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Some Notes on Decentralization and Service Delivery

Francisco H.G. Ferreira

Task Force on Decentralization

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Geography matters. The importance of spatial variables, such as location and distance, for the nature and evolution of economic activity have always been recognized in economics, and increasingly so in recent formal modeling. Just as they matter for private sector activity, they also matter for the delivery of the services provided by governments which, consequently, face choices about the optimal geographical distribution of its operations. This note focuses on one key trade-off which helps determine the extent to which *decisions* about the provision and delivery of services *are* or *ought to be* more or less centralized.

By way of preliminaries, two central distinctions implicit in the foregoing paragraph should be made explicit. First, I will focus on the determinants of the degree of centralization of *decisions* about policies, rather than about their *implementation*. It is clear that all public services the delivery of which involves transport costs (of policemen to crime scenes; of food items to drought zones; of teaching to students; etc.) must be delivered locally, wherever people live. I will consider here the choice as to whether the policy decisions - about how many policemen per residents there should be; or how much should be spent in delivering food items; or how much to pay teachers - should be taken locally by a geographically determined subset of the population, or centrally by the whole population, for all of its areas. Second, this note hopes to sketch a positive analysis of how that choice (whether to take policy decisions centrally or locally), rather than a normative one. I believe, though, there it would be straightforward to extend the basic framework to derive normative conclusions too.

At a general level, it is tempting for economists to start from the benchmark of the benign central planner, who is constrained only by the resources available to the economy, and perhaps by the nature of interventions that are technically feasible. Being both benign and omniscient, this central planner will choose the optimal policies for the government to discharge. The budgets allocated to each region, and the composition of those allocations across expenditures will be optimally chosen at the center. They may - and will in general - differ across regions, according to their specific needs. The need for the decentralization of implementation, of course, remains. But local "governments" in this framework are nothing but administrative outposts, with no decision-making autonomy.

Decentralization of decision-making only becomes worthy of consideration when we relax either of the key assumptions underlying that benchmark: that the central planner is omniscient; and that it is benign. Relaxing the first assumption means recognizing that information flows neither perfectly nor costlessly, and that local policy-makers - should we allow for their existence - might know which people need what services better than central ones.

Relaxing the second assumption allows for the fact that central governments might be captured by a non-representative agent, whose objectives differ from those of society as a whole. Local autonomy might therefore be desirable as an insurance against the capture of the state by a coalition that would use it for its own ends. Examples abound: in Indonesia, the peoples of Kalimantan and other islands resent what they perceive as Javanese dominance. In many African countries, there is a widespread perception that central government is at times captured by a tribe or alliance of tribes, often from one specific

region, and is then used to extract surpluses from other groups and transfer them to the region from whence the ruling group hails.

In this note I will abstract from elite capture, either at the national or local levels, for two reasons: first, it has been extensively treated elsewhere (see, e.g. Bardhan and Mookherjee, 2000) and, second, it is clearly something that may afflict local or central governments alike, and there would thus seem to be no a priori grounds to suppose that it is best avoided by either decentralizing or by centralizing. One would surely avoid local elite capture by centralizing government; and central elite capture by decentralizing it. Which is worst, or most likely, must depend on a country's history, culture and geography.

Instead, I will focus on the trade-off between the (assumed) inherent informational advantage of local governments and the intrinsic ability of central governments to provide for greater inter-regional equity, in the absence of capture at either level. In so doing, the model will abstract from four factors which are likely to be important: the existence of economies of scale in some decision-making processes; regional variance in administrative capacity; regional variance in intra-regional inequality; and political processes leading to capture at either level. Each of these is important, but my hope is that they are being treated elsewhere.

A Toy Model

Consider a country with a continuum population of mass n (n in \mathbb{Z} , $n > 1$), divided equally but non-randomly into n spatial subsets (indexed by j), so that the mass in each region is one. These agents (indexed by i) are identical in every respect, except their initial wealth w , which is distributed in each region according to $F_j(w)$. The concatenation of all $F_j(w)$ is $F(w)$.

The model is static. Agents live for one period, and maximize:

$$U_i(y) = y = (1-t_j) w_{ij} + p_{ij} \pi S(\tau)$$

where t_j is the (linear) tax rate levied on initial wealth, to finance the provision of a public service S . This service contributes to the private productivity of agents (who inelastically supply one unit of labor, to use this service), earning a return πS . One might think of S as schooling services, and of π as the (linear) rate of return to schooling.¹ Because of asymmetric information, targeting is imperfect, and agent i in region j has a probability p_{ij} of receiving the benefit. To capture the idea of a local informational advantage, we assume that²

$$p_{ij}^C < p_{ij}^D \leq 1, \forall ij$$

¹ See Ferreira (2001) for a more detailed - and dynamic - version of this framework.

² This assumption, such as it is written, is more compatible with the idea that the imperfections of information lead to some mismatch between the services offered to each agent and that agent's specific needs, rather than with standard leakage problems in targeting to the poor.

Our objectives are twofold: to compare the welfare of individuals, at different wealth levels and in different regions, under two stylized regimes: centralization (C) and decentralization (D); and then to build on that to hypothesize how plausible constitutional processes might yield different outcomes in terms of C or D.

