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Urban Development Policy in Chile

In an earlier paper ("Esquema para un estudio de la Macrozona Central," July, 1969) I attempted to lay out a study design to aid in application of urban development policy in Central Chile. The "Macrozona" is a special planning region composed of five provinces centered on Santiago. It contains slightly more than half of Chile's population and nearly 70 percent of its gross output and, as will be seen, is regarded as having critical importance in the nation's development plans.

The research program sketched out in the earlier paper is based on some assumptions which I began to realize may not be valid ones. In particular it was based on an unrealistic and rather rigid concept of spatial policy formation and articulation, since it assumed the preexistence of a clearly formulated and explicit statement of what is meant by "decentralization" within the Macrozona, and on what criteria such a policy is based. Regional planning is a relatively new process in the world and the institutions for its accomplishment in Chile are only a few years old; the development of policy has not yet reached such an explicit stage. It is much more useful to regard the Macrozona study as a process not only of delineating the consequences of decentralization policies, but also of helping to define such policies and develop sets of criteria on which developmental decisions can be based.

It is in this spirit that this paper attempts to explore some of the issues involved and to propose the sort of research which would help to resolve them. Perhaps some of this can be incorporated directly into the Macrozona study, but for the rest it may be worthwhile to have a statement of needs and their relation to the MRC study to stimulate other related research.

The meaning of *decentralization*

At the national level it is relatively clear that economic "decentralization" means a policy of encouraging growth of larger cities which may act as multi-regional or regional growth poles, and of increasing the volume of economic activity and population in the extreme northern and southern "frontier" regions. Even with

respect to this policy, it is widely recognized that some of its foundations are hypotheses for which little empirical evidence has yet been developed; some of these points will be explored in the final section.

With respect to the spatial policy for the Macrozona Central itself, however, there is considerable uncertainty as to just what is meant by "decentralization." There often exists an implication that the Macrozona as a whole is a dynamic region which will experience growth in employment, population, and income, and that this expected growth can be "arranged" in any desired pattern *within* the region without affecting the amount of growth. For example the ODEPLAN document *Politica de Desarrollo Nacional: Directivas nacionales y regionales* (ODEPLAN, 1968) states:

"The Central Macrozone is of such a high significance in the national economy that even its (internal) spatial ordering has absolute effects of great importance. Thus, if the emphasis of the force of regional planning is properly directed to the peripheral regions, yet a preferred attention to national growth, especially urban management, should be given to this region."

There is a great deal of doubt as to whether such an assumption is warranted. The following discussion follows verbal comments by Gabriel Pumarino and Sergio Boisier, indicates some of these doubts. From 1961 to 1965 nearly 70 percent of the national increase in gross product originating in manufacturing occurred in the Macrozona Central; but some 85 percent of the Macrozona's increase was in Santiago Province, probably largely within Metropolitan Santiago. The two Macrozona provinces to the south of Sanitago (O'Higgins and Colchague) had rates of growth for every major productive sector far below those of the nation as a whole and, except for agriculture, less than one-third as high as the rates in Santiago. The provinces of Valparaiso and Aconcagua to the north had a rate of manufacturing growth about one-half that of the nation, and an overall gross product growth rate about three-fourths that of the nation (ODEPLAN, 1968).

The dynamism seems to exist only in the Province of Santiago, and probably within the Santiago metropolitan area at that. If policies to shift development outward throughout the MRC can be made effective a number of questions arise:

What are the likely effects on the regional *total* of expected growth of alternative sorts of regional *patterns* of growth?

If some spatial patterns deter industrial development, will this development occur instead elsewhere in Chile, or not at all?

If there is a cost, in terms of total growth, of some spatial arrangements, what benefits are derived from these arrangements to justify such a policy?

It is not intended here to provide answers to these questions, but rather to indicate that they should be in the minds of those who are working on the Macrozona study, and those who design subsequent research.

One question which can be explored here only briefly is that of the content of a policy of decentralization in the Macrozona. Stated in rather crude and extreme form, some possible meanings would be:

1. To set a limit on the growth of Metropolitan Santiago by prohibiting or discouraging industrial growth there, without regard as to what alternative locations were chosen -- or whether growth did occur.

A modification of this approach would be to admit growth in Santiago only of those activities judged to have special need of the locational advantages of a very large city. This is suggested in *Política de Desarrollo Nacional*. "Thus in Santiago policy should be directed fundamentally to the coordination and sustaining of urban growth, with an effort to attract industry which requires advanced technology and a great variety of specialized services, and those which are competitive in international trade" (ODEPLAN, 1968).

Some of the arguments based upon the social costs created by rapid and "excessive" growth of urban population might be taken to support such a policy, but in general it is only half a policy, if that.

