City Size and National Spatial Strategies in Developing Countries

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ABSTRACT

The evidence on the size, structure and functions of LDC cities is evaluated, with the findings used for other suggestions on the scope and feasibility of national spatial strategies. Neither the concept of optimal city size nor that of an optimal urban hierarchy (based upon naive notions about relative interurban sizes and distances) is helpful. The idea that spatial agglomeration may give way to dispersion (polarization reversal) is more relevant to policy, but definitive evidence to date is limited.

There is no clear relationship between city size and function. Small-scale industry is potentially very important in LDCs because of its labor-intensive character. Manufacturing industry is much more heavily concentrated in the primate city in LDCs than in developed countries, and industrial decentralization is likely to be an important component in any national spatial strategy to extend the national urban hierarchy. However, important institutional constraints such as the nature of the planning system, the form of political and territorial organization (e.g., a federal or unitary system), the location of the power base, the legacy of colonialism, and ethnicity rule out a universal prescription for all LDCs.

Devising feasible strategies is handicapped by vague and conflicting goals, the strong but unintentional impacts of non-spatial policies and the weakness of many spatial policy instruments. The availability of jobs rather than of infrastructure and services is the major inducement to migration. The "no policy" strategy deserves serious consideration, particularly as spatial policies have been used as a pretext for evading the key issue of income redistribution. Nevertheless, some spatial strategies are frequently justified, if introduced at the right time. These include deconcentration from the metropolis to congestion-free sites, the promotion of distant counter-magnets, stimulating selected small towns in rural areas, and the development axis approach. Traditional growth center policies may also be relevant in some cases. The focus on national strategies may be inappropriate in certain very large or very small countries. In the latter, international cooperation may be necessary to design and implement an effective spatial strategy. On all these issues, however, current knowledge is limited, so that more research is a high priority.

NATIONAL SPATIAL STRATEGIES IN DEVELOPING COUNTRIES:

CITY SIZE, LOCATION AND FUNCTIONS

FOREWORD

A major concern of "urban" policy in many LDCs has been with concentration of population in one or a few large urban centers. Most national plans make explicit reference to measures to "decentralize" economic activity and to slow down rural-urban migration. Much of this approach to policy is based on implicit assumptions of "optimal" or "preferred" city size in which a desirable range of economic activities will result. As an element of the program of work proposed by the Urban Poverty Task Force, this report reviews current theories on urban size and economic activity, and then discusses the range of policy options which have been adopted and factors to be considered in making policy choices. As the discussion in the paper makes clear, appropriate policies relate to physical, social, political and economic structure of a country and are therefore peculiar to each. The report does not therefore elaborate specific policy prescriptions, applicable to all countries or to any one country.

In the field of spatial policy analysis, as in most others, a number of terms have appeared in recent literature, with which many readers may not be familiar. In order to avoid excessive footnoting, or lack of clarity or continuity, when such terms are first introduced in the the main text, they are underlined and marked with an asterisk. The Appendix contains a glossary of these terms.

In revising earlier drafts of this paper, the author has benefitted from suggestions by a number of members of the World Bank, most particularly John English, Bertrand Renaud and Douglas Keare. Responsibility for any remaining errors and omissions rests with the author.

CITY SIZE AND NATIONAL SPATIAL STRATEGIES

IN DEVELOPING COUNTRIES

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INTRODUCTION

1. Although many of the spatial strategies deployed in LDCs have the goal of controlling the growth of the largest city and promoting a more dispersed national settlement pattern, this report takes no stand on the desirability of these attempts. Instead, it relies on the following arguments. The justification for such a strategy is frequently weak, relying on unsound theory and speculation. Nevertheless, a country's policy objectives may include a major change in the settlement pattern, perhaps on social rather than economic efficiency grounds. Devising appropriate strategies for attaining these goals is difficult, partly because knowledge of the processes at work is very imperfect, partly because most macro and sectoral policies have implicit spatial impacts that are strong in intensity and frequently reinforce patterns of spatial polarization. The timing, scale and type of spatial intervention may be critical to the chances of policy being successful. Thus, the purpose of this report is not to argue the case for a particular form of spatial strategy but rather, given that many LDCs are concerned about the trends in their settlement patterns, how might they intervene so as to attain their objectives. Understanding of the dynamics of spatial processes in national economies is so limited that many of the guidelines are negative (what not to do). Yet clearing away what is ill-founded or infeasible may be a necessary prerequisite for determining what strategies might be effective.

2. More particularly, this report focuses on the analysis of city size, structure and function in less developed countries (LDCs), on the distribution of city sizes and on their relevance to the design and implementation of national urban growth strategies. Chapter I outlines the problem, examines the extent to which primacy is the critical issue and presents a summary of the case for a national urban strategy. In Chapter II some theoretical issues are discussed: the utility of the concept of optimal city size; whether or not we can identify "efficiency" in the national urban hierarchy; and the phenomenon of polarization reversal. Chapter III turns to the problem of the economic structure and functions of cities in LDCs, and its implications for policies. Particular attention is given to the interrelationships between size, function and location, the determinants of industrial location in LDCs, a comparison of the economic structure of primate cities in LDCs and developed countries, and the role of institutional constraints. Chapter IV deals with the complex issues of spatial strategies. The goals and instruments of urban policies, including the critical influence of implicit policies, are discussed. Growth poles, guidelines for strategy suggested by analysis of the spatial distribution of cities, and the appropriate spatial level, timing and scale of intervention are included among the topics analyzed. Chapter V presents some findings and suggests some research priorities. The findings are labelled "maxims," but they should not be interpreted dogmatically. Instead, they represent an attempt to reconcile *a priori* generalizations with operational experience. The research priorities are not

addressed solely, or even primarily, to the World Bank but to the academic community and to policymaking agencies in LDCs. Also, they indicate broad areas for research activity rather than specific research designs, since the main objective of this report is not to draw up a research agenda, but to assess the present state of knowledge (and ignorance) on these complex issues.

3. The argument is illustrated with empirical observations from a wide range of LDCs in different parts of the developing world. In most but not all cases, these observations have been relegated to footnotes so as not to break up the argument in the text. As noted, an appendix contains a glossary of terms for readers unfamiliar with spatial policy analysis.

CHAPTER I: STATEMENT OF THE PROBLEM

4. The processes of economic development and urbanization* are highly interrelated. The intersectoral shifts from a subsistence agricultural base to a market (or possibly planned) economy based on the production of non-agricultural goods and services are paralleled by spatial shifts in the distribution of economic activity and population that involve urbanization. Thus, the percentage of population living in urban areas and GNP per capita (using this as a crude index of economic development) across countries are highly correlated (see Table 1).

5. This generalization, however, hides a considerable degree of variation in the distribution of city sizes* (see Appendix Table 1). Urbanization does not necessarily imply expansion in all city size classes at the same time, and variations among individual countries are extreme. 1/ Heterogeneity at the national level is the product of a myriad of influences, including geology, topography, level of development, size of territory, agrarian organization and the nature of the planning system. This implies a need for caution in formulating universal prescriptions.

6. The process of economic development in less developed countries (LDCs) involves a dramatic reallocation of resources, both sectorally and spatially. The task of economic policy is to facilitate and promote this reallocation. But the traditional preoccupation with economic development leads to a strong emphasis on macro and sectoral strategies while the spatial repercussions of development are either left on one side or, perhaps more typically, treated independently. This is a serious mistake, since almost all macro and sectoral policies have unintended side-effects on the spatial distribution of activities. In a sense, all policies are spatial, but some are "implicit" while others are "explicit." A common error in LDCs is to pursue difficult and possibly unattainable explicit urban policies while failing to recognize that contradictory and stronger implicit urban policies* are already being unconsciously implemented as part of the national sectoral plan. The subjugation of explicit to implicit spatial policies is merely a reflection of the subjugation of spatial planning* to sectoral planning. Achieving reconciliation between the two or reordering priorities would increase efficiency and save scarce resources. But there has been little research into how controlled urbanization (in the form of planning of the national settlement pattern*) might accelerate economic development and increase the aggregate growth rate.

1/ The data of Appendix Tables 2 and 3 illustrate some of the main differences (as well as some similarities) among countries in two important regions, Latin America and Asia.

Table 1

Urbanization Levels in a Sample of

Less-Developed Countries

Country	Per capita GNP Level in 1972 US$	Percentage of Urban Population, 1975
Argentina	1,290	79.9
Mexico	750	63.1
Brazil	530	59.4
Algeria	430	49.9
Malaysia	430	29.6
Colombia	400	61.6
Zambia	380	36.1
Ivory Coast	340	20.4
Korea	310	47.4
Senegal	260	28.4
Egypt	240	47.7
Philippines	220	35.0
China (Mainland)	170	24.8
Kenya	170	11.3
Pakistan	130	26.2
Nigeria	130	18.2
India	110	21.3
Indonesia	90	19.2
Upper Volta	70	8.3

7. The simultaneous pursuit of spatial and sectoral objectives in LDCs is handicapped by the fact that observation of what is happening currently in developed countries is of little relevance. The rural-urban migration streams in DCs have become trickles, population growth has almost ceased and the national urban hierarchy* has more or less solidified. There are serious urban problems that may require intervention such as congested and obsolescent metropolitan cores, patterns of suburban and exurban development and the uneven incidence of both inter- and intra-urban unemployment. But these and other problems are not the same as those found in the LDCs, and when they are superfically similar (e.g., unemployment) the causes, dimensions and remedies are very different.

8. Moreover, the historical record of developed countries offers relatively few guidelines to LDCs. The process of spatial polarization* during rapid industrialization ultimately transforms into interregional and intraregional dispersion* (and at the same time builds and amplifies the national urban hierarchy) in the era of post-industrial maturity, but this sequence is unlikely to be replicated in LDCs. In the developed countries the rate of growth of industrial job opportunities in and near urban areas* was the primary determinant of the pace of the polarization process; this is not the case in LDCs. The aggregate rates of population growth and urbanization were lower in the developed countries, even in the period of fastest growth, than they are in LDCs today. 1/ The dispersion of population in developed countries, was associated with the decentralization* of industry; there are very few examples of LDCs where industrial decentralization might take place spontaneously in the foreseeable future. Thus, the turning point in the polarization-dispersion process cannot be forecast in LDCs by examination of the historical record of developed countries. There are one or two cases where this turning point may be incipient (e.g., Colombia, Korea, Brazil) but the reasons are different from those responsible in developed countries and the role of policy, though a factor, is ambiguous. In other cases, to rely on an eventual spontaneous dispersion might be dangerous optimism. 2/ In any event, the resource and social costs of several more decades of polarization in core regions and large metropolises* might impose intolerable strain on LDC economies. Thus, the critical questions facing LDC policymakers are when to intervene, where to intervene and how to intervene.

9. The agglomeration-dispersion process may be examined in more concrete terms as the evolution of the city size distribution. But the controversy about the relationship between the distribution of city sizes and economic development also remains unsettled. Using the Pareto coefficient*

1/ In Latin America, for example, the annual increment to the sub-continent's cities is more than 7.5 million, and its urban centers by the year 2000 may have a population roughly the same as the combined present total populations of North America and Western Europe (Terra, 1976).

2/ See Chapter II.c. below.

(q) to represent this distribution, 1/ the critical question is what happens to the distribution as a national economy develops. One view is the idea of a developmental model where the distribution moves over time, and during development, from primacy* towards a distribution where q is close to unity (this implies a much more regular urban hierarchy [Berry, 1961]). But this hypothesis is not consistently supported empirically since data show primate distributions among some developed countries and rank-size distributions* among LDCs (see Table 2). An alternative hypothesis is that primacy is rare in very underdeveloped countries, increases during early industrialization and declines subsequently (El-Shakhs, 1965). This is an urban distribution analogue to the core-periphery* model (Friedmann, 1966) or the seminal analysis of the relationship between regional income dispersion and economic development (Williamson, 1965).

10. An historical study of eight Latin American countries (McGreevey, 1971) revealed findings not inconsistent with the second but conflicting with the first model. In these countries, there had been a shift over time from a rank-size distribution towards primacy. The earlier rank-size distributions, however, reflected not a systematic interdependent urban hierarchy but an administrative hierarchy needed to rule colonies in a situation where high communication costs inhibited centralization. With the exception of Mexico, the shift towards primacy coincided with an expansion in exports *per capita*. Thus, the primate cities* evolved in association with opening the countries up to world markets.

11. Tests on the links between primacy and indicators of underdevelopment have been inconclusive or contradictory (Mehta, 1964; Linsky, 1965). This is not surprising since cursory empirical observation shows primate city size distributions in both developed countries (in Europe) and developing countries (especially Latin America and South East Asia). 2/ Speculation on the sources of primacy has emphasized the scale of international

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1/ This coefficient, q, may be calculated from:

$$N(\bar{P}) = AP^{-q}$$

where $N(\bar{P})$ = cumulative percentage of cities above a threshold level $\bar{P}$ and A = a constant.

2/ Interestingly, if the small Central American countries are counted in Latin America, then out of twenty-two countries in sixteen more than fifty percent of the urban population is concentrated in one metropolitan area. See also Appendix Table 2.

functions undertaken by the leading city, the degree of administrative centralization and the size of the bureaucracy, and the quality of the interregional transportation network. 1/

12. A more general theoretical explanation is that the relationship between returns to scale and city size favors the primate city in many developing countries. To many critics of the urban hierarchy patterns found in primate LDCs this argument may appear surprising. However, focusing on the social congestion symptoms of primate cities neglects their many economic advantages (agglomeration economies* in transportation, infrastructure, supply of skills, including managerial and technical experience). Also, many of the smaller cities lack connectivity with markets, infrastructure* and industrial location advantages. In addition, there is an empirical relationship between faster economic growth and increasing primacy among LDCs. Although the evidence is not conclusive, the diagnosis of a primate city size distribution as abnormal or pathological may lead to dangerous and wrong-headed policy prescriptions.

13. In spite of these findings, the literature on urbanization in developing countries often leaves the impression that the dominant problem is the excessive growth of the big cities relative to the rest of the urban system. If this is so, the major policy goal is to combat primacy. In fact, this would be irrelevant in some cases. Table 2 presents one index of primacy 2/ for extreme cases among both developing and developed countries. These estimates show that not all primate city size distributions are found in the developing world 3/ and that not all developing countries are primate. 4/ On the contrary, it is generally agreed that Brazil and the Indian

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1/ The idea is that a nationally integrated transportation network favors a non-private distribution. Surprisingly, Harris (1971) found that in several Latin American countries the reverse was true. Perhaps transportation improvements initially promote concentration rather than dispersal. If transportation investments are guided by efficiency criteria, higher rates of return are probably obtainable by strengthening existing high-demand routes. Thus, even a nationally integrated network may be biased in favor of core regions (in terms of miles of good quality highway).

2/ This is the four-city index, obtained simply by dividing the largest city's population by the combined populations of the next three largest cities.

3/ Only four developing countries exhibit more extreme primacy than Denmark.

4/ Primacy is rare in North Africa and the Middle East (Egypt and Iran are the exceptions).

Table 2

Extremes of Primacy, 1970

(Four-City Index)

Developing Countries

Primate		Non-Primate	
Peru	5.32	Saudi Arabia	0.50
Philippines	4.56	Nigeria	0.57
Argentina	4.03	Syria	0.52
Chile	3.97	India	0.68
Cuba	2.48	Brazil	0.77
Iran	2.21	Pakistan	0.88
Egypt	2.08		
Burma	2.07		

Developed Countries

Primate		Non-Primate	
Denmark	3.50	The Netherlands	0.50
France	3.10	South Africa	0.50
Austria	2.70	Canada	0.63
United Kingdom	1.53	Italy	0.69
Norway	1.48	Australia	0.70
		Switzerland	0.71
		United States	0.77
		Belgium	0.77

Source: K. Davis (1969).

Note: Sample restricted to countries with at least four cities greater than 100,000. Eastern Europe is excluded because of difficulties of classification.

subcontinent have severe urbanization problems yet they figure among the least primate LDCs (though they contain absolutely large cities). 1/ Once again, the conclusions are that it is dangerous to generalize 2/ and that urban policy problems are much more complex than appears at first sight.

14. Although the developing world will remain substantially rural even by the end of the century (perhaps 58 percent of total population), the rate of urbanization will be higher than in the past. In the third quarter of the century the urban population accounted for less than 45 percent of the total population increase; in the past quarter its contribution is expected to be more than 60 percent. Much of the increase will be concentrated in the big cities with a likely increase in LDC million-plus cities from 90 to as many as 300 by the year 2000. 3/ Although it is probable that the growth rates of the giant metropolises will fall off a little compared with the recent past (with most of them experiencing annual growth rates in the range of 3-1/2 to 5 percent), this deceleration will not prevent the emergence of several 20 million-plus cities in Latin America and Asia. There are doubts as to whether giant cities of this size are manageable, partly a fear of the unknown since they are beyond current experience, partly the result of a realistic appraisal of the attempts to cope with big city problems in the past. 4/

1/ Karachi accounts for about 5 percent of Pakistan's population, while the four largest Indian cities absorb only about 3-1/2 percent of national population. The Greater Rio de Janeiro-Sao Paulo area absorbs about 12 percent of Brazil's population.

2/ For example, black Africa is very atypical: small, sparsely distributed populations, very low urban population shares (usually around 10 percent), a colonial legacy of primacy, and now very high urbanization rates. This combination presents unique policy problems not found in other LDC regions.

3/ Beier et al (1975), p. 3.

4/ The catalogue of big city problems in LDCs is too well known to need much emphasis here. They include: widespread poverty, inadequate infrastructure (especially water supply and sewage), chronic housing shortages and large squatter settlements, inadequate mass transportation and traffic congestion, an unbalanced sex ratio and high unemployment rates, pollution, a weak tax base, and lack of control over land use. Unfortunately, it is impossible to measure the net impact of these variables and it is unknown how far they are offset by agglomeration economies. Also, many of these problems are as bad in smaller cities.

15. The desirability of a national urban growth strategy,* however, may be justified independently of the primate city problem. Long-term spatial planning is an important dimension of long-term planning in general. The spatial distribution of population and economic activity in the national economy has important implications for efficiency and for the distribution of income and welfare. Unfortunately, the spatial distribution is frequently ignored by national economic planners, partly because of their preoccupation with macro and sectoral plans, partly because of ignorance about the unanticipated spatial effects of these plans, and partly because the heterogeneity and discontinuities of space are difficult to handle mathematically and hence hard to incorporate in planning models.