Each regime is associated with a different government budget constraint. Under C, an election over tax rates takes place nationally, and the median voter chooses a national tax rate t_c .³ The revenues from the (evasion-free) collection of this tax are distributed to each region strictly proportionately to population, so that, for each region j :

$$\tau_j = \frac{t_c}{n} \int w dF(w) = t_c \mu$$

Under D, the elections are regional, and each regional median voter chooses the region's tax rate. Revenues are used exclusively where they were raised. Thus, under D:

$$\tau_j^D = t_j \int w dF_j(w) = t_j \mu_j$$

Assume that there are diminishing marginal returns to government spending in providing service S so that, for instance, $S = \alpha \tau_j^{0.5}$. Then, an arbitrary agent i in arbitrary region j will have a welfare level given by:

$$U_{ij}^D = (1 - t_j)w_{ij} + \pi p_{ij}^D (t_j \mu_j)^{1/2}$$

under decentralization. Under centralization, the comparable level of welfare would be:

$$U_{ij}^C = (1 - t_c)w_{ij} + \pi p_{ij}^C (t_c \mu)^{1/2}$$

Under the rules of the two "electoral" processes described earlier, the tax rates would be as follows:

$$t_j = \left(\frac{\pi p_{ij}^D}{2} \right)^2 \frac{\mu_j}{w_{mj}} \frac{1}{w_{mj}} \qquad t_c = \left(\frac{\pi p_{ij}^C}{2} \right)^2 \frac{\mu}{w_c} \frac{1}{w_c}$$

Where w_{ij} is the median wealth level in region j , and w_c is the median wealth level in $F(w)$.

Three results are not without interest. First, and as usual, they suggest that the a proportional tax-rate to finance uniform redistribution rises with inequality, proxied by the ratio of mean to median incomes. Second, it also suggests that we would observe higher tax rates under decentralization, *ceteris paribus*, since the efficiency of spending is higher then, because of better targeting. Third, controlling for inequality (i.e. assuming μ_j/w_{mj} across all

³ Political processes are clearly much more complex. Recent common-agency models such as Dixit et. al. (1997) depict interesting alternatives to standard median voter stories. However, median voter arguments can be generalized to take account of differences in political power that are monotonic in wealth (see. e.g. Bénabou, 2000), and provide a very simple short-cut in settings such as this one, in which the preferred tax-rate is monotonic with wealth.

j), tax rates decline with mean income across regions. This arises from the decreasing returns to government spending.

So, will individual i in region j do better under centralization or decentralization? This clearly depends on:

the individual's own wealth, w_{ij} ;
 whether the individual lives in a rich region or a poor region (μ_j/μ);
 and how strong the informational advantage of decentralization (p^D/p^C) is.

Indeed:

$$U_{ij}^D - U_{ij}^C = w_{ij}(t_C - t_j) + \pi \left[p_{ij}^D (t_j \mu_j)^{\frac{1}{2}} - p_{ij}^C (t_C \mu)^{\frac{1}{2}} \right]$$

For simplicity, assume that $p_{ij}^D = p_D$, and $p_{ij}^C = p_C$, for all i, j. Substitute the tax rates into this equation, to obtain:

$$U_{ij}^D - U_{ij}^C = \mu \left[\frac{\pi^2 p_C^2}{2w_C} \left(\frac{w_{ij}}{2w_C} - 1 \right) \right] - \mu_j \left[\frac{\pi^2 p_D^2}{2w_{mj}} \left(\frac{w_{ij}}{2w_{mj}} - 1 \right) \right]$$

This is positive if:

$$w_{ij} > \sup[2w_C, 2w_{mj}]$$

Which we refer to as "the agent being rich", and

$$\frac{\mu/w_C}{\mu_j/w_{mj}} > \left(\frac{p_D}{p_C} \right)^2$$

Which implies that the excess taxation under C (relative to D) more than offsets the informational advantage under D. These conditions are sufficient, but not necessary, for the agent i,j to prefer decentralization. Given that $p_D > p_C$ by assumption, the left hand side would necessarily have to be greater than one for decentralization to be preferred. In other words: rich agents prefer decentralization only if they live in reasonably egalitarian regions, relative to the country at large. The intuition is clear: because they are rich, the government's (redistributive) provision of this service leaves them worse off. They will choose the state of the world which minimizes the tax rate. This is decentralization if the tax rate chosen by the regional median voter is sufficiently below that which would be chosen by the national median voter. Otherwise, these rich agents would prefer centralization.

It should be straightforward that poor agents, e.g. those with wealth levels such that:

$$w_{ij} < \inf [2w_C, 2w_{mj}]$$

Will prefer decentralization if:

$$\frac{\mu/w_C}{\mu_j/w_{mj}} < \left(\frac{p_D}{p_C} \right)^2$$

That is: always, unless local inequality is so low relative to national levels, that they would be willing to forgo better targeting in order to receive more of the service, available under the higher tax rate charged centrally.

A tentative implication is that the existence of a decentralized regime for the financing and provision of a public service in this general mould might be the result of a political coalition between the rich of egalitarian regions and the poor in non-egalitarian regions, while a more centralized regime would arise from the political predominance of the elites of unequal regions and the poor in more egalitarian regions. It is interesting that differences in mean incomes across the regions were dwarfed in the analysis by the differences in inequality across them. This result would appear to depend strongly on some of the functional forms chosen in the above toy model, and might well not prove robust.

Indeed, one conclusion that arises forcefully from trying to think formally about the positive determinants of the degree of decentralization is that who its beneficiaries are (and thus the composition of the coalition that might support it) depends strongly on specific assumptions about various mechanisms, involving financing, transfers, targeting, comparative efficiency, etc. It is also clear that if government action involves any form of redistribution, the relation between intra- and inter-regional inequalities ought to be key determinants of the final political equilibrium. In other words, the devil is in the detail.

It would be interesting, beyond this short tentative note, to investigate which different broad classes of political models - e.g. pivotal voter frameworks versus common-agency models - are more consistent with different aspects of observed institutional choices about the degree of centralization of public service delivery in different countries.