2. A second type of decentralization strategy would be to foster the growth of medium to large cities outside of Gran Santiago. These might then be expected to act as self-generating "growth poles" and spread employment and infrastructure effects widely through the Macrozona. The ODEPLAN report quoted previously says that one measure taken to relieve pressures on Santiago should be "... to initiate a process of deconcentration resting on urban centers of some importance which are located in the immediate periphery: Rancagua, Rengo, Melipilla, and San Antonio toward the south and the coast, and San Felipe, Los Andes, La Calera-Quillota toward the north. These latter have, besides, a similar function in

relation to the metropolitan area of Valparaiso (ODEPLAN, 1968).

The validity of this sort of policy rests heavily upon two issues: First, the shape of long run average cost curves of industries and infrastructural facilities and second, the size and nature of regional multipliers in the growth poles. Both of these will be further discussed later on.

3. Still a third sort of "decentralization" would be a deliberate "suburbanization" of economic activity outward to the areas just beyond the presently developed urban area. A hint of this strategy also appears in the ODEPLAN report. A policy of "rationalization" within the MRC, says this document, "... could provoke an effect which could be called urban decongestion in relation to its adjacent zones (ODEPLAN, 1968).

For such a policy the advantage might be cited that industries locating within some 40 kilometers of Gran Santiago would still enjoy many of the external economies of the Metropolis and could draw on at least part of the existing labor force. By the same token, the burden on existing Metropolitan infrastructure might be scarcely lightened by such a policy.

4. Finally, there might be a policy of encouraging development of jobs, raising of productivity, and provision of infrastructure in those parts of the Macrozona showing the greatest need, as measured by low incomes, unemployment, or a more complex index of marginality. Such a policy might well lead to *more* rather than less development in Santiago, but it would probably also imply some employment growth in low income isolated rural portions of the Macrozona, such as the Santa Cruz or La Ligua areas. This policy, coupled with a specification of the type of development appropriate for such isolated areas is mentioned in the ODEPLAN report. Referring to pockets of unemployment it recommends "...the realization of investments in 'mobile' industries in which the recovery of capital would be relatively rapid and in which the effect on employment would be important" (ODEPLAN, 1968).

The Economic Development Administration in the United States has informally adopted a strategy of investing in the "worst areas first" in attempts to eliminate depressed areas. This sort of policy would require greater attention to measures of socioeconomic deprivation and to migration and commuting behavior. It would also call for a more fully developed time phasing of intra regional investment policy, if, as the ODEPLAN quotation implies, some development in isolated

poverty areas were to be viewed as a temporary measure to be written off and perhaps abandoned as incomes and skills rose.

Of course, the decentralization policy which will eventually be adopted is likely to be much more sophisticated than the brief statements made above, and will probably contain elements of several of these approaches. The design of such a policy will be easier if it can be based on some underlying goals or criteria which serve to compare one strategy with another. The next section will attempt to spell out some criteria and indicate briefly the present state of knowledge about them, and some research possibilities which would improve this knowledge.

Criteria for a spatial policy

Behind the policy itself must lie some social goals toward which particular spatial arrangements of productive activities, infrastructure, and population are expected to lead. ODEPLAN (1968) has stated some of these goals at the most general level:

- a) “ ... to assign capital resources ... in large proportion to those areas in which development could catch on most rapidly.
- b) "The obtaining of the goal of redistribution of incomes at the regional level based in part on the principle of concentration of investments in accord with their productive yield, (but also) it would be necessary, as a short run policy, to divert resources to regions of low economic potential, but with serious socioeconomic problems."
- c) "The attainment of full employment, the maximum increase in production, and the redistribution of per capita income define the policy toward regional migration. In the long run the population has to concentrate in those regions of highest development potential which offer solid possibilities of maintaining full employment. In the short run, as an extreme measure, it would be justifiable to subsidize certain regions with investments with strong impact on employment, such as public works not related to productive activities, but in the long run it is clear that such a policy could not lead to a stable employment base."
- d) “ ... together with the objectives of economic growth, the strategy of national development should have as a central objective, national integration."

The attempt is made in this paper to spell out some of the possible goals on a

somewhat more concrete basis, and with special attention to the spatial scale of the Macrozona.

Many of the arguments for one sort of spatial location policy or another rest on assumptions about conditions for which the empirical evidence is not strong. Of these, a very prominent argument depends on the shape of long run average cost curves for a variety of production processes of both private and public goods and services,

On the one hand, it is argued, the production of a number of important goods in a large city must take place in a portion of the long run cost curve which is rising due to diminishing returns on productive factors, especially land and labor, The result is either higher costs of goods for consumers or lower profits for producers, or both. Even more, the production of public services also takes place at higher costs than could be achieved at "optimum" city size (Isard, 1956).