16. Urbanization is a powerful instrument for promoting both industrialization and social change. The force of this instrument is a function not merely of the degree of urbanization (i.e. the proportion of the population living in urban areas, however defined) but also of its structure (i.e. the size distribution of cities and settlements). There are two reasons for this: modernization and social change are positively associated with city size; and a highly developed urban hierarchy provides a network for the diffusion* of social, institutional and technical change over the national space economy.

17. There are potential opportunities for implementing a long-term spatial strategy. Demographic growth rates are usually high, in terms of both natural increase and inter-area migration rates. In particular, the persistently high rural-urban migration offers the possibility that the national urban hierarchy might be changed by influencing the destination choice of rural out-migrants. Moreover, in many instances, the government has considerable control over the location and scale of urban infrastructure investment.

18. Perhaps most important of all, more sensible planning decisions (e.g. with respect to sectoral policies, location and time-phasing of the transportation network, growth centers,* industrial estates, agricultural development policies) will be made if evaluated against the longer-term perspective of a national urban strategy.

19. These considerations provide some background to analysis of city size control and national settlement strategies. As will be seen, these strategies are difficult to implement successfully. Moreover, they take a long time to take effect since they depend, to a large extent, on the lagged responses of migrants to changes in the spatial distribution of job opportunities and social infrastructure. Finally, even if migration trends could be halted or diverted, the big cities would continue to grow by virtue of their own natural increase momentum. In some cities about one-half, and in a few cases up to two-thirds, of their growth is due to natural increase rather

than migration. 1/ Assuming that achieving net outmigration from LDC metropolises is infeasible as a policy goal over the next decades, their urban populations are bound to become considerably larger. However, even marginal deceleration of their growth rates may have a noticeable impact on the national settlement pattern.

20. Although national spatial strategies may have only relatively modest impact on the big cities, their effects on smaller and medium-sized cities may be far-reaching. This could be a legitimate criterion of policy success because the induced growth of small and intermediate cities* may have implications for societal welfare that are independent of what happens to the big cities. These include: stimulating the commercialization and marketing of agricultural output; the provision of high-order services to residents of peripheral regions; the promotion of national spatial integration* via a more dispersed population; the diffusion of social and technical innovations from the primate city and abroad; and the decentralization of job opportunities; and, most important of all, the more equitable distribution of welfare (among urban areas and among regions) resulting from an intermediate city strategy.

1/ For example, consider the following sample of natural increase shares (based on data from the 1960s): Bogota 67%; Taipei 57%; Nairobi 50%; Bombay 48%; Caracas 46%; Jakarta 41%; Seoul 37%; Sao Paulo 32%; Istanbul 32%; Lagos 25%; Abidjan 24%. Mexico City would still reach more than 20 million by the year 2000 even if inmigration were reduced to zero now.

CHAPTER II: THEORY

a. The Optimal City Size Myth

21. Objections to the planner's concept of an optimal city size* are so well known (e.g. Richardson, 1972, 1973, 1976a) that they require little elaboration here. The idea is based upon a comparison of hypothetical cost and benefit curves with city size (population) measured on the horizontal axis. 1/

22. Adopting the common assumption (and it is only an assumption) of an S-shaped benefit curve and a U-shaped cost curve, it follows that net benefits will become zero at some finite city size. Hence, this is the optimal city size. In fact, it is not quite as easy as that: if average and marginal curves are used, 2/ a bewildering set of alternative optima can be identified: least cost city size (minimum AC); maximum citizen welfare (maximize AB-AC);

1/ Objective analysis of city size, especially in international comparisons, is bedevilled by the fuzziness of the concept. The boundaries of the administrative unit never coincide with the spatial extent of the urban area, especially in large cities. Even if broad metropolitan area definitions are adopted, changes in the boundaries cannot keep pace with the rate of outward expansion. Boundary definitions are used primarily as a catchment area for population, and city size is invariably measured in terms of population. This raises other problems since census estimates for cities in developing countries are often wildly inaccurate, partly because of their infrequency, especially troublesome in periods of rapid urban growth, partly because of the difficulty of recording squatter and transient populations. Moreover, the degree of imprecision may be biased with city size so that even estimates of relative city size (i.e. distribution measures) may be affected. A typical illustration of some of the problems is the frequent observation that small and middle size cities in certain developing countries (e.g., Mexico and Brazil) are expanding with the inference that this reflects counter-primacy. This finding is easily shattered once one looks at a map and sees that the expanding cities are often located within the metropolitan region and may be, in fact, a reinforcement of primacy more than the reverse. (For example, in Mexico the satellite cities such as Toluca and Pachucha have grown very rapidly, presumably because of agglomeration economy spillovers from Mexico City.)

The same phenomenon explains the misinterpretation of a declining primate city in some developed countries when the more accurate description would be decentralization beyond existing boundaries.

2/ AC = average costs and AB = average benefits; similarly, MC = marginal costs and MB = marginal benefits.

social optimum with unlimited population (MB=MC+OC, where OC equals the opportunity costs of locating the population elsewhere). There are other possibilities such as the threshold city size (AB=AC, AC falling), maximum gross benefits or maximum net average benefits, not to mention the possibility that the optimum for households may be quite different from that for firms.

23. A more serious drawback is the fact that the meaning of the cost and benefit curves is at best obscure. Leaving aside all the standard economic assumptions (homogeneous households with a constant set of preferences, a static framework abstracting from shifts in production functions, and so on), the critical assumption is that all benefits and costs are additive. In fact, many of the important items such as pollution, congestion, mental stress, exposure to crime, externalities* in consumption, and agglomeration economies for industry are difficult to measure, and where measurable hard to convert into monetary units. Without precise measurement, the "objective" assessment of evidence degenerates into value judgments, implicit weighing systems and arbitrary selection of criteria. Even if the model had any pedagogic virtues, it is non-operational for policy and planning purposes.

24. Suppose for a moment that there is a hypothetical optimum city size. Would this be found at the same population size in developing countries as in developed countries? Or, turning the question around into more meaningful terms, is a city of a particular size (say one million) more livable and/or more efficient in a developing country than in a developed country? Since most of the work in this area has been on cities in developed countries, there is a danger of bias in generalizing from currently available evidence. The superficial judgment might be that the "big city problem" (a codephrase for excessive size) is more serious in developing countries, simply because Sao Paulo, Mexico City, Calcutta, Bangkok, Jakarta and other cities in the developing world make the headlines. 1/

25. In fact, a second look suggests a reversal of this judgment. The economic advantages of primate cities in developing countries are considerable: higher returns to investment than at alternative locations; economies of concentration in urban service provision in capital-poor economies; transportation advantages; communication economies*; the dominant source of innovation and managerial expertise and the diffusion center for developmental impulses and for economic, technical and social change. The finding that in a study of 46 developing countries there was a strong positive association between aggregate growth performance and increasing primacy (Mera, 1973) deserves emphasis. The economic and social benefits of large relative to small cities (e.g. a wider range of job opportunities including employment

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1/ The statistics are undoubtedly impressive. In Latin America the four giant agglomerations (Sao-Paulo-Rio de Janeiro, Mexico City, Buenos Aires and Caracas) account for more than one-sixth of the total population and over one-third of industrial production.

for secondary workers in the "informal" service sector, better health and education facilities) appear stronger in developing than in the developed countries. Furthermore, the social costs (as opposed to the private costs, where absolute living standard differentials blur comparison) probably remain lower in LDC cities, despite recent increases in pollution and congestion. 1/ This is reinforced if the hypothesis that social costs are a function of industrialization and affluence is accepted. The value of eliminating a given physical amount of pollutant will be greater in a developed country than in an LDC city, simply because wealthier people value clean air more highly. Thus, there are some grounds for arguing that the hypothetical critical city size that equates marginal costs and benefits, if it could be measured, would be greater in developing countries (this statement does not concede the possibility that net benefits may remain positive for all current world city sizes).

26. Another difficulty with this approach (though by no means limited to optimal city size analysis) is that once costs and benefits are introduced as concepts, it is arguable that their distribution is more important than their absolute magnitude. The point is that the net benefits of urban productivity may not be shared equally, or even diffused broadly, among all groups. This may be especially true in periods of rapid urban growth when landlords and speculators gain heavily from competitive pressure on the land market. Since increases in other factor prices may be constrained by institutional and exogenous forces, the brunt of the impact of demand-supply disequilibrium falls upon land and property values. Among the lower income groups rapid urban population growth may be harmful to their welfare (cf. the strong correlation between net inmigration and unemployment). Immigration tends to improve the living standard of the migrant, compared with his peers in rural areas, but it tends to depress that of the existing urban poor. Moreover, although labor supply is hardly a problem, heavy inmigration benefits the employing class.

27. A strong objection to the concept of an optimal city size is that size cannot be evaluated independently of location and function*. In polinuclear metropolitan regions* the distinction between big cities and small is blurred by the fact that small cities are often part of the big. Cities of the same size may perform very different functions simply because they are located dissimilarly in respect to other cities in the hierarchy. The same economic structure* may be found in cities in different size classes. Small cities thrive best when close to bigger cities, whereas big cities flourish in isolation (see paras. 120-132).

1/ Where social costs are high (e.g., water supply constraints in Mexico City or Tehran, air pollution in Mexico City), this is often more a result of the city's location than its size. In other words, these problems are specific to the individual city rather than being an inherent consequence of urban scale. In spite of the above-mentioned social costs, Mexico City has much better quality services than other Mexican cities.

28. The interrelationships between city size, functions and distances are complex, and their implications for the city size distribution are not easily predictable (see paras. 52-69). The towns and cities of a country form a national urban hierarchy in which there are many, many cities of very different size, even if most of them fall into readily identifiable size classes. Many of these cities are efficient in the sense of performing their economic and social functions very well. The existence of the hierarchy as a whole is of critical importance for spatial allocation and as a distributor of welfare. This fact alone makes nonsense of the search for a unique optimum city size. It might be possible to dilute the concept of a unique optimum into the weaker proposition of an optimum size for an individual city at a specific location with specific functions at a particular phase of its development. Needless to say, this dilution generates so many optima that it can provide no guidelines for the policymakers.

29. The debate on the social costs of urbanization has been confused by the failure to distinguish levels from rates of change. To argue that there is no optimum size does not mean that cities can never grow too rapidly. Very rapid urban growth may make it difficult for city governments to keep pace in supplying urban infrastructure and basic services and may lead to a deterioration in environmental quality standards. When planners rail about the problems of big cities they are often implicitly arguing not about the effects of size but about the impacts of too fast a rate of growth. It is not so much the reality of what the city is but the nightmare of what the city might become. Here the analysis blurs. The fear of the future becomes for some observers the fact of sheer size itself. For others it becomes the inefficient spatial structure and the environmental degradation that is not so much the result of size *per se* but of the too rapid pace of achieving that size. Optimists among the latter school might argue that any size is manageable provided that policymakers adjust the metropolitan spatial structure during growth to the demands of large size. This is a difficult task requiring other favorable conditions, not least among which are wise decisions, in addition to slow growth. Nevertheless, if this argument is valid the problem is not city size but the absorption rate.

b. Efficiency and the National Urban Hierarchy

30. Although most analysts now doubt the usefulness of the optimal city size concept, there is much less agreement about the parallel concept of an optimal distribution of cities. Perhaps the description "optimal" should be replaced by "efficient" or even "desirable," since the concept of optimality lives not in the world of concrete policies but only in the formal economic models of welfare maximization. This qualification makes the analyst more comfortable, but it does not bring us much closer to a solution. The reason is that virtually no serious work has been undertaken on what distinguishes an efficient from an inefficient settlement pattern or, to simplify the problem a little, national urban hierarchy. The familiar outbursts against the evils of primacy and the praises of decentralization clearly imply some preliminary conclusions on this point, but they are based on value judgments and intuitive "feel" rather than hard, or even "soft," research.

31. The obvious, and a reasonably acceptable, way of describing the national urban hierarchy is in terms of interurban sizes and distances, i.e., the distribution of city sizes and the spatial distribution of cities.* From measures of the city size distribution and of interurban distances both within and among size classes, it is possible to infer much about the national (urban) settlement pattern and spatial structure. But it is dangerous to hold that such naive statistics of demography and geography shed much light on the efficiency of alternative spatial structures. There are several grounds for this scepticism.

32. The random element in the settlement pattern is quite significant. The most important stochastic factor is the location of the largest city, especially whether it is centrally situated or on the coast (or national border). This has a major distorting influence on interurban distances. This is a specific case of the general principle that much depends on whether the random influences are large or very small. A myriad of minor random impulses will tend to cancel each other out (as suggested by Berry, 1961) and tend to result in a rank-size distribution of cities. On the other hand, a dominating impact (e.g., the policy decision to relocate a national capital which is often random in its spatial impact -- though a better adjective in this case might be "exogenous") can pull the relative size distribution and the spatial dispersion of urban areas far from its expected pattern. Location of large industrial plants and mining sites may have similar effects. Since random and exogenous influences on both location and city size are far from negligible in almost all cases, descriptions of the national urban hierarchy in terms of the symmetries of central place hierarchies* are likely to be reasonable approximations only by chance.

33. The next argument is more subtle. The efficiency of the space economy is determined by two sets of forces: agglomeration economies (and diseconomies) on the one hand and spatial frictions* on the other. Agglomeration economies induce concentration while diseconomies and spatial frictions promote dispersion. These phenomena are not easy to measure. The attraction of city sizes and interurban distances is simply that they are "short-cut" surrogates for these forces. But they are only surrogates. The relationships between agglomeration economies and city size and between spatial frictions and physical distance are not only not linear, they are even highly irregular. For example, several important agglomeration economies, such as climate and social amenity, have nothing to do with city size. Big cities are in many cases the result rather than the source of agglomeration economies. Similarly, spatial frictions may have little to do with geographical distance. For instance, using travel time as an index, it may take the same time to travel ten miles by a particular mode (bus or car) through a badly congested city center as to travel six hundred miles by another mode (plane) between cities. These examples could be multiplied several-fold. The upshot is that to use the short-hand of size and distances as criteria of spatial efficiency has serious weaknesses.

34. Furthermore, intra-urban elements in spatial efficiency are ignored in the size-distance measures. For example, cities within the same size class may vary widely in efficiency due to differences in economic structure, age of settlement, quality of design and layout, type of transportation network

and managerial performance. Although many of these factors are quantifiable, they cannot be handled via simplistic indicators of the kind used to represent the national urban hierarchy.

35. Perhaps most important, the criterion of economic efficiency narrowly defined (e.g., maximization of GNP) can in no way be linked to size-distance measures, and in any event may not be very relevant. "Efficiency" needs to be defined a little more broadly in terms of conforming to society's goals. For example, if interregional equity* is an important policy objective, a dispersed urban system with large regional metropolises in each region might be regarded as highly "efficient." If accelerated industrialization is the critical goal, the size hierarchy may be given low priority compared to achievement of industrial targets in urban areas with location advantages regardless of their size and location. Also, there may be efficiency gains in having the industrial cities close together and linked by a well-developed transportation system. This presupposes, with some justification, that manufacturing industries in LDCs sell to international and national rather than to local markets and hence need to be concentrated. One possible settlement pattern satisfying this objective could be a decentralized metropolitan region with industrial satellites* clustered around the primate city.

36. In yet other cases, national spatial integration may be a critical policy objective. This suggests a fairly regular hierarchy model (structured on administrative rather than central place functions [Losch, 1954; Christaller, 1966]) interconnected with an efficient interurban communications and transportation network. If rural development goals are pre-eminent, then intraregional urban hierarchies, perhaps in the form of standard central place hierarchies from a punctiform network of rural service centers up to the regional metropolis, will determine the efficiency of the settlement pattern.

37. The implications of these examples are clear. Discussion of efficient national urban hierarchies has to be based on a broader definition of efficiency than maximization of GNP. Efficiency has to be understood in terms of compatibility with policy goals, both spatial and non-spatial. The result is that there is no unique, efficient, settlement pattern. Efficient national urban hierarchies will vary from country to country simply because the mix of policy objectives and their ranking vary. Even in the case of two countries with very similar priorities, very different settlement patterns might be equally efficient, because the same agglomeration pulls can be generated by various size-distance combinations. For example, a small regional metropolis may be as important as another much larger one for innovation diffusion if it is closer to the primate city. What constitutes an efficient national urban hierarchy will also change in a given country over time as industrialization advances, as per capita incomes increase, as communication and transportation costs fall and as spatial perceptions change. These arguments suggest that attempts to control and influence city sizes to conform to some preconceived theoretical model (e.g. the rank-size distribution) are usually unsound.

c. Polarization Reversal (PR)

38. Economic development, especially during industrialization and modernization, is geographically unbalanced. The national economy has in the early stages of development a spatially dualistic character* summed up in the distinction between the core and the periphery. The pattern of development may be summarized as follows: (i) the onset of industrialization in a national economy is based upon economic expansion in one or two core regions and primate cities, leaving the rest of the economy backward; (ii) subsequently, economic development is associated at some stage with dispersion into other areas, and this dispersion process helps to integrate the national space economy; (iii) regardless of the timing of polarization and later dispersion interregionally, growth within a region tends to be spatially concentrated, in the sense of close interdependence between urbanization and industrial development (the urban-industrial matrix) and a focus of growth potential upon a limited set of large urban centers (Richardson, 1973b, Ch. 5). 1/

39. The reasons for polarization, both in the national economy [(i) above] and in cities within regions [(iii) above], are well known and easy to understand. The development process gets under way in one or two areas only (due to the scarcity of investment resources), the areas being determined by initial locational advantages (e.g., the greater market potential of an ex-colonial primate city). The head start becomes a cumulative causation* process because of increasing returns to scale, the consequent polarization of factor flows and the continued agglomeration of population. Hypothesis (iii), urban concentration within regions, is similarly explained by the locational attraction of urban agglomeration economies, the urban character of major growth industries and the role of cities as innovation centers.

40. The difficult question is how to explain the reversal of polarization trends into a process of dispersion out of the core regions to other

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1/ A fourth hypothesis, observable in developed countries, refers to subsequent decentralization, suburbanization* and diffusion within metropolitan regions. Although there are some signs of this process in the primate cities of more advanced LDCs, it remains conjectural as to whether LDC cities will follow this path. For example, in spite of its larger population the land area of Greater Mexico City is only 22 percent of that of Los Angeles County (IBRD, 1976b). Not only is the issue of metropolitan spread in LDCs highly controversial, it is not central to the arguments of this report and hence will not be explicitly discussed.

areas of the national economy [(ii) above]. 1/ The cumulative advantages of core regions appear to be so strong that it is not self-evident why the initial regional imbalances* should be corrected. Casual empiricism of what has happened in developed countries offers some clues. Underdeveloped regions have a protected local market because of their relative isolation. When population and incomes increase sufficiently to warrant exploitation of scale economies there, they attract industries which cannot serve the regions from the center of the national market.

