III. Centralized provision of regional redistribution

Although other authors (for example, Alesina et.al. 2001 and Bénabou 2000) have studied various reasons behind differences in personal redistribution policies across the Atlantic, little attention has been given to the fact that there is an additional layer of redistribution, which is among regions and localities rather than among individuals, and about which, we argue, Europeans and Americans feel quite differently. We argue that

the a relatively heavy reliance on regional transfers in Europe, and the fact that regional governments in Europe in contrast to fiscally empowered state and local governments in the U.S. are highly dependent on central government grants for their revenues, are due to differences in solidarity preferences.

In the European context (g greater than zero), our model implies inter-regional transfers. Countries, in general, have many regional governments, making it difficult to implement a decentralized system of inter-regional grants. Thus, for administrative ease, the responsibility for implementing inter-regional transfers is typically given to the central government. With perfect knowledge and no ulterior motive, the central government would set the transfers at the optimal levels from the regions' perspectives. Behind this arrangement there could be a contract that all regions have agreed upon at some point in time and that reflects the optimal solution from the regions' perspectives. The central government would be a mere administrative agent working on behalf of the regions.

However, several circumstances are likely to make reality differ from this simple theoretical model. First, the central government may have poor or outdated information. In this case the central government may implement a transfer system that is inferior to the one that the regions' would choose. The central government may start out implementing the perfect system, but, as time goes on and economic and political circumstances change, the regions' desired amount of redistribution changes, whereas inertia or poor information keeps the central government transfer policies the same.

Alternatively, for political reasons, and even though the central government correctly perceives changes in the preferences or situations of the regions, it may not

want to accept a renegotiation of the agreement with the regions. The political costs of reducing transfers to poor regions may be larger than the political benefits of adjusting the payments of rich regions in response to changes in their economic circumstances or solidarity preferences.

As tensions arise between the central government and the regional governments -- in particular, rich regional governments -- over the degree of regional redistribution, the central government will attempt to hold on to fiscal control. By concentrating revenue-raising authority at the central level and financing regional governments through transfers, the central government is able to keep rich regions from undoing geographical redistribution by taxing themselves or by borrowing and being bailed out.[3]

The cases of Germany and Spain illustrate the tensions that can arise between the central government and the regions over regional redistribution. We characterize the case of a reunified Germany in our model as an increase in dispersion in resources across regions, which, in the absence of transfers, will imply larger dispersion in the provision of public goods.[4] Within the set up of our model, there are several reasons why the desired outcome for the regions could differ from what the central government would choose to implement in this case. The rich region is now unhappy because dispersion has gone up. It would like to adjust transfers up. On the other hand, the cost (in terms of G_1 and C_1) of reducing the dispersion to desired levels has increased. If the costs are relatively high, a new optimum for the rich region may involve less redistribution than

[3] Because most public goods are normal goods, rich regions in a centralized system are likely to have excess demand for public goods. This is another reason why we expect to see rich regions demanding a reduction in redistributive transfers. See Garcia-Milà, Goodspeed and McGuire (2002).

[4] The situation where dispersion goes down because of a break up of a country into multiple, less diverse units would imply similar but opposite predictions. We have in mind the former countries of Czechoslovakia and Yugoslavia.

what would result under an extension of the previous agreement to the new Laender, which is what the central government would tend to implement. In addition, given the very different economic and social circumstances of the new Laender, it is likely that the increase in government consumption in response to interregional transfers (equation 8) is not the same as for the poor Laender in the former West Germany, which will again have an impact on the desired level of transfers by the rich region.

In the case of Spain, the prevailing interregional agreement was highly conditioned by the political circumstances under which it was designed. The evolving political situation from a fledgling democracy post-dictatorship to a thriving democracy has reduced the risks of instability. Within our model this could be reflected as a decline in the solidarity parameter g . Once regions are comfortably incorporated into a developed democracy, rich regions may no longer want to transfer as much to the poor regions and they may try to renegotiate an agreement that better reflects their preferences. The central government, however, may not want to relinquish its solidarity program as the political cost could be too large.

IV. Conclusion

We argue that the different degrees of fiscal decentralization in the U.S. compared with countries in Europe are due, in part, to differences in a taste for solidarity. A taste for solidarity leads to a decision to redistribute resources among regions. In part because of administrative ease, and in part because of historical precedent and political expediency, the inter-regional transfers are implemented at the central level. Overtime, because of problems in the flow of information or inadequate adjustment of the central

government to new economic or political circumstances, tensions develop between the central government and the regional governments over the desired amount of territorial redistribution. These tensions may lead to attempts by the regions to break the agreement and propose different alternatives.

A topic for future work is to explore the resolution of tensions between the central and regional governments stemming from differences in preferences for solidarity. In many European countries, some sub-national levels of government are challenging the centralized system and attempting to obtain greater revenue-raising authority. As discussed above, in Spain, a strong commitment to solidarity after the fall of the Franco regime has weakened over time as the country has developed a democratic system of government and experienced decades of relative stability and prosperity. In Germany, after the fall of the wall, the cost of achieving solidarity increased greatly because the eastern regions were much poorer than their sister regions in the west. In Italy, there have been recent changes in the fiscal system that may be related to underlying changes in regional income or tastes for solidarity. Empirical studies of such cases may shed light on whether the system that is prevalent in Europe, in which revenues are highly centralized, will move towards the United States system of fiscally empowered local governments.

We plan to challenge the ability of our model to capture and explain the spectrum of fiscal federal systems we observe in the world. We would expect to find that, within a given country, changes over time in the taste and need for, or cost of, territorial redistribution would result in changes in the degree of decentralization of taxing authority. Similarly, through comparisons across countries, we seek evidence that those

countries with a stronger taste or greater economic or political need for solidarity have more centralized systems.

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