On the other hand, the argument runs, in very small cities average costs are also high, since few scale economies can be achieved. Again this would be true both of private production and the provision of public infrastructure services. Therefore, a spatial policy should prevent major cities from becoming too large and should encourage growth in small towns -- or should encourage growth of a system of medium-sized cities which would replace most of the very small towns now existing.

All that needs to be done, one might think, is to take down from the shelf a set of long run cost curves for the particular mix of industry in a given city, along with the curves for the public services which government proposes to provide. When these are summed vertically for points on the quantity axis which are feasible combinations of outputs, a composite average cost curve results, and the low point on it represents the city size which policies should attempt to achieve.

Of course the reasons that this has not been done are very strong. For the most part the cost curves have not been measured, and for many industries the number of variables which affect average costs is very large. For public services too, except for such utilities as electricity, water supply, and sewage disposal, the design alternatives are wide and very little is known about costs (Kuhn, 1962; Meyer, Kain, and Wohl, 1965). Furthermore, the various industries and services are not independent of each other and there are a great many externalities in the large city. This factor will be examined separately later on.

Some scattered bits of analysis of such costs for Chile have been cited. A study by Carlos Hurtado Ruiz-Tagle (1966) cites estimates by Morales that the current costs of water distribution in Santiago in 1961 were E° 0.018 per cubic meter, while in the rest of Chile they were E° 0.035.

There are also a few studies -- very few -- from other countries, which deal with costs in different-sized cities. One recent and ambitious study published by Stanford Research Institute (1968) deals with a group of cities in India ranging from 48,000 to 1,000,000 population, and is concerned only with infrastructure costs. The results of this study, for an incremental industrial growth proportional to city size, are summarized in the following table:

	CITY				
	A	B	C	D	E
Population	48,000	132,000	212,000	323,000	1,070,000
Incremental annual infrastructure costs (rupees)	1,075,000	2,752,000	3,492,000	6,177,000	24,086,000
Incremental annual costs per person (rupees)	22.4	20.8	16.5	18.8	22.5
Index (City C = 100)	136	126	100	114	136

Source: Stanford Research Institute, Table 99, p. 317, (1968)
(1967 rupees were approximately equal to 1967 escudos)

The incremental costs resulting from this study can be compared with those produced by an Italian study (1967) which worked with a more finely distributed range of small cities (and a different methodology). These findings are presented below.

CITY SIZE

	< 5000	5000 - 20,000	20,000- 50,000	50,000 - 100,000	100,000- 250,000	250,000- 600,000	> 600,000
Cost per capita (1000 Lire)	567	451	444	465	491	535	623
Index (20-50 = 100)	128	102	100	105	111	120	140

Source: S.U.I.M.E.Z., 1967.

Both of these studies did in fact discover rather shallow U-shaped cost curves, but the low point was for cities of 20,000 to 50,000 in the Italian study and 212,000 in the Indian study. Within the Macrozona, the city size distribution is approximately as follows:

Size	No.	
2,046,000	1	Santiago and environs
466,000	1	Valparaiso - Viña
50,000 to 100,000	2	Rancagua, Quillota - Calera
20,000 to 50,000	3	San Felipe-Los Andes, San Antonio, San Fernando
5,000 to 20,000	8	Talagante, Malipilla, Limache, Rango, Buin, Llay-Llay, Santa Cruz, La Ligua
5,000	Many	(Not identified)

Source: 1960 Census of Chile.

If one were to put confidence in the applicability of these studies to Chile, it would give some support to the second decentralization alternative outlined in the First section of this paper; that is, the concentration of growth in the cities of from 20,000 to 100,000 within the Macrozona. Both studies hint at rapidly rising costs for cities as large as Valparaiso-Viña or Santiago, and only the Italian study would justify growth in the smaller towns from 5,000 to 20,000.

It cannot be too strongly stressed, however, that these data may not apply to Chilean conditions at all. A close examination of methods and assumptions, and at least some careful spot-checking or case studies of Chilean costs would be necessary if policy were to be based on this factor. Note, too, that these data refer only to infrastructure costs; there may be benefits, economic or other, which would justify a spatial policy which incurred infrastructure costs higher than the

minimum.

There have also been a number of studies in the United States which examine urban public expenditures as a function of city size among other factors, (Brazer, 1959; Montgomery, 1963; Shapiro, 1963). Unfortunately, the differences among cities in legal and institutional arrangements under which specific functions are carried out make these data a rather poor indicator of actual infrastructure costs. Certain other studies have dealt directly with cost data in developed countries, and may be useful guides to theoretical and methodological considerations (Isard and Coughlin, 1957; Hansen, 1965; Mace, 1963).