41. Eventually the relative strength of "spread"* and "backwash"* effects alters to favor spread effects. The backwash effects of resource movements begin to be outweighed by spatial diffusion of technical know-how, a rising demand for the complementary products of backward regions, and the setting up of branch plants now made viable by the size of local markets, lower wages, interregional transportation improvements and mobile externalities.* Later, the net agglomeration economies of the core may begin to dissipate because of congestion, high land values, deterioration in the quality of life and (more speculatively) managerial senescence.

42. Finally, economic policy advantages and political pressures may favor an interventionist strategy to promote dispersion. In a period of stagnating foreign demand, domestic industrial expansion may be held back by the inadequate size of the home market and low incomes in the periphery. Developing these regions may eliminate a key obstacle to faster national economic development. In addition, these peripheral areas have votes, interest groups and other means of exerting political pressure. Thus, political gains reinforce economic advantage. Also, the policy impacts are likely to be more effective if strong policies are introduced just when the balance of economic forces begins to tip a little in favor of the periphery, i.e., at the beginning of the dispersion process.

43. The turning point when polarization trends give way to dispersion may be called polarization reversal* (PR). The existence of this phenomenon is critical to the design of spatial strategies in general and national urban growth strategies in particular in LDCs. As yet, PR has occurred only in developed countries. There are some signs of the process in a few of the more advanced LDCs, e.g., Brazil and Korea. In any event, no-one has attempted to measure PR. One possibility is some measure of the interregional (spatial) dispersion of industry, especially of leading sectors. Another, more in tune with the analysis of this report, is a persistent tendency for secondary cities located outside the core regions to grow faster than the

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1/ It should be noted that the famous study by Williamson (1965) sheds no direct light on this question since he attempted to relate functionally divergence and convergence trends in interregional per capita income differentials to the level of development. He said nothing about the spatial processes of polarization and dispersion.

primate cities. The qualifications are very important since it is not uncommon for secondary cities* close to the primate city to grow faster than the primate city itself nor for peripheral secondary cities to show temporary spurts, sometimes in connection with a brief phase of attention from the policymakers.

44. Apart from the technical question of how to identify PR, the other more important issue is its policy implications for national spatial policy.* Does it suggest any guidelines? Does it open up new options, and close off others? Should policymakers attempt to induce PR? If so, when? If not, will national urban policies be ineffective until the dispersion process is spontaneously underway? What is the relationship of PR to the level of economic development, urbanization rates and patterns of migration? Is promotion of the national urban hierarchy an instrument for accelerating PR? These are questions for research that cannot be satisfactorily answered within this report. Nevertheless, it is possible to offer some generalizations that might help to focus such research and offer some broad guidelines for policy.

45. The first step is to clear away some obvious introductory statements. LDCs vary widely in their level of development, and PR is undoubtedly a function of development. Accordingly, it is worthwhile to search for its symptoms only in the more advanced developing countries (especially the transitional economies 1/). Possible exceptions are heavily populated small countries (e.g. some Central American countries, island economies) where the peripheral areas are potentially accessible to the metropolis. PR is a form of counterprimacy. Hence, it should manifest itself earlier in countries that have a non-primate urban structure or at the other extreme, where primacy has increased so rapidly in the past that scale diseconomies and congestion hamper the efficiency of the primate city. Moderately primate economies, where the steady growth of the primate city is compatible with efficiency and increased agglomeration economies, are poor candidates for early PR. Although convergence in regional growth differentials is probably the earliest sign of PR, its emergence should soon show itself as a change in the urban size distribution. This may or may not be associated with a slackening in population growth, but there will be changes in migration patterns. The most striking change will be a shift from interregional to intraregional migration flows. 2/

46. PR will usually be accompanied by changes in the pattern of industrialization. Demand levels in the initially developed industries will eventually justify the proliferation of centers of production (perhaps via branch plants). The industrial structure at the local level will become more

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1/ These are countries in the process of becoming developed.

2/ Within peripheral regions, migrants will polarize towards the leading cities. In the core regions there may be some decentralization of population from the primate city to nearby satellite centers but not out of the core region itself.

diversified as crossing scale thresholds for goods with a relatively short range make local production feasible. Of course, in the LDC context it is well known that urbanization has run ahead of industrialization during the polarization phase so that a prelude to PR may be the elimination of some of the conditions responsible for the high urbanization rate. This may require improvements in the rural sector and the bolstering of small towns via, for example, a strategy of "agropolitan" development (Friedmann and Douglas, 1976). Since these changes are unlikely to occur spontaneously, except in the very long run, it leads into a discussion of policy.

47. In developed countries PR appears to have been a natural phase in the sequence of economic development, though in some cases it has been reinforced by decades of regional policy. One option in LDCs is to allow the natural course of events to determine the timing of PR (i.e. the "no policy" alternative; see paras. 54-57). This has two problems. First, demographic, economic and social conditions in LDCs are so different from those experienced historically in developed countries that the same sequential processes may not recur in LDCs. As pointed out above, the early symptoms of PR observed in a few LDCs are not yet clear enough to confirm the trend. Second, even if PR is bound to happen eventually, it may not happen for a very long time and the continued polarization in the meantime may conflict with national policy objectives. Thus, a developing country concerned with interregional equity, national spatial integration and other spatial objectives will have a strong incentive to "nudge" PR along with policy measures. The problems are when to intervene and how to intervene.

48. However, premature intervention may be costly. In the early stages of development the central objective for LDCs is to build up an investible surplus to support further growth. This calls for expansion of high-rate-of-return industries at their most profitable locations. Policies to accelerate the date when PR takes place would require heavy investments in interregional transportation and urban infrastructure. The rate of return from these investments, even the social rate of return, will be lower in the short run. 1/ The opportunity cost in terms of sacrificed growth may be too high. Thus, in the earliest years of economic development a strong case can be made for sectoral priorities rather than for spatial priorities.

49. If intervention has to be deferred, what indicators may signal that the time is ripe for policies to promote PR? There is no one key signal, but some of the following changes may guide policymakers: (i) evolution of the industrial structure to the stage when branch plants seem feasible; (ii) emergence of scale diseconomies in the priamte city (congestion, deterioration

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1/ Also, if discount rates are high, the net present value of long-term future benefits will be very low. Thus, long-term payoffs will not count for much.

in the quality of life, inability of the public sector to keep infrastructure provision in step with population growth); (iii) when the capital constraint has been relaxed as a result of a strong recent growth record in respect to GNP and investment; (iv) when at least a skeletal national transportation network has been built; (v) when political and social pressures build up for interregional equity and similar spatial objectives; (vi) after the introduction of sound rural development and small-scale industry programs that offer the prospect of demographic stability in peripheral regions; (vii) when per capita incomes in the periphery have risen to levels to justify industries catering for local demand; (viii) when stable export products have been subject to chronic instability; (ix) when the country's supply of administrators, planners, managers and professional personnel reaches levels that permit decentralization of planning, economic and political functions; and (x) when some non-core cities begin to grow faster than the primate city. This list is not comprehensive, and not all these signs will emerge at the same time. However, the coincidence of several of these signals would imply a relatively sophisticated developing economy in which PR might be expected to begin spontaneously in the near future (e.g., within a couple of decades). On this view, the role of policy is to anticipate PR and bring forward its date of emergence rather than to induce it directly.

50. However, the timing of intervention is very delicate because there are also costs associated with deferring action too long. In particular, the rate of aggregate population growth and the high rates of rural-urban migration that are common during eras of rapid development in LDCs may decline once PR gets under way. By that time, the national urban hierarchy may have already started to fossilize and be very difficult to change. Unfortunately, the settlement pattern may then be too polarized to be consistent with societal and spatial objectives. PR will still take place but the resulting spatial distribution of economic activity and population may be less efficient than if policymakers had intervened earlier when rural-urban migration rates were higher and when it might have been relatively inexpensive (in resource terms) to promote rural-secondary city (intraregional) migration streams as a substitute for the dominant market process of the rural-primate city (interregional) migration stream. It is important to note that even in this case policies work incrementally and marginally. Even in the most rapidly growing LDCs, ranks in the national urban hierarchy change very slowly, despite large absolute increases in the population size of each city. The task for policymakers is not to create new cities on greenfield sites but to discriminate among cities in the relative <u>rates of growth</u> of infrastructure, to influence the spatial distribution of new job opportunities and to divert migrants (rather than to block outmigration from rural areas or to reverse the direction of dominant migration streams).

51. Clearly, polarization reversal raises complex and difficult issues. The first decades of PR maximize the opportunities for implementing a successful national urban growth strategy. If its timing can be influenced

by government intervention, PR itself almost becomes a policy variable. However, such intervention is likely to be effective only within narrow time constraints (i.e., neither too soon nor too late). The generalizations suggested here only touch upon some of the basic elements of this problem. This is a priority area for future research.

CHAPTER III: STRUCTURE

a. Size, Function and Location

52. The central place model has been widely used by geographers and others to explain city size and function (as well as location). It refers primarily to specialization in consumer services among urban centers of different size, and predicts that the smallest size-class of towns provides services to a rural hinterland, while larger towns supply high order services both to hinterlands and smaller urban centers. This means that larger towns specialize in "higher order" economic activities and also, since the larger towns are also producers of the lower-order services, the model predicts that the number of industries and services rises with increasing city size, i.e., large urban areas are more diversified than smaller ones.

53. This model, however, does not adequately deal with the location of manufacturing industries. The Weberian model provides perhaps the simplest view of manufacturing location, being based principally on transport costs (transport orientation). It suggests that processing and manufacturing activities will tend to be located close to raw material supplies, at transshipment or transfer points, or close to final markets. While large cities provide significant markets and may attract industries for that reason (market orientation), the size of settlement at raw material sources or transfer points is unclear. This model has little to say about the relationship between city size and function, at least for manufacturing industry.

54. In practice, of course, the locational pattern of activities is much more complex than implied by either of these models. The three variables of size, function and location interact in complex ways. These complexities rule out facile generalizations about appropriate size of place for a specific function on the characteristics of a place of a specific size. There is no common bond, for instance, between an industrial town of 30,000 located within 75 miles of a primate city and a town of 30,000 providing urban services for a large underdeveloped area (e.g., in the Amazonian Jungle).

55. There is no clear-cut relationship between function and size. Lo and Salih (1976) have argued that the curve relating manufacturing efficiency to city size is an inverted-U (partly based on empirical evidence e.g., Kawashima, 1971) with a minimum threshold, while tertiary efficiency increases with city size (though ultimately at a decreasing rate). These hypotheses are illustrated in Figure 1. They point to three basic types of size-function relationships. Towns in the range (a-b) are central places serving rural areas though the larger ones may have some manufacturing activity. Cities in the (b-c) range are the potential growth centers with dominant manufacturing and a substantial tertiary sector. Finally, in cities larger than c, manufacturing efficiency is on the wane and such cities will specialize in services, especially high-order services though the dualistic "informal" service sector may also be large.

56. While there is more than a grain of truth in this analysis, it presents awkward problems as a guide to policy. For instance, identification of the city sizes equivalent to b and c in Figure 1 is critical. Although one study (UNCRD, 1974) claimed that c = 250,000 from a study of Japan, the critical sizes would be expected to vary among different countries (e.g. particularly among those at different levels of development) and according to industry mix (since the efficiency curves would tend to vary within as well as between sectors). Moreover, the argument that manufacturing efficiency declines with increasing city size is suspect in LDCs (the empirical evidence, such as it is, is based on developed country experience), and there are few signs of LDC entrepreneurs rejecting the large city in favor of higher efficiency at smaller centers. 1/ Moreover, in terms of Figure 1, it is possible for a city to have a comparative inefficiency in manufacturing that is more than offset by superior efficiency in service activity so that it continues to be more attractive to migrants than the smaller city (cf. City X with City Y in Figure 1). To the extent that this analysis has merit, it merely highlights the fact that smaller centers will function as service centers (a-b), that manufacturing growth centers have a minimum threshold size (a-b) and perhaps function more efficiently in the intermediate size ranges, whereas large cities will grow primarily via an expansion in service activities.

57. It is frequently argued that large cities have more diversified economic structures than small cities. There are several reasons in support of this hypothesis: as suggested above, it is one of the predictions of hierarchy models in which large centers supply the same services as smaller centers plus higher-order services; more generally, large cities contain more industries because with increasing city size more scale-economy thresholds are crossed; in large urban areas certain functions are transferred from the household to the service sector (e.g. cleaning, child care). Nevertheless, a study of the United States economy by Clemente and Sturgis (1971) found only a weak relationship between industrial diversification and population size. A possible explanation might be increasing functional interdependence within the system of cities permitting more specialization and a greater division of labor. Few studies of this kind have been undertaken in LDCs, primarily because of data limitations. In general, it is reasonable to argue that a city of a given size would be less diversified in an LDC than in a developed country city for the simple reason that wants multiply as incomes increase so that the range of industries and services tends to be wider in a rich than in a poor city. However, the primate cities are much more similar between developed countries and LDCs than are small cities which have very different economic structures. Detailed study of the economic structure of Mexican cities (IBRD, 1976a) also reveals a weak but positive relationship between diversification and city size, though Mexico City has been consistently the most diversified urban area. 2/ In general,

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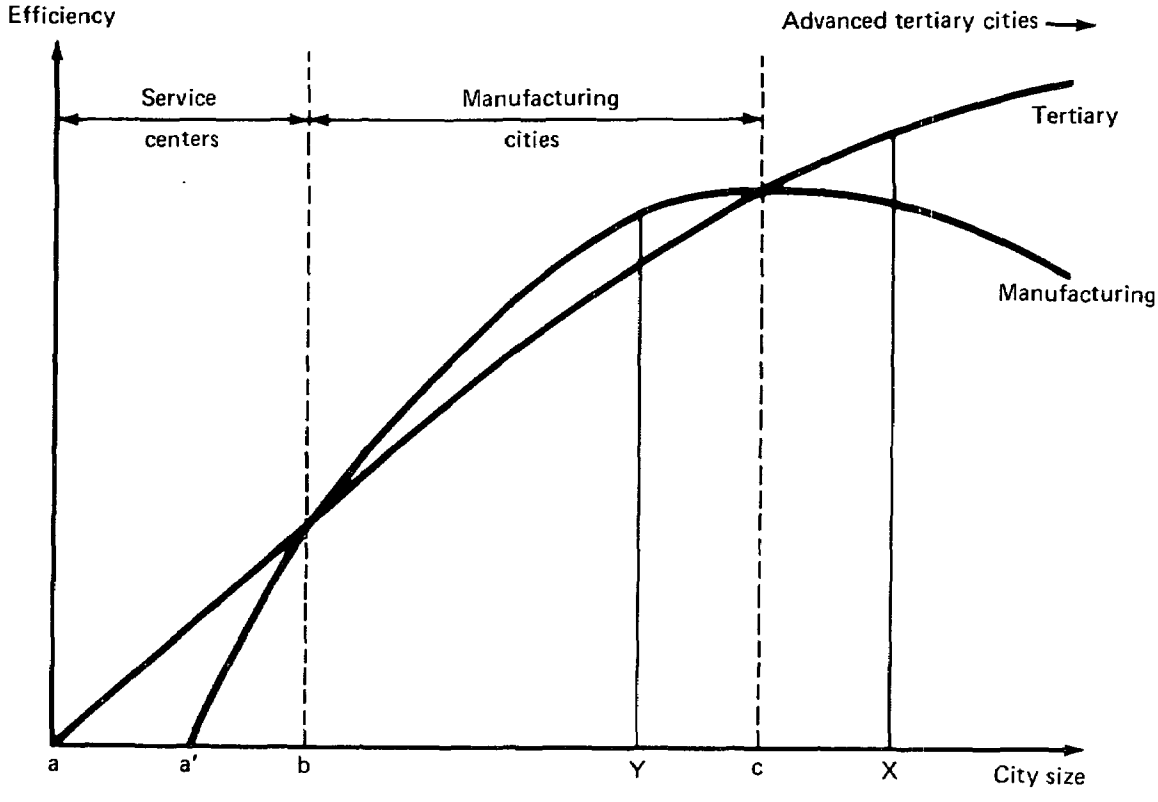
1/ On the other hand, the primate city is often favored via other policies, such as the underpricing of services (e.g., transportation, public utilities) and by receiving a disproportionate share of subsidized urban infrastructure.

2/ The Mexican case is atypical because the country has a more sophisticated urban-industrial system than most LDCs.

FIGURE 1
URBAN SECTORAL EFFICIENCY AND CITY SIZE



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economic stability is a corollary of diversification, unless a city is fortunate enough to be specialized in a very stable mix of industries.

b. Industrial Location

58. In developed countries, it is generally argued that a high proportion of industries are "footloose" in the sense of being steerable to peripheral locations at negligible sacrifices in production costs. High site rents and labor scarcities are disincentives to locating in the national metropolis and other core cities. Relatively low transportation and communication costs minimize the disadvantages of peripheral locations. As a result, access to the national market is easy. Moreover, the dispersed population and high incomes make local regional markets viable market areas for many types of industrial activity.

59. In LDCs, the structure of production costs is very different. The centrifugal influences on industrial location are much weaker. Although rents may be high relative to those at dispersed production sites, the labor supply constraint is not serious. On the contrary, metropolitan locations have overwhelming advantages since these are the only areas where there are sizeable pools of professional, managerial, technical and skilled manual talent and they are as well placed as peripheral areas for unskilled labor. Since the national population is more concentrated, and the distribution of income is very unequal spatially, it is much more difficult, especially for the consumer goods industries, to tap the national market from off-center locations. Moreover, it is much more important in LDCs for industries to be close to the administrative center because of the increased ability to negotiate tariff protection and subsidies and because of the dominance of import-substitution strategies. 1/ 2/

60. On the other side of the coin, peripheral locations are much less attractive in LDCs than in developed countries. The transportation and communications network is much less developed so that firms located at a distance from the core region have to overcome prohibitively high transportation costs. The required infrastructure is often missing, and is expensive to develop. The concentration of existing industries in or near the national metropolis and the sparse distribution of firms elsewhere means that many peripheral locations are risky and untested. This inhibits relocation in the many cases where risk and uncertainty as well as profit potential influences location decisions. The absence of agglomeration economies (proximity to suppliers, skilled and technical labor pools, the sharing of technological expertise) is often a major handicap for firms hazarding a peripheral location.

1/ In Mexico, almost all major firms locating in cities away from the capital maintain offices in Mexico City, primarily because of the need to maintain access to government.

2/ In many LDCs the government is also the chief purchaser of the products of many industries.

61. One exception to these generalizations is the case of resource-based industries where the location is predetermined by the availability of natural resources. 1/ However, since such locations are random from the point of view of spatial distribution goals, they may or may not aid a rational industrial decentralization policy. Another exception, more helpful to decentralization, is where peripheral cities cater for "near neighbor" foreign demand. Obvious examples are Ciudad Juarez, Nuevo Laredo and Tijuana near the nothern border of Mexico where growth has been stimulated by proximity to the United States.

62. Even in developed countries, success with strategies for industrial relocation out of metropolitan regions has been mixed. In the LDC context, such policies are much more difficult to implement. As suggested above, evaluation of comparative costs strongly favors metropolitan locations. There are fewer "push" factors such as industrial congestion. Although some elements in differential costs can be overcome by relocation subsidies, others cannot. Transportation barriers, the lack of industrial infrastructure and the scarcity of administrative talent require large-scale, coordinated long-run planning to create externalities in or near smaller cities rather than subsidies. Even where subsidies are useful, the level of aid within available budgetary constraints may be too low to offset the higher risks and uncertainty. In the case of large-scale non-resource-based industries, when multinationals are involved governments have been reluctant to use "muscle" to induce them to choose non-metropolitan locations. With small-scale indigenous industries, on the other hand, it is difficult to preselect viable enterprises for financial assistance or to determine the types of marketing information, vocational training and other indirect help that might foster their growth. Yet promoting new industrial growth in non-metropolitan areas and inducing industrial relocation out of the core are among the key prerequisites for strengthening secondary cities.

63. The role of small-scale industry, however, should not be underestimated. Although large-scale industry receives much of the attention and is responsible for the larger share of value added, it is much less important from the point of view of job creation, especially in the most backward LDCs (see Table 3) and in smaller urban centers. Even during rapid modernization, small-scale industry remains important. Also, perhaps surprisingly, its contribution to exports is frequently substantial (occasionally due to the "cultural" and ethnic handicraft nature of the products). The promotion of small-scale industry presents special problems (as implied above), such as the spawning of new enterprises, the locational inertia of small firms, and the need for a more subtle set of policy instruments (grants, credits, technical assistance, marketing information, etc.). The chief advantage of small-scale industry, of course, is that its expansion is compatible with,

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1/ Examples in Mexico include the growth of Poza Rica based on oil-refining and the growth of Acapulco and Oaxaca based on tourist resources.

Table 3

Small Firms (< 20 workers) in Manufacturing in LDCs

Type of LDC	Share (%) in Number of plants	Employment	Value added
Semi-industrialized (e.g. Brazil, Mexico)	90	25	15
Industrializing (e.g. Iran, India, Central America)	96	60	30
Non-industrial (e.g. Ethiopia, Indonesia)	99	80	45

Source: Marsden (1974, p. 57).

and probably reinforces, rural population stability. On the negative side, it may not be the most appropriate vehicle for generating dynamism in the economies of medium-sized or large non-primate cities.

c. Economic Structure of Primate Cities in Developing and Developed Countries

64. Superficial comparison of highly aggregated sectoral employment structures of the leading cities of LDCs and developed countries may suggest more similarities than differences: all tend to have a dominant service sector, substantial manufacturing and (hardly surprising) a negligible primary sector. But this impression is very misleading. The service sector in LDC cities is much more heavily weighted towards low income, overexpanded industries suffering from heavy disguised unemployment, and this reflects the fact that the dualism between the "modern" and "traditional" sectors is found in the big city as much as in contrasting urban and rural areas.

65. The most striking difference between LDC and developed country metropolitan economic structures is found in manufacturing. Employment distribution patterns in LDC cities give a misleading impression of economic structure, because of the excessive labor supply in the service sector and the extreme relative capital intensity of the modern industrial sector. 1/ The

1/ There is also, of course, a traditional cottage-type manufacturing sector which swells the manufacturing labor force, in a sense artifically since the structure and function of these trades is much closer to the service industries than to manufacturing activity.

role of manufacturing in the primate cities of LDCs is much greater than employment data suggest. In developed countries, on the other hand, the largest cities tend to have atypical manufacturing structures with a heavy concentration of relatively small-scale "external economy" industries that cluster in the metropolitan cores (and to an increasing extent even in the suburbs) in order to be close to externally-supplied facilities and services found only in the big city and to be close to each other for supplier and labor pool advantages. There may be some large-scale manufacturing in the metropolitan region, but usually at a decentralized location, and frequently in satellite towns. In any event, the proportion of national large-scale manufacturing in or near the largest city remains very small, and the typical location for new large-scale plants in a developed country is often a small town (Hoover, 1974).

66. In LDCs, the opposite is true. With the exception of resource-based industries (e.g., steel, where the locational pull of raw materials remains strong), most of the major manufacturing plants are located in or near the primate city, whether near the port, or on the metropolitan fringe, or at some new industrial satellite within the metropolitan region. The proportion of national manufacturing activity located in or near the primate city frequently amounts to one-half to two-thirds. 1/ 2/ 3/

1/ In Africa, the primate city shares are often higher. Mabongunje (1973, p. 11) gives the following distribution over 23 countries:

Share of National Manufacturing Activity in Primate City (%)	Number of Countries
80 - 100	7
60 - 79	5
40 - 59	4
20 - 39	6
< 20	1

2/ If the concept of primacy is broadened to include other million-plus cities, this dominance becomes overwhelming. In Mexico, for instance, where there are several industrial cities and a strong policy of industrial decentralization, the share of Mexico City, Guadalajara and Monterrey in gross industrial output totals 80 percent.

3/ This dominance is not limited to manufacturing. For example, the Manila region in the Philippines accounts for one-half of GNP, two-thirds of manufacturing and commerce, three-quarters of the output of the transportation sector, and has a per capita income more than double the national average. Dakar in Senegal accounts for 95 percent of electricity consumption, two-thirds of manufacturing employment and more than one-half of the service workers, despite having only 16 percent of the population. Even Lagos, with only two percent of the population, accounts for more than one-half of electricity consumption and of telephone lines, as well as containing one-third of the nation's manufacturing plants.

67. The reasons for this concentration are not hard to find. Many of these industries produce import substitutes which are market-oriented. For manufactured consumer goods, the national market is overwhelmingly concentrated in the primate city, where the bulk of the middle class and professionals reside. Moreover, the primate city is also the best location for serving the rest of the country since the national transportation network invariably radiates out from it. For capital goods, the main market is also found near the primate city since this is where the consumer goods industries are located, while resource-based industries using domestic capital goods could obtain these much more easily from the primate city than from any other location because of the primitive transportation network. The preferences of executives, whether multinational or indigenous, overwhelmingly favor the primate city because of its consumer externalities, and these are reinforced by sound economic reasons, such as the size of skilled labor pools or accessibility to suppliers. Where the primate city is the national capital, proximity to the central administration is important because of the need to negotiate for protection, licenses and monopolistic privileges. Infrastructure for industry is usually readily available near the primate city but not at other locations. Also, for industries which are geared to the international market, the primate city (as the main ex-colonialist metropole) usually provides the optimal location.

68. There are two implications of this concentration of large-scale manufacturing in or near the primate city which call for comment. First, the techniques of production used are highly capital-intensive, certainly much more so than suggested by prevailing capital-labor ratios. This typically reflects the rigidity of technology transfer, either directly via multinationals or, more rarely, by local imitators. The result is that the employment-creating effects of industrial growth are very weak relative, say, to its contribution to GNP. As a result, the development of manufacturing in LDCs has had a very limited impact on the labor-absorption problem of the primate cities.

69. Second, industrial decentralization in an LDC means something different in a developed country. In the latter, pressure for industrial decentralization (outside the intraregional context) usually implies aid for some specific depressed region since in national terms industry is usually widely dispersed. In the LDC context, on the other hand, because of the degree of industrial concentration in the primate city, industrial decentralization is not so much a regional policy* objective as a device for promoting a national urban hierarchy. In other words, industrial decentralization measures should be evaluated as instruments for changing the city size distribution, and hence as national spatial rather than merely regional policy instruments.

d. Institutional Constraints

70. If general economic policies and national economic planning embody implicit spatial policies, then the nature of the economic system in a country may influence its settlement pattern. In particular, there may be significant differences between market and planned economies. Although most

countries lie somewhere between the two ends of the spectrum, with the majority best defined as mixed economies, the contrast between the two extremes, treated as prototypes, may be illuminating. There are at least two justifications for this belief.

71. First, the primate city size distributions of developing countries are seen as the product of spontaneous market forces, with the important qualification that the market has worked very imperfectly. Labor has been more mobile than capital (labor has polarized towards the core, whereas capital has failed to disperse), and this has reinforced the dominance of the core and prevented the operation of neoclassical convergence forces. If the potential but uncertain returns to capital were higher in cities in backward regions (plausible but speculative), central planners could overcome the stickiness of capital by discounting the risks and uncertainty of investment outside the metropolitan region. Paradoxically, the central planner may be able to stimulate the perfect market mechanism that the market itself has failed to create. 1/

72. Second, most of the generalizations about city sizes, their distribution and the settlement pattern are drawn from the developed world, which consists overwhelmingly of market and mixed economies. Developing countries have a wider choice of economic systems, some have already chosen the central planning route, and in the future others may find more planning appealing as a means of grappling with the more intractable problems of development. Thus, it would be useful to examine the impact that centrally planned systems have had on the settlement pattern.

73. Two types of centrally planned economy may be identified. China, Cuba, Cambodia and perhaps Tanzania fall into the rural prototype. The USSR and the Eastern European satellites are the main members of the industrial prototype. The general outlines of the rural prototype's impact on the settlement pattern are well known, though the details remain obscure. The promotion of agricultural development has been assisted by a strengthening of the rural settlement pattern and by explicit measures to control, and in some cases to reduce, the size of the large cities. This has necessitated both incentives and the force of moral imperatives to encourage urban dwellers to return to the land. In a sense, the emerging settlement pattern has been an explicit objective of planning rather than an indirect, subconscious result. The patchy evidence that has leaked out suggests that a dispersed settlement pattern is attainable if a country is willing to accept the social system needed to implement and maintain it.

74. The settlement pattern implications of the industrial prototype are less clear. Official policy generally stresses regional development but experience in countries such as the USSR, Poland and Hungary, 2/ casts

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1/ The practice may be different; see paras. 74-76 below.

2/ See Bandera and Melnyk (1973), Brown, Licari and Neuberger (1974), Harris (1970) and Ofer (1976).

doubt on this. The a priori argument that a centrally planned economy will be more successful in developing a less skewed settlement pattern because of stronger control over factor movements is not supported by evidence. The Eastern European experience suggests the following conclusions.

75. (i) There was a tendency to skimp investments in infrastructure, and this increased the attractiveness of those cities which had public services, a retail network and cultural and social facilities.

(ii) These countries have economized on the costs of urbanization and on rural-urban migration by stimulating a very labor-intensive technology in agriculture and a highly capital-intensive technology in industry and by stressing productivity increases much more in manufacturing than in agriculture. This has been a conscious growth strategy made possible by central planning (Ofer, 1976).

(iii) High priority was given to growth objectives, and since it was generally easier to build new plants in areas with a stock of infrastructure and a large skilled labor market, this reinforced the tendency for growth to occur in established, larger centers.

(iv) Rigidly fixed and low prices for utilities, services and wages and a zero price for land meant that congestion costs were ignored so that there was no counterweight to scale economies.

(v) The relative neglect of agriculture and the dogma of collectivization have undermined the viability of small towns by effectively destroying handicraft type industry and small scale manufacturing and service enterprises.

(vi) Principal emphasis has been given in most planned economies to heavy industry which is generally characterized by significant economies of scale. This sharply limits the number of likely localities for development. The tendency to giganticism in enterprise and plant structure has a similar effect.

(vii) Political and institutional factors have reinforced industrial agglomeration in the bigger cities. In particular, locating industry at metropolitan sites was a risk-minimizing strategy. It is interesting that central planners are as vulnerable to the attractions of risk aversion as private investors.

76. This experience suggests that the conflict between an industrial development strategy (which favors spatial concentration) and a dispersed settlement pattern is not avoided in a centrally planned economy. The bolstering of the top of the urban hierarchy clashed with population distribution objectives, but it was the implicit spatial policy result of the dominant industrial policy. The Eastern European experience is merely another illustration of the dictum that, when in conflict, spatial planning will be sacrificed to sectoral planning.

77. The impact of institutional structures, especially the distribution of effective political and economic power, on the spatial organization of an urban system and its evolution has been a central feature of the core-periphery model of development (Friedmann, 1975). For example, three-city indices of primacy suggest a link between territorial organization and type of urbanization (see Table 4). The low national primacy indices in India, Nigeria, and Brazil may reflect the large size of their economies which can be organized efficiently only through a system of regional primate cities. Some regions in these countries are as large in area and population as any of the high-index countries. However, the latter group represents highly centralized political and economic systems. In the low-index countries regional capitals are connected to a national system in which power is more dispersed. 1/

Table 4

Primacy Index for an Example of Countries

Unitary or Highly Centralized States		Federated or Highly Decentralized States	
Thailand	12.4	Indonesia	1.2
Peru	5.3	Colombia	0.9
Philippines	4.6	Malaysia	0.9
Argentina	4.0	Brazil	0.8
Ethiopia	2.5	India	0.7
Iran	2.2	Yugoslavia	0.6
Senegal	2.2	Nigeria	0.6
U.A.R.	2.1		

Source: Friedmann and Wulff (1975, p. 95).

78. There is a risk of circular reasoning here, of course, in that the existence of a number of centers of political and economic power, is frequently an incentive to establishing a decentralized or federated structure in the first place, while the need to maintain an appropriate balance remains a political priority. This tendency is frequently reinforced by

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1/ Of course, the simple equation of Federal systems and low primacy indices with dispersal of power and fiscal autonomy is too facile. Municipal governments, in particular, may have little power and few funds even in Federal countries. In Brazil, for example, national revenues are shared in the following proportions: Federal government, 55 percent; States, 36 percent; municipalities, 5 percent.

the large physical (and/or population) size of the country. Nevertheless, the idea of locating the capital city away from existing commercial industrial centers has only been seriously discussed or acted upon in federal or decentralized structures, e.g. Brazil, Pakistan, Nigeria, Tanzania. 1/ In unitary structures, although relocation might be even more desirable from a spatial policy point of view, it is politically infeasible. Effective decentralization increases the ability of smaller centers to generate spontaneous growth, but it requires the diffusion of political and economic decision-making power. Progress in the decentralization of decision-making is very slow in unitary systems, even in the most stable, developed countries.

79. The provincial and local governments in LDCs, even in Federal systems, may be ill-fitted to participate in city-boosting activities. This is due "to administrative concepts that are out of step with the local economic and social realities, to anachronistic legislation which discourages initiative on the part of local officials, to bureaucratic centralization, to lack of coordination among the national agencies responsible for most economic and social activities at the local level, and to the lack of technical assistance to provincial and local authorities" (Utria, 1972, p. 166). Although these generalizations are derived from observation of Latin American experience, most of them are applicable to other parts of the developing world.

80. It is not easy to harness political support for a national urban growth strategy, especially in the authoritarian or one-party political systems that are endemic in LDCs. Either the political power base is firmly located in the primate city and major metropolitan areas (the Latin American case) or it rests in rural areas (the South Asian case). 2/ Thus, in both these situations the promotion of medium-sized cities will offend the dominant interest groups.

81. Moreover, neither the social structure nor the industrial structure is conducive to the development of strong intermediate cities.* There is an absolute scarcity of managers, professionals and other middle class elites, and an unwillingness of the few there are to leave the metropolis to work in the provinces. The monopolistic industrial firms, sheltered by tariffs and other protectionist measures, tend to be risk-averse and this usually implies a location in core regions. A national urban strategy would be easier to implement if the industrial structure was largely composed of large, innovative manufacturing corporations willing to set up branch plants in several cities. This probably requires a more competitive economy and a larger industrial base than is found in LDCs.

1/ This generalization also holds in developed countries, e.g. USA, Canada, Australia and West Germany.

2/ This bias is reinforced by the forces of the market. For instance, private savings generated in the periphery flow to the core in primate economies (e.g. Mexico). In India, on the other hand, the net transfer of resources appears to favor the rural periphery.

82. Another important institutional constraint on the spatial strategy options facing LDCs may be the legacy of colonialism. This handicap is observable in Latin America, Asia and Africa. Its consequences appear to take several forms. The primate cities were developed by the colonial powers to a position of dominance in trade, services and transportation that was difficult to challenge. Communications were developed externally more than into the hinterlands and the output mix was made complementary to the colonial metropoles and the world market rather than to internal needs. For instance, industrialization in Africa was held back by following the principles of comparative advantage in an intercontinental context. Thus, Africa produced raw materials and intermediate goods for export (palm oil, wood products, ingots, etc.). Cities developed where they could serve the European market, i.e. as sea or inland ports. Even food suppliers were geared to the world market (Hutchinson, 1968), e.g., the production of cocoa for export, to be exchanged for imported food, rather than the production of yams for domestic consumption. Moreover, post-colonial patterns of development have been molded by the European connection. Thus, newer towns are frequently industrial complexes, mining centers or entrepots linked to Europe. 1/ Import-substitution strategies have been geared to industrial exports (machinery, skilled personnel and semi-processed materials) more than to local consumer demand. The import of technology has meant high capital-labor ratios and too few jobs (El-Shakhs, 1972). Agricultural development has frequently been neglected, or distorted to favor export markets, in spite of the fact that in most African countries three-quarters of the population will remain rural in the 1990s. Foreign capital has continued to finance a high share of public sector investment, another illustration of the external impacts on independent Africa rather than a disadvantage in a capital-scarce continent.

83. The political consequences of the colonialist heritage appear to have been equally significant. Consider Southeast Asia for example. In spite of the high rural population share, the traditional sector has been neglected relative to the modern sector because the nationalist movements that fought for independence were urban-based, relying on the support of industrialists, merchants and urban workers. The European elites were replaced by Westernized local elites and the income distribution changed very little. Governments were more preoccupied with building stable nation-states than with the direct promotion of economic development. Rural populations were alienated, both by the neglect of agriculture and by the failure to provide urban jobs for rural migrants, and conditions were created in which a rural-based revolution might capture the city-based power structure of the country (e.g. Vietnam, Cambodia).