Externalities

A second basis for spatial policies is the existence of external effects - negative and positive - of the concentration of people and of productive activities. Whereas the previous section deals with the cost curves *internal* to firms or public enterprises, this section deals with the *social* cost curves, and in addition with social benefit curves (or, alternatively, with curves of net social costs or benefits).

The separation of "internal" and "external" costs and benefits is itself often an arbitrary matter of law, institutional practices and so on. For example, many costs which are often external to the private firm, such as air and water pollution or provision of parking space for employees can be made internal if laws and regulatory agencies require firms to treat their wastes or provide parking. Also, many external economies for one group of firms result from internal economies realized in a supplying firm. For example, low cost electricity may be available for many firms because it can be produced in a single optimum-sized plant.

However, the concept is useful and important, and lies behind many arguments for decentralization. As to direct social or external costs of industry, those often mentioned are environmental pollution and traffic congestion caused by movement of goods and labor force. In addition there are social costs caused directly by population concentration or indirectly by the industries which employ a work force and cause population concentration. These include the effects which have been attributed to population density - increased danger of fire and accidents, traffic congestion from non-work-connected trips, and a loss of full-range human contacts due to the necessary organization and specialization of urban life.

In both cases (industry and population effects) the presumed costs of agglomeration are accompanied by a list of possible benefits. For firms, external *benefits* include a more varied and experienced work force, a large range of auxiliary services (advertising, graphic arts, banking and credit facilities, repair services, etc.) and so on. In general these are benefits because they allow more flexibility in operations, and permit the firm to deal with various uncertainties without large permanent commitments. This is especially important for newer and smaller firms. There may also be better conditions for innovation and process development where many different kinds of firms operate in close proximity (Thompson, 1965).

For population concentration, the external benefits include access to a wider range of cultural opportunities, health facilities, educational institutions, and the whole complex of stimuli and richness of interpersonal contacts which have caused the word "civilization" to derive from the Latin word for city (Duncan, 1957).

It appears that the empirical evidence is scattered and far from conclusive even on those elements of social costs and benefits which may be easily translated into monetary values. As for the more intangible, dynamic, and non-economic elements, there is simply no dispassionate objective basis for identifying a "best size" for cities. It is probable (and, I think, desirable) that many of these values will simply have to be translated into policies over the long run by the political process, particularly if wide-scale participation in this process can be achieved.

Income distribution

Still another set of arguments concerning spatial policy rests on the effects of urbanization on income distributions. This may be viewed on two levels. The first is concerned with the existence of pockets of unemployment, low productivity, and low income at various points through the Macrozona such as the rural areas beyond La Ligua or Santa Cruz. Where these areas of low income persist, because of inability or unwillingness to migrate to better opportunities, inequities in income distribution between parts of the Macrozona exist, and a policy of decentralization or employment opportunities outward to the depressed areas would be one way of reducing inequality. The empirical uncertainties related to this possibility have to do with the migration behavior of people from low income areas, possible inducements to increase out-migration, and the costs of this sort of policy as compared to the costs in terms of economic efficiency losses of locating

industries at somewhat remote points.

On another level, there are contentions that income distribution among families is more equal *within* large cities than outside; and the opposite claim has been made, that the contrasts between poverty and affluence are more sharp within cities (Thompson, 1965).

Politico-cultural factors

Finally, a wide range of arguments for and against growth of large cities is based on effects beyond the economic ones, but in terms other than those of external effects. These include arguments that the political effects of concentration are positive and democratic, and that they are bureaucratic and deter democratic participation (Friedmann and Lackington, 1967; Alonso, 1968).

Similarly, cultural advantages of large cities are argued as vigorously as are disadvantages. The advantages include stimulation and encouragement of the arts and sciences and an escape from what Marx called "rural idiocy"; the disadvantages include depersonalization and a pressure toward cultural homogeneity (Simmel, 1957).

Conclusion

The intent of this paper has been to raise questions and to suggest the number of dimensions on which the answers are to be found. As I stated earlier, it is clear that only a few of the areas suggested here can be incorporated into the Macrozona study; but all of the criteria mentioned here for spatial policies may be important, and they should be kept in mind by researchers and periodically discussed as the study goes along.

The policies which now exist or will be developed by ODEPLAN and other agencies do not appear from thin air. They are based either on some interacting set of the criteria discussed here or on other criteria which should be identified and brought into the discussion. If there are important factors which do not appear to be quantifiable they should be defended on their own merit, not ignored nor introduced obliquely in some other guise.

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