1/ For example, the town of Zuarungu in northern Ghana was jointly developed by the Ghanaian State Meat Products Corporation and the West German Ministry for Economic Development.

84. Ethnicity is a factor having an unclear influence on economic development in general and the success of spatial strategies in particular. Its role in Africa is especially complex because of the tripartite breakdown: by race, by tribe or clan, and by indigenous towndwellers and "strangers." Strong ethnic ties help to assimilate the migrant into the city, both economically and psycho-socially. 1/ On the other hand, ethnic heterogeneity within the cities might have been expected to operate as a modernization force, breaking down traditional values. In Africa, this has not yet happened. Non-ethnic institutions (such as trade unions) tend to be weak, 2/ while the urban elites have adopted a dual role -- acting as sophisticated Westerners on the one hand and maintaining contacts with their home backgrounds and with traditional values on the other. In some Asian countries ethnic heterogeneity has been a source of conflict. In Malaysia, for instance, enforcement of ethnic identity has been more important than spatial distribution objectives. Thus, the promotion of Kuantan on the east coast as a counterbalance to spatial concentration on the west coast has been driven more by an ethnic than a spatial goal (Kuantan is in a Malay-dominated region).

85. Finally, a nation state is an artificial construct from a spatial development point of view. National boundaries are determined by historical accident, sometimes disrupting natural urban systems, with the result that national urban hierarchies may be truncated elements of a wider system. Yet national spatial strategies are much easier to develop than international strategies. 3/ Their distorting impacts may lead to "protected" national urban systems that are much less efficient than the larger international system that might have developed in the absence of the constraint of national borders. Central America, the Caribbean and parts of Africa are obvious areas where this argument may be valid. Similarly, some countries (e.g., the United States, India, Brazil) may be too large for their national urban systems to be cohesive (these issues are discussed below, see paras. 158-163).

1/ Family ties have a similar effect. When male migrants move alone, frequently on a temporary basis, as in Asia and on the Indian sub-continent, the linkages between the core and the periphery are stronger than when families move together, as in North Africa. On the other hand, hordes of young, unemployed males may be a source of instability in the big cities.

2/ However, see Cohen (1974) for evidence of the emergence of effective institutions in at least one case -- the Ivory Coast.

3/ Superficially, it might appear that pre-independent colonial territories should have been more conducive to the evolution of an international system. In practice, however, most of the communications and linkages were between the colonial capitals and the metropoles (e.g., London) rather than among the colonial cities themselves.

CHAPTER IV: STRATEGIES

a. Goals

86. The goals of national urban policy are the same as those of general national policies (e.g. stability, growth, efficiency, equity, quality of life, participation) (Alonso, 1971a). Thus, a national urban policy must be evaluated against these overall objectives before an appropriate strategy can be designated. Spatial policies and non-spatial policies are inextricably inter-linked. All kinds of economic and social policies have indirect impacts on the settlement pattern. Conversely, many have argued that national urban growth strategy may be used to solve general societal problems such as pollution, poverty and crime. But these solutions are almost always inefficient or ineffective.

87. This does not mean that there is no scope for a national urban strategy, especially in LDCs where the national settlement pattern will in any event change spontaneously, not inconceivably in an undesirable manner; but goal formulation needs to specify sub-goals of the kind mentioned above; Such sub-goals include interregional income convergence, maximization of spatial diffusion potential,* provision of equal services to all citizens, correction of urban imbalances,* spatial integration of the national territory and minimization of rural-urban and interurban migration. However, even these goals are too broad. Also, such goals can be ambiguous, as well as in conflict. Others are difficult to make operational. Some goals may be more appropriate in spatially large countries, others may be more relevant to small countries.

88. For instance, minimization of migration in LDCs may have little impact on the city size distribution because urban fertility rates are often as high in the cities as in rural areas and death rates are lower. In any event, the goal cannot be achieved since no country short of collectivist solutions has succeeded in drastically reducing migration rates. Moreover, even if feasible, such action would both conflict with individual welfare gains and inhibit economic growth.

89. Much of this report is concerned with correction of urban imbalances. This vague objective is usually a euphemism for restricting the growth of the large metropolises. This objective has to be treated with care. There is no evidence that a more equal urban size distribution means more economic efficiency and more individual welfare than a highly skewed distribution. Instruments for holding down, not to mention reducing, the size of of the large cities have not generally been very effective. In any event, the large cities usually wield tremendous direct and indirect political power and are reluctant to accept dictates from above that attempt to reduce their populations, territories or tax bases. The best way to deal with this goal is via promoting smaller cities rather than by city size control but the size gaps are very wide when the large cities are growing rapidly through natural increase.

90. Interregional income convergence is a very common policy objective, and at first sight is very straightforward. But it creates problems from the point of view of urban strategies. Raising income levels in the backward regions may call for promoting their largest city at the expense of smaller urban areas. Also, "place prosperity" may conflict with "people prosperity;" helping the poor regions may imply subsidizing businesses and the rich with tax revenues raised from the national poor.

91. Spatial diffusion potential probably requires strengthening the leading cities in the hierarchy and filling in gaps both in terms of city sizes and in the transportation and communication networks that link them. In the case of entrepreneurial innovations, it is beneficial to have multi-plant businesses operating in many cities in the hierarchy, but this is usually incompatible with the types of industrial structure found in LDCs.

92. Equalization of service provision usually implies shifting resources towards the smallest urban centers for education, social services and urban amenities. It is probably much too costly for capital-scarce LDCs.

93. Thus, even the apparently simple policy objectives are difficult to interpret and are often non-operational, or attempts to make them operational are costly to implement. Occasionally, they conflict with each other, even without introducing the parallel non-spatial goals. When the latter are taken account of, goal conflicts are inevitable. Sometimes they can be reconciled. For instance, the non-spatial goal of industrialization may be made compatible with the spatial goal of interregional income convergence via the design of policy instruments to decentralize as well as to stimulate industry. In other cases, there is no reconciliation, and the problem can be resolved only, if at all, by prioritization of goals. However, prioritization and recognition of the secondary side-effects of policies aimed at a particular objective can help to avoid wasteful and competitive investments. The careful husbanding of investment resources and administrative capacity is a necessity for a developing country. National urban strategies are invariably implemented in a multiple goal framework in which the impact of a policy on one goal may be offset by unanticipated effects on other goals. The neat "trade-off" functions of the policy theorist are unlikely to help the pragmatic and politically feasible decisions that must be taken by the LDC policymaker.

b. Implicit Urban Policies

94. As argued earlier (para. 6), explicit policies to combat intra-urban efficiency problems, to promote cities of different size classes and to mold the national settlement pattern are only part of the influences of policy intervention on urbanization. They may even be among the least important. Almost all economic and social policies have an implicit urban impact, though many of these impacts are frequently ignored, as well as being unintended. Industrial protectionist measures discriminate in favor of those cities where

the protected industries are concentrated, 1/ and may invite retaliation from former exporters to the country in the form of primary imports restrictions, which in turn have detrimental effects on the rural areas and possibly on their settlement structure. High interest rate policies have differential dampening effects, by shutting out marginal investment opportunities in the cities of backward regions. Tax policies too are spatially discriminatory; for example, introducing a highly progressive tax structure into an economy with a primate city size distribution will have marked redistributional effects over space as well as among persons. Agricultural price support policies will shift the internal terms of trade in favor of rural peripheries and against the urban cores and the consequential income effects may, if the policies are sustained, ultimately affect the settlement pattern and the urban-rural distribution. 2/ A strong national planning system based on sectoral rather than spatial planning will nevertheless have significant spatial consequences because industries are not distributed equally among all cities and because locations vary in their comparative costs.

95. It is not merely a problem of recognizing and identifying these implicit impacts. The problem is complicated by the fact that the spatial consequences of policies may be internally contradictory. The policymaker may guard himself against contradictions among explicit urban policies, but ignore or be unaware of the contradictions between the explicit and the implicit measures. The frequent conflict between an import substitution development strategy and the objective of restricting big city growth is a common occurrence among LDCs. Also, by using up scarce fiscal resources and by influencing the allocation of total investment resources, spatial and non-spatial policies are directly competitive. It is much harder for an economy with strong and effective non-spatial policies to find the resources to adopt equally effective spatial policies. Thus, if non-spatial measures

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1/ For example, the effect of the Law of New and Necessary Industries in Mexico has reinforced the growth of the Federal District.

2/ Of course, this may be a conscious act of policy. This appears to have been the recent experience in Korea where price subsidies to farmers improved the terms of trade in their favor by 15 percent, 1970-73 (Mera, 1976). However, the agricultural terms of trade peaked in 1971 and the price subsidy policies are not expected to last beyond 1977. Moreover, the relationship between movement in the terms of trade and the growth rate of the non-farm sector was very weak (Renaud, 1976). In Tanzania, on the other hand, the government held food prices at artificially low levels for many years to reduce the upward pressure on urban living costs (Barnum and Sabot, 1976). Also, it is possible that agricultural support policies (e.g., for dairy products) may favor the core regions rather than the periphery.

have undesirable spatial impacts, the naive solution of introducing compensatory spatial instruments is often not a feasible option. 1/

96. There is no simple solution to these problems. Obviously, the first step is to attempt to identify all the consequences of all policies, both explicitly and implicitly spatial, on individual cities, the distribution of city sizes and the settlement pattern generally, and at the same time to take account of spontaneous trends. It should then be possible to ascertain whether there are contradictions between explicit and implicit policies, how serious they are and whether or not they can be avoided. For instance, if an existing non-spatial policy has an undesirable or contradictory implicit spatial impact, it is often possible to find an alternative means of achieving the non-spatial policy objective with a different instrument which either avoids or mitigates the unwanted spatial consequences. The important point is not to try to eliminate all the spatial implications of non-spatial policies, for that would be impossible, but to be aware of them and to avoid wasteful expenditures of resources and effort in implementing contradictory and self-defeating measures. Sometimes, policymakers are fortunate in that sensible spatial and non-spatial policies may be complementary and mutually supportive. In Mexico, for instance, a growth center strategy based on the Gulf coast would be a valuable element in an industrial diversification policy and make a positive contribution to the key objective of promoting exports.

c. Spatial Policy Instruments

(i) General Considerations

97. There are many ways of classifying spatial policy instruments. One possibility is the following: 2/

1/ The Brazilian experience is illuminating. Her import-substitution strategy of industrialization has been very successful from a narrow point of view. As a result only a tiny fraction of manufacturing needs are imported. Moreover, vertical growth (i.e., rising incomes for the middle class) provided a sufficiently large home market. However, the strategy implied a heavy concentration of industry around the big cities (one third of industrial employment in Greater Sao Paulo), a widening income distribution, and inadequate resources for basic urban infrastructure (e.g. water supply, sewage, housing). The alternative strategy is to develop a large and spatially extensive home market. This would require income redistribution to permit horizontal growth, industrial decentralization and promotion of rural demand for consumer manufactured goods (Babarovic, 1972). On the other hand, the expansion in earnings from agricultural products (beef, soy beans, coffee, etc.) has mainly benefited the Center-South and Center-West regions, including the Sao Paulo hinterland. In this sense, the polarizing impacts of growth in industry and agriculture have been mutually reinforcing.

2/ Townroe (1976) presents an alternative classification.

(i) Subsidies to businesses (to investment, "setting-up" costs, and operation), and taxes on development, particularly in core areas. 1/

(ii) Decisions on the location, scale, pricing and financing of infrastructure, including urban infrastructure, construction of government and other public establishments (including those in education and health), and the provision of industrial infrastructure* (e.g., in industrial estates).

(iii) Direct controls. These include restrictions on industrial development in large metropolitan areas, direction of industry -- usually between regions -- and planning and land-use controls within cities.

(iv) Migration policies (these are discussed elsewhere; see paras. 106-112). These may contain elements of (i) - (iii).

98. Policy proposals have to be designed with care. Caution must be exercised in transferring policy evaluations based on developed countries to the LDC context. 2/ The policy mix should be tailored to the individual conditions prevailing in a specific country and should be constrained by political feasibility. Prescriptions will vary if goals relate to the urban size distribution as a whole rather than to decentralization out of the large cities. For example, measures have to be modified according to urban size class. An industrial estates strategy for small towns in rural areas has to be designed differently (smaller estates, lighter infrastructure, building in step rather than ahead of demand) than for metropolitan areas. The type of aid needed by the small-scale industries suitable for a rural industrialization program (low interest loans, "start-up" cost subsidies, etc.) is not the same as that most appropriate for large industrial plants.

99. The question of appropriate spatial policy instruments for city size control and for promoting city growth has still to be answered satisfactorily in spite of considerable practice and experience in many countries and years of theoretical debate. In general, measures to restrict city size are more difficult to introduce than city-boosting policies and are frequently ineffective. One of the major problems is the infeasibility of migration controls in most circumstances. As a result, much of the interest revolves around policy instruments to expand cities.

1/ An interesting idea, not properly tested since the measure was introduced only in 1973, is the Korean system of resident taxes, with the tax rate increasing with city size.

2/ In particular, policies which require contact between the entrepreneur and the bureaucracy tend to act to the advantage of centralized locations and larger scale organizations.

(ii) Infrastructure vs. Industrial Subsidies

100. A critical issue is the relative emphasis upon location of industry incentives (or controls) and infrastructure measures. In a DC context, the latter tend to be the more popular and the more successful. In particular, social infrastructure* and amenities may be critically important in attracting managers and as a general stimulus to migration. In LDCs, on the other hand, relatively more national investment resources are channeled into industry than into urban infrastructure. All cities lag behind in their stock of infrastructure with the result that LDC urban residents are used to coping with inadequate water supplies, sewage, public facilities, housing and social services. Job opportunities are the main stimulus to LDC rural-urban inmigrants, and the possibility of a job (not necessarily a guaranteed job, since urbanization tends to be faster than industrialization) is much more critical than the amount and quality of infrastructure. 1/ Moreover, the demand for infrastructure is a function of income, so a well developed infrastructure may be a less effective inducement to LDC migrants who tend, of course, to be very poor.

101. Industrial infrastructure is an alternative instrument to direct subsidies for attracting industry to specific locations. Too much emphasis on industrial infrastructure may be risky. If it is developed in areas of limited growth potential, scarce investment resources will be wasted since the availability of infrastructure will not outweigh industrial location disadvantages. If an area is attractive to industry, firms will not be unduly deterred by the lack of infrastructure and it will be possible to plan its installation in step rather than ahead of industrial expansion. The use of government industrial estates as a policy instrument has been quite common in LDCs, especially in Asia. In India industrial estates have avoided the medium-sized cities, reflecting the priorities of the national plan (large-scale industry in big cities in the 1950s, emphasis on rural areas in the 1960s). The industrial estates of Pakistan have been more widely dispersed, but were often planned too rapidly and on too large a scale with the result of low occupancy rates. Korea's industrial estates policy has been much more successful, involving 221,000 jobs by 1975 (10 percent of national manufacturing employment) and 37 percent of manufactured exports at a private/public investment ratio of about 12:1. However, it was a low-risk strategy since most of the estates were located within 30 miles of major city centers and overall manufacturing growth rate was high.

102. On the other side of the coin, industrial location subsidies have been used more to pursue regional objectives than to promote cities

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1/ Amenities may be important even in LDCs for managers and for inter-urban skilled workers, especially those moving down the urban hierarchy.

directly. 1/ Subsidy schemes are frequently handicapped by administrative restrictions that discourage participation by some firms and impose criteria that rule out many others. Also, much of the emphasis has been given to capital-intensive industry which inhibits more than stimulates urban population growth. Special efforts are needed to devise sharper and more selective location incentives that would stress job creation more than, say, import substitution.

103. Since the question of the relative merit of industrial location subsidies and infrastructure subsidies has not been satisfactorily answered in developed countries, it is hardly surprising that research on this critical issue in LDCs has been virtually non-existent. Obviously, experience may vary widely according to the degree of evolution of the national urban hierarchy, the relative contributions of the public and private sector in industrial development and the expectations of the population with respect to amenities and public services.

(iii) Labor Subsidies and Payroll Taxes

104. The appropriateness of labor subsidies is a controversial issue. Drastic measures might be justified to correct the distortions in capital intensity caused by most LDC sectoral policies. Urbanization in many LDC cities runs ahead of industrialization, and the industrial development that has occurred has tended to be very capital-intensive. The objections to labor subsidies (apart from administrative complexity) is whether they make sense in conditions of excess labor supply, and the risk that they might stimulate additional migration. However, the latter might be desirable if the labor subsidies are offered only in the smaller cities or if payroll taxes are rebated there. Moreover, the critical objective of such subsidies is to correct for capital-intensive bias and to design subsidies to businesses in a way that does not conflict with employment goals. 2/

1/ Of course, regional development subsidies may inadvertently have intra-regionally discriminating effects. In North-East Brazil, more than one-half of the jobs created under SUDENE's well known "34/18" subsidy were located in the three State capitals (Salvador, Recife and Fortaleza). Even in the vast, sparsely populated regions of the North and the Center-West, subsidies favored the largest urban areas. Two-thirds of the industrial firms assisted by SUDAM have located in Belem or Manaus.

2/ If labor subsidies are used, they should be confined to new plants where they can influence the choice of technology. Also, they should have a guaranteed minimum life span. Otherwise, they will induce no response from decisionmakers.

(iv) Direct Controls

105. The use of direct controls in LDCs raises interesting questions. Controls on development in the large cities are a possible policy option, if the risks of possible sacrifices in efficiency are acceptable, but they are notoriously difficult to enforce. This is aggravated in LDCs, by the survival of a tradition that rules and decrees can be obviated by manipulation of the "system," and by the absence of an efficient policing mechanism. Land use controls, when effective, are more likely to change the intrametropolitan distribution of activities than the inter-urban distribution. Perhaps the best prospect is the use of direct controls to steer industry to particular cities in the national urban system. 1/ One obvious route is direct state participation in industrial corporations. Another is to "arm-twist" multinationals in those sectors where location is not predetermined (cf. the resource-based sectors). Historically, LDCs have been too "soft" with multinationals, on the grounds that they might abandon projects and move to more welcoming environments. Whereas this may be a risk in some situations, there are many others where corporations will not lightly abandon the chance of operating in rapidly growing national markets.

(v) Migration Policies

106. Although natural increase makes a sizeable, in many cases the major, contribution to the growth in population of big cities in LDCs, the role of rural-urban migration remains critical not merely because of its incremental or "topping-up" effect on metropolitan growth but, more significantly, because of its influence on the national settlement pattern -- especially the areas losing population such as some rural regions, villages and small towns. If a country has national settlement objectives, influencing the rate and direction of migration streams, if feasible, offers the prospect of quicker success than fertility control. The "if feasible" qualification is far from trivial since intranational migration is very difficult to control because of the absence of control mechanisms (e.g. entry criteria, immigration procedures, borders) of the type dealing with international migration. Furthermore, variations in fertility and mortality by city size class may not be wide enough for differential natural increase to have much effect on the national settlement pattern, and in any event may not be changing in the right direction from the point of view of policy objectives.

107. There are, of course, many different types of migration flow (interregional or intraregional, interurban or intraurban [in the case of large

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1/ Unfortunately, direct controls are probably more successful in encouraging suburbanization than in promoting interregional relocation to other cities (e.g. Korea). In the long run, as the metropolitan areas expand in population and areal extent, this does little to counteract primacy.

metropolitan regions], rural-urban or urban-rural) which may require dissimilar policy prescriptions and most of which impact upon the spatial distribution of population at more than one point. However, the interregional rural-urban flow has attracted the most attention and is probably the most important.

108. There are two broad types of strategy that might be used to influence interregional rural-urban migration towards the large cities. The most common is the indirect strategy; the direct strategy is much less common though it merits discussion. Indirect strategies are based on the presumption that it is very difficult to control migration flows except by changing economic and social conditions at origins and destinations. Three main possibilities arise: improving conditions in rural areas so as to stem rural emigration; making conditions for inmigration into large cities even less pleasant; generating opportunities, especially jobs, at intervening locations somewhere between the areas of origin and the dominant cities attracting migrants. The rural improvement strategy must avoid the dilemma that raising agricultural efficiency frequently implies job losses. Thus, to be successful, the rural approach must create non-agricultural jobs in rural areas, and the most promising way to do it is to implant small-scale manufacturing industries or food processing plants in rural growth centers. However, the costs and difficulty of this task should not be underestimated, mainly because the infrastructure and transportation requirements are far from negligible.

109. Measures to discourage inmigration into big cities are hard to find in LDCs, primarily because the obvious means -- controls on the development of urban land and on housing construction -- have in most countries been ineffective, since squatter settlements remain the predominant first destination areas for migrants. 1/ Accordingly, the alternative is to restrict job growth in the big cities, and since this usually implies steering jobs elsewhere it spills over into the third approach -- promotion of intervening poles.

110. The intervening opportunities* approach is a variant of the growth center policy (see paras. 132-147). However, the migration attraction centers may be found both in the regions of origin (the standard growth center approach) and closer to the big cities (the intervening poles approach). Also, if this method is to be used for migration control, the selection of centers becomes more critical. Furthermore, as suggested above, the creation of jobs is more vital than infrastructure investments in the LDC context. One problem is that the ratio of inmigrants to newly created jobs is usually high, and if

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1/ The location and growth of squatter settlements may be controlled by providing lots with basic services, thereby avoiding illegal settlements on prime land, but this is a more modest strategy than attempting to restrict inmigration *per se*.

many more migrants are attracted than jobs are made available the disincentive effect to further migration in smaller cities may be much greater than in the national metropolises, where public services are more abundant and where there may be income-earning opportunities in the "peripheral" service economy. In addition, migration channels become traditional through such influences as the "friends and relatives effect" and are consequently very difficult to change. The intervening opportunities strategy is sound in principle but risky in practice. However, it has the compelling advantage that it implies internally consistent industrial decentralization and migration policies.

111. The strategy of direct controls is less common for the obvious reason that there is no equivalent to international barriers within a nation. Thus, entry into cities or exit out of rural areas cannot be properly policed. In these circumstances, the opportunities for controlling migration movements are very limited. One possibility is compulsion, or more probably "social exhortation," but this requires a particular kind of collectivist society and ideology (e.g. perhaps China or Cuba).

112. The major alternative, more consistent with the fact that migration is normally an individual decision, is to use incentives in the form of migration subsidies. Apart from the budgetary cost, the major problem is that migrants may accept subsidies to go to one city that policymakers are attempting to promote but may subsequently move on to another city more to their choice (e.g., the national metropolis). 1/ There may be ways to protect against this (e.g., transforming the migration subsidies into labor subsidies paid to employers in growth centers who employ inmigrant labor), but depending on the incidence of the subsidy the stimulus to the migrant may not be strong enough to influence the direction of the migration stream. More success may be achieved by incentives to hold the would-be migrants in the rural areas. However, direct money subsidies to individuals may be much too costly, partly because of the large numbers involved, partly because of the inability to differentiate accurately among potential movers and stayers. Thus, rural "holding operations" usually rely on indirect measures such as infrastructure investments, the promotion of non-farm jobs or agricultural price support policies.

d. The "No Policy" Alternative

113. Some analysts have argued, admittedly in the developed country context, that it may be more efficient to leave the prevailing settlement pattern alone (Mills, 1972). 2/ There is some point in commenting on the

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1/ In the case of industrial plants, high relocation costs prevent capital subsidies from being aborted in this manner.

2/ For recent attacks on this view see Gilbert (1976) and Johnston (1976).

laissez-faire national urban growth strategy as a limiting case. In fact, quite a reasonable defence can be made, and some consideration of the main arguments offers a useful corrective against over-enthusiastic recommendation of costly and ineffective urban dispersion policies.

114. The case for non-intervention rests upon three main groups of arguments. First, market forces promote economic efficiency. This is not to deny the existence of social costs and unwanted externalities but to argue implicitly that these are swamped by the economic efficiency gains. An interesting question is whether the net externalities vary with the level and rates of urbanization. Second, there are important distributional grounds for laissez-faire with respect to the settlement pattern. These are complicated, however, because they imply some sacrifice in interregional equity for the sake of intrametropolitan equity*. In other words, efforts to redistribute welfare and income among regions take second place to measures to improve equity within the large cities. Third, and most critical of all, there are compelling political economy arguments. One of the main objections to city size distribution policies is their political intractability. The institutional structure of LDCs, including the weaknesses of local governments, inhibits effective action.

115. The higher productivity of big cities is indisputable in the sense of higher real incomes, higher rents and (less well substantiated) higher profits. Economies of scale, specialization advantages, complementarity among industries, reduced communication costs, high market potential, infrastructure utilization advantages and the generation and diffusion of innovations figure among the more obvious sources of this higher productivity. Although much of the evidence comes from developed countries (e.g. Fuchs, 1967; Hoch, 1972; Richardson, 1973a; Segal, 1976; Sveikauskas, 1975), the behavior of entrepreneurs suggests that the relative productivity of big cities is even higher in developing countries. The productivity differentials are too wide to be bridged by non-monetized negative externalities.

116. If LDC big cities are relatively more productive than smaller urban areas in comparison with developed country differentials, it is a plausible argument that this gap may narrow as urbanization proceeds. In other words, the net agglomeration advantages of the large cities may dissipate as other cities generate agglomeration economies and as the social costs of the primate city are intensified. On this view, intervention might be justified now on the grounds that "sooner rather than later" implies resource savings. There is no evidence available to shed light on this question. A problem is that the costs of intervention may be higher if action is taken too early, primarily because resources may be wasted through investment failures if measures run counter to dominant spatial trends (see paras. 153-157).

117. The distributional arguments are less straightforward. The urban-rural income differentials remain very wide 1/ so that strategies to aid the worst off in society should concentrate on the rural areas. Although measures to raise the incomes of the rural poor are easily justifiable on equity grounds, "tinkering" with the settlement pattern is not an efficient way of doing this. Bringing "urban" social services to a dispersed rural population is very costly compared to the public service costs per capita in the large cities. This point is not disproved by a flattening out in the long-run cost curve for services at some relatively low city size (say, several hundreds of thousands), since costs per capita in the multimillion city remain lower than in the sub-threshold rural service centers. If a government seriously wishes to redistribute income, direct income transfers are far more effective than adjustments to the settlement pattern. Indeed, the only area where spatial instruments might be justified is in the metropolitan region itself. The reason is that only here is there such a heavy concentration of poor that location of a public facility (health, water supply, transportation, etc.) can make a significant difference to the welfare of many at a relatively moderate cost. It is quite common to use equity arguments as one of the major props to support a national settlement strategy. The redistributional consequences of such policies have been disappointing. Typically, they are either totally ineffective or they aid the relatively well-off in poor areas rather than the poor everywhere. The pseudo-redistribution of settlement policies is often a smokescreen to avoid facing up to the problem of direct redistribution through the fiscal system.

118. This leads directly to the political economy aspects of the question. It is very convenient for governments in developing countries to profess interest in a national settlement strategy because this can be treated as a weapon to attack a wide variety of society's ills: rural poverty, interarea welfare inequities, social costs of congestion, disturbingly high migration rates, squatter settlements, and so on. But there may be more direct methods of coping with these problems such as rural land reform, control of the urban land market, income distribution and housing subsidies. If they could be implemented, these measures would be more cost-effective and have a higher probability of success. But, in fact, they are much more politically dangerous because in many countries they involve attacking the privileges, status and interests of the rich and the middle class. Thus, governments dependent for their viability on the support of elite groups take the much safer route of spatial policies. Although these might be

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1/ There are exceptions. The margin between urban and rural living standards for the masses on the Indian sub-continent is much narrower than in most other parts of the developing world. Also, the rates of growth of the big cities are not much higher than the growth rate of total population. This suggests that in this case, national urban strategies may be less critical than general societal policies such as how to control fertility, and how to relieve poverty and malnutrition.

effective if implemented strongly enough with sufficient resources, this would also interfere with vested interests and privileges. Unfortunately, in many cases they are not meant to succeed but merely to serve as a "window-dressing" operation, evidence of a government's good intent, recognition of problems and willingness to take action.

119. Even if the political support question could be solved, the difficulties of implementation remain severe. A decentralization strategy would require many more planners and administrators than are available in LDCs and would obviously require them to be spatially dispersed, whereas those that are available are heavily concentrated in the metropolis. Local governments would require more resources, more planning personnel and (probably) more autonomy. A national urban policy is very expensive in terms of capital requirements (provision of a dispersed infrastructure and heavy investment in inter-urban transportation and communication networks), and capital-starved economies may, with some justification, consider such a policy a luxury beyond their limited means. Since national settlement patterns can be changed only in the very long run, successful policies require continuity, perseverance and stamina of a kind that few governments possess. Also, the socio-cultural differences between the core regions and the periphery are often very wide in LDCs so that if a national settlement strategy involves the promotion of urban areas in backward regions it demands generating social change as well as influencing infrastructure and business location decisions. Although social engineering may be a legitimate element in the policies of LDCs, the possibility of either negligible or unanticipated, undesired results is considerable.

120. These arguments do not constitute an unassailable case for allowing present spatial trends to continue unchecked. However, they do suggest that there is some merit in such a case, especially where spatial planners claim exaggerated benefits that could be better achieved by more direct non-spatial policies. Nevertheless, in spite of the tremendous obstacles in the way of successful implementation of a national urban policy, adopting such a policy is justified if it is consistent with agreed societal policy objectives, especially if these objectives are more difficult to achieve via alternative policies (e.g., interregional equity is a possible objective satisfying this criterion).

e. The Spatial Distribution of Cities and Strategy Guidelines

121. Prescribing for the distribution of city sizes without regard to the distribution of these cities in space makes for bad policies since the appropriate size for any settlement cannot be assessed independently of its location (and functions). There has been some attention given to the problems of "optimum geography"* by researchers, especially economic geographers,

but much of the discussion has centered on empirical analysis and the derivation of statistical rules. These tend to boil down to the principle that the distance between cities of similar rank tends to increase with city size. 1/

122. This type of proposition is based on central place theory. This provides a reasonable basis for a theory of interurban distances, but it does not hold up very well empirically. The reasons are not hard to find: the inaccuracy of the underlying assumption of uniform population densities; the fact that countries are almost always initially developed peripherally (i.e., the coastal or border primate city) rather than centrally; the uneven spatial distribution of national resources and the influence of the size of the national population and territory on average interurban distances. These factors distort interurban distances substantially.

123. The regular spacing of central place models also breaks down if the traditional assumptions about interurban specialization are dropped. The key assumption that cities export only down the hierarchy results in a more regular spacing pattern than if smaller cities can compete in some sectors with larger cities. The prospect of interurban competition between ranks affects the guidelines for site selection of cities to be promoted. A sheltered monopoly position (the hinterland effect*; von Boventer, 1970) is attainable at greater distances from larger cities. However, there is an influence operating in the other direction. It is possible to distinguish between intraurban and interurban agglomeration economies (von Boventer, 1975). In the latter case, a smaller city may borrow the agglomeration advantages of larger size provided that it is close enough to a big city. If the agglomeration effect declines rapidly with distance from a large metropolis while the hinterland effect increases with distance, it is probable that the combined function (the sum of agglomeration and hinterland effects) is U-shaped. If this hypothesis is valid, an intermediate location is the worst of all worlds because agglomeration economies have decayed while the degree of spatial protection remains weak. It is better from the point of view of growth potential to be located either close to a larger city or a very long distance away from it.

124. Which of these two options is preferable will depend on the proposed target size of the city being promoted. A small city will have better prospects of success if located close to a bigger city where it can enjoy the latter's agglomeration economies and benefit from metropolitan decentralization. A large city, on the other hand, is more likely to flourish in the periphery than a small city because size will generate its own agglomeration economies. This explains Alonso's dictum of "small and near, and big and far" (Alonso, 1971b).

1/ Variants include: interurban distance is proportional to the multiple of city population ($d_{ij} = N_i N_j / Z$ where Z is a constant, see Stewart, 1959); distances between cities of adjacent ranks vary according to the square root of the number of satellites, S, in the nesting pattern ($d_i = d_{i-1} S^{0.5}$) [Losch, 1954]; or $d_i = d_{i-1}^{1.5}$ (Curry, 1967). See also paras. 30-37.

125. The analysis is further complicated when the third variable, economic function, is introduced (the other two are size and location). The classical model explains all three simultaneously; size is determined by population served (market area plus satellites plus own population), function by number of goods and services supplied, and location by market area boundaries. In a less restrictive explanation, a city of a given size may fulfill quite different functions according to its location. For instance, a city of 80,000 might be no more than a minor dependent satellite in a metropolitan region but it could function as a dominant regional city in a peripheral rural region. Similarly, in other circumstances the same functions may be undertaken by cities of very different size. For example, two cities specializing in a particular set of manufacturing industries may both function efficiently even if they differ widely in size if the smaller city is located so as to take advantage of locally available resources, raw materials or intermediate inputs.

126. The naive interurban distance analyses are inadequate because they treat space as homogenous and distance as Euclidean. In fact, some locations in the space economy are more efficient than others that are equidistant from a major metropolis because they offer higher accessibility. This implies that the existing and proposed transportation network imposes restrictions on site selection. The most striking example of this influence is the "development axis"* or "development corridor" approach where centers on the axis benefit because the axis reinforces agglomeration economies and minimizes distance costs. Scale economies in transportation lower production costs which stimulate increased output and trade which generate further transportation economies in a cumulative process. The agglomeration forces are especially strong at locations where axes cross or near the midpoint of a linear axis with major cities at its terminals.

127. Another consideration emphasizing the heterogeneity of space is that communication costs may vary over distance very differently from transportation costs for goods, services and factors. If communication economies are closely tied to the interurban information network and if innovation diffusion and social change depends upon the spread of information, hierarchical distance (i.e., the number of ranks between two cities in the national urban hierarchy) may be more important than physical distance. This reinforces the case for treating agglomeration economies as the key element rather than minimizing distances. Growth potential and the rate of productivity growth may depend more on a city's size than on its location.

128. These arguments lead to several policy implications. To the extent that the problems of the multimillion metropolises can be dealt with by spatial strategies, there is much to be said in favor of the metropolitan deconcentration approach. Size-distance analysis supports the promotion of small cities close enough to the major metropolises to benefit from agglomeration spillovers but not so close that they reinforce the congestion costs of the

metropolis itself. 1/ This does not imply a laissez-faire strategy since decentralization patterns in LDC metropolises are probably very inefficient. Even in cases when deconcentration has been planned, a common mistake is to promote subcenters so close that they will soon be swallowed up by the congested core as the city grows (e.g., Mexico City).

129. A second possibility is the "countermagnet"* approach implying the promotion of a major metropolis at a considerable distance (in some cases, the other end of a country) from the primate city. The objective here is to build a competing magnet for migrants and to alter the interregional distribution of population and economic activity to a significant degree. Since countermagnets have to be big, their selection is not difficult since the strategy's high costs are manageable only by concentration on an existing

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1/ The "great city" concept (Geisse and Coraggio, 1972; Geisse et al., 1975) is a variant of this idea. The argument is that the scale diseconomies of the large city may be mitigated by intraregional decentralization in the form of a large and complex policentric metropolitan region. Such a spatial structure is compatible with locational efficiency criteria for industries and permits economies in the use of scarce infrastructure capital. The need to block rural-urban migration is reduced because the circle of new growth centers around the metropolis will offer intervening opportunities for new migrants. The critical income and welfare distribution problems of LDCs may be much easier to handle via intraregional than by interregional redistribution.

This approach is attractive because of its feasibility; after all, it implies a planning strategy more or less consistent with current development trends. But it is not without problems: (1) How can the spatial structure be designed so as to avoid congestion? (2) What is the fate of peripheral populations in those countries where these are large? (3) In economies developing on a natural resource base, is remote control from the center the most efficient approach to resource exploitation? (4) In view of the high rates of demographic change in LDCs, what are the prospects for this strategy after 100 years, or even 50 years? In particular, if national populations will be many times their present levels, heavy spatial concentration in one part of the country surrounded by empty regions may be less efficient and less equitable than a more dispersed pattern of development. (5) The goal of national spatial integration and the union of the periphery and the core may be critical to the welfare of those countries with borders in dispute or potentially hostile neighbors.

It should be stressed that the "great city" approach implies more than spontaneous decentralization, since a positive planning strategy is needed to develop a metropolitan region in a manner consistent with growth and equity objectives.

large city. Thus, cities between ranks 2 and 6 make the most promising candidates. Location is not critical provided that the primate city and the countermagnet are at least several hundred miles apart. The major objection to this approach is that it requires a heavy spatial concentration of resources which, considered alongside the existing polarization in the primate city, is difficult to sell politically.

130. Nevertheless, the pay-off from a countermagnet strategy may be substantial. The point is that action near the top of the hierarchy makes it possible to alter the relative agglomeration pull of metropolitan areas with the long-term result that new regional urban hierarchies develop in the area around the countermagnet. Brasilia is the most familiar example. A similar case is the development in north Pakistan of Islamabad and the Taxila complex close to Rawalpindi, creating a third major metropolitan region (in addition to Karachi and Lahore). Paradoxically, the most effective method of remedying a deficiency of medium-sized towns may be not to stimulate them directly but to capitalize on the systemic interrelationships of the hierarchy by creating the conditions under which they may develop spontaneously.

131. The third type of strategy, the development of small cities in underdeveloped and sparsely populated rural peripheries, is risky because such centers are often too small to generate agglomeration economies. However, in many cases the population densities of the region and the market area population served by the center do not justify a large city. The costs of maintaining these centers may be much higher than those of cities of similar size in developed regions, but may be justifiable on welfare redistribution grounds. The desire to minimize these higher costs makes the location of these centers quite important. Sites of relatively high population potential and which are more accessible to existing and proposed interregional transportation arteries will tend to be the lower cost locations.

132. Finally, the development axis strategy is probably the least risky of all. In addition, it simplifies the problem of designing an efficient spatial distribution of cities since its locational prescriptions are clear-cut: mid-point sites if one center is to be developed, "beads on a string" where multiple centers are needed. Agglomeration economies along the axis are so strong and speed of movement so rapid that a fairly regular dispersion of cities on the axis is compatible with spatial efficiency. The drawback is that strengthening the axis will usually reinforce the end-point cities. If the terminals are the primate city and another high-order city, urbanization may become more rather than less polarized.

133. These guidelines do not support the hypothesis of a unique efficient spatial hierarchy. Spatial efficiency may be compatible with a variety of settlement distribution patterns. Relative size and distances are relevant to policy prescriptions, but policymakers should beware of the delusive symmetry implied by the central place and other regular spacing models. The important point is to design a national urban strategy that is consistent with policy objectives and to choose locations and sizes for policy-induced cities that economize on scarce capital resources.

f. Growth Poles 1/

134. Since growth pole* strategies have dominated spatial planning experience in many countries, both developed and developing, in the last decade and a half, and may have an explicit role in many national spatial strategies, a brief discussion of the concept and its application in LDCs is appropriate.

135. The original meaning of the concept was non-spatial. Borrowing from the Schumpeterian theory of innovations, Perroux defined a growth pole as a set of industries generating dynamic growth in the economy as a result of input-output interdependencies around a leading industry (industrie motrice). This group of industries grows faster than the rest of the economy, and have certain typical characteristics: advanced technology and high rates of innovation; high income elasticities of demand for their output; national markets; and strong spillover and multiplier effects on other parts of the economy. This describes a functional pole.

136. Boudeville and other French economists translated these ideas into geographical space, first by suggesting that the set of dynamic industries might be spatially clustered, second by linking this cluster to location in an urban area, and third by focusing on spillover effects in the surrounding hinterland rather than in the economy as a whole. A later dilution of the concept was to drop the base of an interrelated set of industries and to permit a growth pole to mean simply the geographical clustering of economic activity in general. This implies that spatial concentration is more efficient and more growth-inducing than dispersal. Thus, the focus has shifted from the intersectoral impacts of key industries to the benefits of spatial agglomeration and polarization effects over space. For spatial spillovers* to be generated, prerequisites include a highly developed infrastructure, provision of centrally supplied public and social services, a demand for labor and other resources from the hinterland, and in LDCs the diffusion of a growth mentality from the city over a wider region.

137. The growth pole approach is appealing to policymakers because it appears to offer opportunities for integrating industrial policy, physical planning and interregional economic planning. The pole is not an isolated center of agglomeration but is one component in the structure of the space economy. Especially in a developing economy context, the pole can be a link between national economic planning and intraregional planning. The use of growth pole strategies to fill gaps in the national urban hierarchy may help to build a national urban system capable of diffusing developmental impulses and innovations, especially from the core to the periphery.

1/ The terms "growth pole" and "growth center" may be used interchangeably, though some economists and planners like to draw clear definitional lines. If an industrial pole is being discussed, the term "functional pole" is more precise.

138. But the questions of when and how to implement such a strategy are difficult to answer. With regard to size, for instance, the determination of efficient size cannot be divorced from the problem of location in space and distance from other centers. In any event, growth pole planners have been too influenced by size considerations since the range of efficient sizes may be quite wide. Furthermore, size depends on the function of the pole which may vary widely between urbanized and rural regions, or according to whether the pole is a national or regional pole. Particularly in an LDC context, strategies must reflect broader considerations than the narrowly economic, such as using spatial planning to organize administrative capacity or treating the pole as an instrument of social change.

139. Another difficulty is the risk of a pole becoming an isolated enclave*. 1/ Usually a critical objective of a pole is to generate area-wide development. Unfortunately, negative spatial spillovers ("backwash" effects) are created long before the favorable spillovers ("spread" effects), so that a pole has to be in operation for many years before its hinterland shows signs of development (Richardson, 1976b). The national sectoral poles, in particular, are more likely to fail as nodes of regional development; indeed, national success may be highly correlated with regional failure.

140. An additional problem is the number of poles to be designated. Since initial infrastructure costs are heavy, more poles mean lower prospects of success because of subthreshold momentum, especially in capital-poor LDCs. Too few poles, on the other hand, imply a very limited ability to influence the national settlement pattern, at least in the medium run. 2/

141. Finally, a pole's success may depend heavily on parallel investments in transportation infrastructure to link it with the core regions. However, these may have undesirable short-run effects. Given the scarcity of resources for transportation, intraregional transportation networks will be delayed, and the enclave characteristics of the pole will be reinforced. In addition, the interregional transportation network opens up the core to the periphery as well as vice versa. The result may be accelerated polarization towards the core regions. These initial costs may be the price of eventual success.

1/ In many LDCs, Mexico is one example, towns and cities are not closely integrated with their hinterlands. Also, urban growth has tended to weaken rather than promote integration. This lack of integration does not appear to have handicapped the growth of cities. For instance, Monterrey has become a much more prominent industrial center than Guadalajara in spite of a weak, inhospitable hinterland, poor communications and greater distance from the national market.

2/ If the population of a primate city expands by several million in a decade, a substantial number of secondary cities will have to double their populations in the same time interval to make any dent in increasing primacy.

142. The relevance of growth poles to spatial planning in developing countries depends upon whether or not one believes that it is a developed world concept only applicable in the developed world. If agglomeration economies are universal, the argument that the pole concept is ideology bound, i.e., a product of capitalist society, is weak. 1/ But there are other arguments that merit attention. For example, the large-scale industrial complex approach (i.e., the functional pole idea) generally has hitherto had a negligible success rate in developing countries, especially in the early stages of development. 2/ More generally, poles may be most appropriate where the industrial structure contains large, innovation-conscious firms willing to set up branch plants in intermediate cities (Lasuen, 1969). Many LDCs have monopolistic industrial structures in a few scale-economy industries with most industries being small-scale, immobile and without much of a generative impact. Locational shifts to selected poles in the periphery are difficult to induce because of: overestimation of the returns in core regions; locational preferences of managers for metropolitan lifestyles; the prevalence of temporary and sometimes small fiscal relocation incentives; and the importance of being close to the government in order to benefit from protectionist measures, state contracts and subsidies.

143. In LDCs with primate city size distributions special problems arise. There may be few small cities capable of functioning as growth centers, due to sub-threshold size or the absence of a regional or national economic base. The hard choices may be between stagnating existing cities or untested "green field" sites, and between peripheral centers in backward regions (the most desirable?) or subcenters in the core region (the most feasible?). The middle class elite, entrepreneurs and managerial talent cluster in the primate city, and it is very difficult to persuade them to live in smaller cities.

144. Many LDCs are highly centralized, and this inhibits a successful growth center strategy which is most effective in countries where there has been a degree of administrative and political decentralization. In the words of Friedmann (1975, p. 13), "the spatial distribution of power influences the growth and development of urban systems and, at a higher level of synthesis, also the spatial patterns of integration of a national society." In any event, the lack of technical assistance at the local level makes the implementation of growth pole strategies very difficult.

1/ Of course, the opportunities for exploiting inter-urban agglomeration economy linkages are much more limited in the LDCs than in developed countries. For a discussion of these linkages, see Bergsman et al (1972), Erickson (1975) and Pred (1976b).

2/ The manufacturing poles of Malaysia, for example, have been at best only partial successes. Industrial output targets have not often been reached, high capital intensity and import-substitution bias have encouraged enclave development, and the big cities have continued to receive the bulk of infrastructure expenditures.

145. National urban systems in LDCs tend to be relatively deficient in interconnections (communication, transportation, and resource flows). This makes growth centers less effective because they function best as part of an interdependent interurban network. 1/ The implicit policies, e.g., industrial organization, social welfare policy, human resource strategies, and administrative decentralization, have to be made compatible with growth center strategies if the latter are to be successful.

146. In short, despite its origins, the growth center concept is relevant to LDCs provided that it is modified to reflect their conditions. These modifications include: scepticism about the value of large-scale industrial complexes (functional poles) without complementary social and institutional actions; flexibility in size, location and choice of growth centers; adaptation of concept to the characteristics of the individual country (size and shape, topography, climate, population densities, social institutions, political structure, etc.); avoiding the dissipation of resources by too many designations and by underutilization of capital; policies to reduce the enclave characteristics of poles; political will and a long-term time horizon. Above all, a growth center strategy should not imply "pinpoint" planning but should be framed within the wider context of a national spatial strategy, and should be supported by consistent non-spatial policies.

147. Finally, growth centers may play diverse roles and may be implemented at very different levels. One extreme is the concentration of services, infrastructure and processing and marketing facilities at selected locations in the polkadot pattern of villages that form the rural landscape (rural poles). At the other extreme, frequently appropriate in primate economies, is a metropolitan countermagnet strategy (see paras. 129-130), implying the creation of one massive pole (or, at most, two or three) at a considerable distance from the primate city. 2/ Since the countermagnet approach implies the relative neglect of much of the country, it needs to be accompanied by complementary measures, especially policies to improve the rural settlement pattern. Also, a countermagnet makes little sense unless it is regarded as only an early phase in the construction of a spatially integrated national urban hierarchy.

1/ Pred (1976b) has argued that the inter-urban transmission mechanism is a more important dimension of growth center strategies than the pole-hinterland relationship.

2/ For example, in Korea the industrial growth pole at Ulsan in the South has helped to cement a Busan countermagnet strategy. More recently, Gwangju, located in a depressed region, has been designated as a major pole to promote a "balanced triangular pole system" based on Seoul, Busan and Gwangju (UNCRD, 1976). However, this strategy is very ambitious in view of the differences in the size of these cities.

g. The Selection of Small and Medium-Size Cities

148. Most attempts to implement a national urban growth strategy will involve the explicit promotion of secondary cities, since a key objective of such a strategy is, almost invariably, to attempt to moderate the growth of the leading city and often other major metropolises. But this common theme breaks apart when the content of a "promotion of secondary cities" strategy is examined. The definition of a secondary city may range from a "countermagnet" of many hundreds of thousands to a small rural service center of less than 10,000. 1/ The range of functions and degree of specialization are also very wide, from regional metropolises, highly diversified with important quaternary service functions through specialized industrial or extractive towns to urban centers supplying basic marketing and social services to sparse rural populations. 2/ Moreover, the locations of secondary cities will also vary widely depending on the scope and objectives of the overall strategy. Some may be found in the core region to cement metropolitan decentralization, others may be on national development axes or interregional transportation corridors, or in frontier regions, or again in rural areas.

149. Policymakers may wish to promote cities in different size classes for a variety of reasons: to decelerate metropolitan growth, to improve metropolitan regional structures via decentralization, to narrow interregional levels of welfare by more equal provision of services, to divert migrants, to offer rural populations accessibility to urban services, to achieve national sectoral targets, to promote an efficient spatial diffusion network, and so on. The questions of size, location and function will be partly answered by reference to the appropriate policy objective. Fortunately, this will also help to identify the most suitable choices for city promotion.

150. A preliminary point of some importance is that the choice will usually be restricted to existing urban areas. If greenfield sites were included among the possibilities, the identification problem would be much more complex. But new towns are unlikely to have much of a role in the

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1/ This wide range of city sizes may be the object of spatial policies even within the same country. In Pakistan, for example, all the following might qualify as growth center strategies: the development of Islamabad as the national capital; the establishment of a large-scale industrial complex and defense establishment at Taxila/Wah; the Agroville programme involving the promotion of medium-sized towns (hopefully to 50,000 or larger) in rural areas; and the agricultural service centers (Marakarz centers). The latter two (especially since the average size of the Agrovilles is presently only about 7,200) have little prospect of having much influence on the settlement pattern, though they could make a difference to the efficiency of rural areas at the micro-level (IBRD, 1976c).

2/ For a comprehensive discussion of approaches to the development of small urban centers see Rondinelli and Ruddle (1976).

national urban strategies of LDCs. 1/ The reason is that in most LDCs there is an acute capital constraint, and it is much cheaper to expand an existing town than to build a new one from scratch. A possible exception is that planned decentralization out of the primate city may justify a new satellite town, partly because infrastructure costs within the primate city may also be heavy, partly because the satellite's growth can often be guaranteed thereby minimizing waste in the utilization of infrastructure, partly because integrated residence-workplace towns may be easier to design as new rather than by adapting existing settlements, and partly because a range of housing and services may be required to attract the needed personnel.

151. Many of the guidelines are quite obvious. Development of a hierarchical spatial diffusion network demands town selections that are close to existing or planned transportation and communication networks. Bringing services to rural areas will point to selections from the existing rural settlement structure according to the criteria of size and accessibility. The favored sites for expanding manufacturing towns can draw upon industrial location theory with most choices boiling down to materials- or market-orientation. The best candidates for regional metropolises will usually be the currently largest cities of the region. Intervening poles (see para. 110) will need to lie between the traditional migrant origins and the major destination cities, preferably on the direct migratory route.

152. The listing of additional examples will not lead to the derivation of firm generalizations about the identification of cities to be promoted. This problem is not necessarily difficult, but it requires specific information in the form of policy objectives, knowledge of the alternative sites, and so on. The policy objectives will provide clues as to appropriate size range, functions and location. Existing functions need not constrain a town's future functions. On the other hand, spontaneously growing cities are excellent candidates for selection, since policies can swim with the stream much more effectively than against it. 2/ If the objectives of a national spatial strategy are multidimensional, as they usually are, an individual selection

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1/ Exceptions include satellite new towns built close to a primate city, e.g. Petaling Jaya near Kuala Lumpur in Malaysia which was modeled on the early British new towns. A more ambitious example is that of New Bombay, an attempt to bypass the obstacles to improvement in the existing city by building, in effect, a second city across the bay.

2/ Sound candidates for expansion may be easy to find among the size classes which are increasing their urban population share most rapidly. These include the 100,000 - 400,000 class in Mexico (growing twice as fast as Mexico City), 100,000 - 250,000 in Brazil, less than 100,000 in Indonesia, greater than 100,000 in India and Pakistan and 100,000 - 200,000 in Korea (since 1970). The situation would be different in Africa where, apart from the primate cities, there are few cities of these sizes (apart from in Nigeria which contains about one-half of the sixty or so towns larger than 60,000). The Latin American and Asian experience, however, is reasonably consistent indicating growth potential among cities somewhat larger than 100,000.

may serve multiple ends. An understanding of local migration flows and other forms of spatial interaction may help to resolve difficult choices among competing cities. The lack of a general theory of site selection does not necessarily imply that designating growth centers is going to be an inordinately difficult problem in a specific, concrete case.

h. The Timing and Scale of Intervention

153. Drawing upon the experience of developed countries (not an infallible guide), there is some evidence that at an advanced level of economic development and with a high degree of urbanization, the largest cities stop growing (or at least grow more slowly than other cities in the system) or spill over their former boundaries in a rampant decentralization that reinforces smaller cities in the metropolitan region. Although in some cases this may be influenced by policy measures, in general these trends appear to be spontaneous. Turning to developing countries, few would envisage a situation where the only conceivable spatial equilibrium was one in which all the urban population was concentrated in a single city. In a few countries (e.g. Brazil, India, Korea, even Mexico), the intermediate cities are already growing faster than the primate city. Over the next generation or two, this reversal of past trends may become more or less universal. The question at issue is not so much whether primate distributions will eventually give way to a decentralized national urban hierarchy, but whether policymakers should give decentralization a push, how big the push and when.

154. There are virtually no ground rules to guide answers to these questions. 1/ Much will depend on the policy objectives of the country. An economy dedicated more to higher economic efficiency than interarea equity may prefer to allow economic concentration to continue, especially if the empirical association between productivity and city size class is accepted. The equity-conscious society, on the other hand, or a society with broad ambitious social goals (equalization of welfare, a large and viable agriculture and rural population), may be willing to promote decentralization now even at the expense of short-run costs in economic efficiency. But the question remains: How much of available investment resources should be pumped into decentralization efforts?

155. One variable is the relative agglomeration economies of big cities and small. The results may vary from one country to another, but there are few countries where in present circumstances small and intermediate cities are as promising locations for mobile industry as the large cities (leaving aside resource-based industries by classifying them as immobile). 2/ The spontaneous location decisions of entrepreneurs may signal when this situation is changing. When businesses begin to take a serious look at decentralized locations they may suggest the time is ripe for government to internalize some of the externalities. The provision of industrial estates, infrastructure

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1/ The earlier discussion of polarization reversal (see paras. 38-51) attempts to deal with the question at the conceptual level.

2/ Exceptions to this generalization are countries where a transportation system already exists because of earlier administrative or military requirements.

investments or relocation subsidies figure among the policy alternatives. If information is available about neglected investment opportunities in smaller cities, governments may act as partners with private industry or even as trail-blazing pioneers using government-owned plants to demonstrate the viability of untested locations.

156. Another generalization is that the costs of infrastructure provision are lower in the concentration (primate) case than in the decentralization case. This does not contradict the sketchy evidence that some kinds of public service costs per capita increase with city size, but rather emphasizes that a decentralized urban system demands heavy capital requirements for interurban transportation and communications. 1/ Also, marginal additions in the larger cities contrast with the heavy costs of overcoming minimum infrastructure thresholds in small urban areas. However, at some phase the larger cities may encounter new thresholds requiring even higher capital costs, and this may indicate a propitious moment to initiate decentralization.

157. The scale of such efforts will depend on a variety of specific circumstances, including not only policy objectives but also the capital shortage of the economy, the pattern of current and desired migration flows, the number of feasible, attractive locations and the forecast rate of economic growth. In most cases, large-scale expenditures in a few cities are a less risky strategy than minor investments at a large number of designated locations. 2/ If the limited choice locations are successful, it will subsequently be worthwhile to expand the number of designated cities and the spatial span of decentralization efforts. However, this concentrated approach to dispersion policy demands establishing priorities among locations and selection of cities to receive the first, and heavy, infrastructure investments. This poses similar problems to the identification of growth centers, except that the criteria are somewhat different: the need for an efficient decentralization strategy at minimum cost in infrastructure investments; promotion of national spatial integration in the long-run; and the development of an effective spatial diffusion network.

1/ For example, in Thailand the attempt to promote a growth center at Khon Khaen in the 1960s was a disastrous failure. The dominance of Bangkok was simply too great. Similarly, the prospects for growth centers in Kenya (Kisumu, Nyeri, Kakamega, Eldoret, Nakuru, Emba and Thika) are dubious in view of the dominance of Nairobi and Mombasa.

2/ There are severe political obstacles in the way of implementing such a strategy. Each city of intermediate size (or at least the major city in each region) is likely to make a claim on resources, and -- especially in Federal countries -- the government will find it difficult to resist all the claims.

i. Alternatives to National Strategies

158. Since the nation state is an arbitrary way of dividing up space, the question arises as to whether spatial strategies are best conceived at the national, sub-national or supra-national levels. The general assumption is that the national level is most appropriate but some discussion of alternatives is warranted.

159. For example, some countries are so large and their regions so very different that sub-national regional hierarchies appear very distinct whereas the national urban hierarchy is in some senses an artificial conglomeration. Brazil may be an example of this kind. 1/ The city size distributions make more sense as regional groupings: the developed South East and South; the underdeveloped but heavily populated North East; and the sparsely populated North and Center-West. These groups contained respectively 180, 58 and 19 cities larger than 20,000 (1970 Census data). National prescriptions for metropolitan decentralization or for promoting intermediate cities made little sense in the Amazonian regions where a small town would, to the extent that they existed, provide high-order services.

160. At the other extreme, spatial strategies may also in some circumstances be more effective at the international level. 2/ Latin America, Africa and South East Asia are three areas where hierarchies might be promoted across subsets of nations. Cooperation among LDCs might be strengthened via the fostering of linkages among the leading cities of contiguous countries. These will not develop spontaneously because of the distortions to their city size distributions that resulted from the colonial phase of development when intercountry links were channelled through the metropolitan centers (e.g. London). This explains why continental or sub-continental urban hierarchies 3/ are much weaker in the developing world than in, say, Western Europe.

1/ In the developed world, the United States may fit this situation. In spite of a rank-size national distribution and a very advanced national communications and transportation network, the national urban hierarchy easily decomposes into subsets at the regional and multiregional levels.

2/ In Mexico, for example, contrast the differential economic performance of the two peripheries, in the North West bordering on the United States and in Yucatan bordering on Central America. The growth of the northern border cities, reinforced by the Border Industrialization Programme, is undoubtedly due to their linkages with Southern California and Taxas.

3/ Promotion of continental hierarchies is not incompatible with priority to strengthening of the national urban hierarchy, since the continental hierarchy refers only to the highest levels, particularly the linkages between national capitals. See the arguments in the next paragraph.

161. The main reason for promoting international interurban linkages in LDCs is, of course, the fact that the urban hierarchy is a diffusion system (Pred, 1976a) and hence is an instrument of development. Especially in areas with very incomplete urban systems (e.g. Black Africa) it is insufficient to use the national urban system to canalize economic and social change. 1/ Paradoxically, promoting stronger connections between the leading cities among countries may be an effective strategy for developing urban hierarchies within countries. Of course, this approach raises problems of timing and resource allocation. Investments for international communications and transport networks mean less resources for similar investments in less developed regions within countries, and ex-colonial territories may think they have had enough of such diversions. However, in this case the objectives and form of the strategy are very different. Nevertheless, the preference for this approach will reflect general societal objectives such as the importance of traditional values, the relative emphasis on agriculture and industry, the strength of nationalism and the state of political relations with neighboring countries.

162. Another form of international cooperation in spatial policies is promotion of multiple growth centers that spill over national boundaries. The feasibility of this requires certain preconditions: where the national boundaries split up a natural region; where individual centers within a country would be too small for a viable strategy; stability and good relations among the countries involved. Usually the scope for this type of policy is greatest where the centers to be developed are located in underdeveloped peripheral regions of a country that are difficult to integrate spatially with the rest of the national territory but where there is potential for local development on a regional scale. The idea of a Free Trade Zone is another policy on similar lines.

163. Nevertheless, in spite of these exceptions, most spatial strategies and city size distribution policies are framed in national terms. The reasons for this are easy to understand. National boundaries constitute strong barriers to spatial interaction. Policy instruments are conceived at the national level, and differences in their type and intensity among countries are sufficiently strong to make harmonization difficult. Nationalist feelings are strong in a great many LDCs, and this favors national policies as well as providing an incentive for measures that promote national spatial integration, even in the short-run.

1/ The Sahel region of West Africa, an area embracing six countries (Chad, Mali, Mauritania, Niger, Senegal and Upper Volta), is a case in point. The urban population is expected to treble between 1975 and 2000 whereas the total population will less than double. Yet the urban share would remain relatively small, less than 25 percent, with the total urban population less than 12 million (Cohen, Agunbiade and Antelin, 1976). Taking account of the severe problems of Sahelian agriculture and the currently limited absorptive capacity of the towns, it is arguable that only a multinational approach to urban development strategies offers even the slightest chance of success.

CHAPTER V: MAXIMS AND RESEARCH PRIORITIES

a. Maxims of Spatial Policy

164. Perhaps the most serious obstacle in the way of generalizing on principles of spatial policy in developing countries is the diversity of experience, economic performance, political and social characteristics, and institutional environment among individual countries. To some extent, the problem may be simplified by breaking down the world into regional blocs -- Latin America, the Indian sub-continent, South East Asia, the Middle East, North Africa, Africa south of the Sahara, and so on -- but even this route is fraught with danger since such aggregation often masks critical differences. Nevertheless, since any manageable survey cannot touch upon every case, or even a small minority of cases, generalization is inevitable. This may offer coherence, but at a cost. Accordingly, if the generalizations conflict with the specific prescriptions falling out of a detailed evaluation of any individual country, the generalizations should give way in the absence of outside supporting evidence.

165. The scope of the generalizations is broader than mere policy guidelines. Since objectives are at least as important as instruments, it is important to include generalizations about economic and spatial influences that may constrain the set of feasible objectives. Spatial policy instruments are important but the context in which these instruments are applied is even more important.

166. The experience of developed countries is of dubious value in suggesting policy guidelines. The urban settlement pattern has been long-established in most developed countries, or has resulted from immigration from overseas into a more or less unsettled territory. Now the rates of demographic change are very low so that there are few spontaneous forces generating major changes in the settlement pattern. Both interregional and intraregional transport networks are in existence, and few areas are isolated or inaccessible in the sense found in developing countries. The capital constraint is not serious, and in any event the demand for capital for urban infrastructure is relatively modest. The distribution of income is more equal, among both persons and areas. The role of the government is quite different, much more an instrument of stability and an arbiter among group interests than a generator of growth. Yet despite these and many other differences, most of the empirical generalizations about city size and national spatial strategies are derived from developed countries, and there is a strong temptation to transfer these to the LDC context. This naivete can lead to inappropriate prescriptions.

167. The idea of a universal strategy applicable in all countries is invalid. The diversity of countries is an obvious fact. It is less obvious that this diversity makes a difference to the design of efficient and feasible spatial strategies. Yet prescriptions vary not only because spatial structures are heterogenous as are geographical variables (size, topography, climate, etc.), but even more because policy objectives vary while the choice

of efficient instruments is constrained by politics, social structure and culture. Nevertheless, although the details of a spatial strategy will alter from place to place, any sound strategy must conform to certain broad general principles: that agglomeration economies exist; that both spatial concentration and dispersion confer costs and benefits, and in the absence of precise measurement judgmental influences are unavoidable; that centers should not be planned independently of transportation and communication linkages; that urban promotion and control strategies and rural development are complementary; and so on. A selected strategy must reconcile these general principles and the specifics of each country's environment. This can mean striking differences in policies.

168. Rural-urban migration will continue possibly even in a rural based collectivist society. In countries where a low level of development coincides with a majority of the population on the land, both industrialization and agricultural improvement will make for an increase in urbanization (the urban/total population share). 1/ To expect otherwise will result in inappropriate policies.

169. Rural development policies must be an element of any reasonable settlement strategy. Some analysts argue that rural development is the key to effective national spatial policies because this approach attacks the problem at source, i.e. would prevent rural outmigration. This is too optimistic in almost all cases. The "Chinese solution" may be one exception; the diminution of the rural population to a minimum threshold level is another (in fact, a limiting case achieved only in a few developed countries, and unknown in developing countries). Nevertheless, it is important to pay attention to rural areas even in the most metropolitan-oriented strategy. One dominant reason is interpersonal equity (people in rural areas are usually much poorer than those in cities); another is the need for a larger food surplus to supply the urban population at minimum cost in terms of imports. The absolute numbers living in rural areas are usually large, and in most cases a policy of raising agricultural productivity will reduce the numbers employed on the land. A successful rural development strategy would need to boost agricultural efficiency, to create a stable rural settlement pattern that would offer the possibility of improved living standards and quality of life to the rural population, and to facilitate any consequential rural-urban migration flows (this last objective would also demand complementary policies in urban areas). Indeed, it is very important to recognize the complementary rather than the competing nature of rural and urban strategies. An urban-oriented approach requires rural measures to feed the towns and, if compatible, to moderate the migration flow. A rural-oriented approach, on the other hand, cannot afford to neglect the large numbers of poor already in the cities while urbanization and industrialization are important demand stimuli for rural output.

1/ In view of the current birth rates in LDCs, and no signs of a marked downward shift, this is an understatement. Urbanization trends may accelerate rather than slow down. This implies that rural inmigration will swamp the urban-rural birth rate differential.

170. The large cities offer agglomeration economies for most types of economic activity. The literature on big cities stresses their social costs heavily. How serious these are is debatable, but also -- from a particular perspective -- irrelevant. The social costs mainly affect the population, especially the poor, while the agglomeration economies benefit industry. Indeed, in some respects what is bad for households (e.g., rapid inmigration) may be good for business firms. The presence of poverty, pollution, inadequate housing and other LDC metropolis symptoms has no direct impact on the attractiveness of these cities to business. In general, it is not irrational for business enterprise to want to remain in the big city, and industry is unlikely to respond to laments about the extent of social costs. There is no evidence that this inertia is confined to foreign enterprise; local firms or state corporations may be as reluctant to relocate.

171. The size of a city is not a relevant policy variable. There is no direct correspondence between size of city and economic function, especially as we descend the urban hierarchy. Size and location considered together may be superior predictors, in the sense that a city of size n in a peripheral rural region will have very different functions from a city of that size thirty miles from the primate city in the core region. Nevertheless, even this joint predictor is too unreliable to be taken seriously. Economic specialization among cities and the degree of a node's interaction with its hinterland also break up the size-function relationship. The safest course is to exclude city size *per se* as a guideline for spatial policy. This complicates the problem severely, but the cost is necessary. Of course, this argument does not imply that there is no scope for spatial redistribution policies or even for action to alter the distribution of city sizes. But city size targets, either reducing the size of the bigger cities or boosting the small ones, are not a legitimate element in such policies. Of course, changes in city sizes will be a side-effect of policy.

172. There is no optimal city size distribution. In fact, the size distribution of cities cannot be evaluated independently of their spatial distribution, and the latter is affected by topography, history, level of development, area of the country, its total population and other variables. A primate city size distribution may be highly appropriate for a developing country, especially at a particular phase in its history, and improving the distribution should not be interpreted as attempting to move it towards a rank-size relationship. In a capital-scarce economy with low per capita incomes, the efficiency costs of a rank-size distribution may be intolerable. A typical argument is to find a kink in the middle of a rank-size curve, to relate that kink to a dearth of middle-sized cities and to prescribe measures for smoothing it out by promoting intermediate size centers. Such a strategy may be efficient in some cases, but it is inappropriate in others. For example, the case for intermediate cities on efficiency grounds is based on spurious, i.e., incomplete, cost per capita data for individual cities in isolation from the system as a whole. There are two sets of conditions in which a medium-sized city strategy is usually sound: first, in promoting industrial decentralization out of a major metropolis into its hinterland; second, where a rural area lacks a major regional service center.

173. The growth center idea is a useful but ambiguous concept. It was fashionable in the 1960s to designate any selected location for development as growth centers. This broadened the concept far from its original use as the spatial concentration of a large-scale industrial complex (functional pole). In more general definitions, there are several possible levels of growth center: rural service center, sub-regional center (either a higher-order center servicing a rural area or a small industrial town tied to a larger regional city), regional pole (usually a medium-to-large metropolitan area providing high-level services and/or with a substantial industrial base), and national pole (location for nationally important sectors or a node in the interregional transportation network). All may play a role in a national settlement strategy, even within a single country. The underlying rationale for growth centers (at all levels) is to capitalize on spatial economies of scale and/or to complete a network of communication and economic flows to capture all systemic effects. Conflict among policy objectives is reflected in the choice of national vs. regional poles. Although in lucky circumstances these may coincide, the more typical result is that they do not. In the latter case, the selection of national poles suggests the dominance of sectoral planning whereas regional pole strategies tend to give more emphasis to spatial distribution goals. The enclave characteristics of a pole have to be overcome eventually if the pole is to induce beneficial changes in the settlement pattern.

174. "Countermagnets" are often a feasible approach for changing heavily primate city size distributions. Although a primate distribution is not necessarily inefficient, there are circumstances where attempting to change it makes sound spatial policy, e.g., if national spatial integration is a policy objective, if there is population pressure in the core region, or if institutional or topographic obstacles prevent infrastructure provision in the primate city from expanding to keep more or less in pace with population growth. Since the primate city typically dominates the economy far more in industry, capital and professional elites than in population, a massive effort is needed to undermine this dominance -- hence the countermagnet strategy. Countermagnets must be big to be effective. Their locational choice is not necessarily restricted provided they are not too near the primate city to reinforce the long-run dominance of the core region. One possibility is a spatial counterbalance at the other end of the country; another is a much shorter development axis with the primate city as one end point. Sometimes a new countermagnet may be developed (e.g. Brasilia) though the capital costs are higher; more often, it will be advantageous to strengthen an existing city, either by expanding it contiguously or by promoting smaller new centers close by in a metropolitan multicentric region (e.g. Rawalpindi-Islamabad-Taxila in Pakistan). The major problems with countermagnets are: (i) the length of time needed to develop them (perhaps two generations) which demands exceptional political stamina and consistency; (ii) the danger of replicating the social and congestion costs of the primate city by failing to keep infrastructure and population growth in step.

175. Political, social, institutional and cultural constraints on the scope and nature of a national spatial strategy are as important as technical criteria. It is relatively easy to design spatial strategies that are strong in a technical sense (e.g. fill in gaps in the urban hierarchy, redistribute economic activity and population to further spatial equity goals) but which fail miserably because of neglect of the institutional environment in which they are implemented. There are many illustrations of this transparent but frequently ignored point: the industrial relocation incentives that do not take account of the structure of industry or entrepreneurial attachment to the metropolis; the rural development reforms that forget about the power and resistance of a landowning class; the plans for decentralizing infrastructure that do not discuss the availability of local administrative and professional personnel; the beautiful round numbers of urban population targets that are oblivious to the determinants of migrant behavior. Somehow, a middle way has to be steered between using the constraints as an excuse for inaction and going ahead with a technically sound but impractical plan that cannot be implemented because of disregard of political, social and institutional obstacles. Perhaps the task is impossible, but the important point is that criteria for evaluating alternative strategies should include these considerations alongside the technical elements.

176. The contradiction between the long time horizon for a national spatial strategy and the short-term political payoffs of economic policies makes implementation very difficult. Lack of resolution, over-optimistic expectations about rapid results, changes in direction -- sometimes but not always associated with changes in political leadership and in administrations -- the need for "trimming" to secure geographical bases of political support, these and similar difficulties mean that strategies, once designed, are rarely followed through after an initial spurt of activity. There are no clear-cut solutions. One tactic, which has the obvious drawback of perpetuating initial errors, is for the designers of a strategy to invest so much at the outset that the policy cannot be abandoned except at prohibitive cost. A preferable approach is to gain a broad consensus for a strategy, transcending political parties and interest groups, so that the spatial strategy is, in effect, taken outside politics. Unfortunately, this is easier said than done. Winning consensus requires a level of public and open discussion that is often not permitted within a developing country, either because of the political structure or the imperfect channels of communication. Even more important, since a spatial strategy implies discrimination in favor of some and against other areas and since political interests are frequently aligned regionally, the issue is frankly political. One possible approach is to develop an institution or agency responsible for the strategy outside the center of the political arena. This too creates problems. The agency may become excessively bureaucratic, inflexible and unresponsive, or it may be castrated by the denial of support funds and investible resources from the executive or legislature.

177. The timing of intervention in spatial policy is critical. A national urban strategy requires a higher proportion of investment in infrastructure, with a commensurately lower share in industry. Partly because of the longer payoff period, the social rate of return from infrastructure investments may be much lower than the market rate of return from industrial sectoral investments. Thus, the opportunity costs of a spatial strategy may be unacceptably high, especially in the early years of development. This indicates some of the dangers from premature intervention. On the other hand, the gains from a sensible and viable spatial strategy are greatest when the population is growing rapidly and when urbanization rates are high. If fertility and migration rates are functions of the degree of urbanization and the level of development, the national urban hierarchy and spatial distribution may change quite rapidly from being flexible and pliable to being fossilized and very difficult to change. Even if dispersion occurs, the spatial distribution of the economy may be far from efficient. The costs of belated intervention, therefore, may be heavy. On the other hand, it is important to coordinate infrastructure investments and industrial development and to keep them in approximate balance.

178. Migration flows are difficult to control directly. The key indirect instruments are: (i) location of industry policies and (ii) public, urban and industrial infrastructure decisions. In developed countries, the latter may be more important since levels of public services and general quality of life variables enter into migration decisions (and entrepreneurial location decisions). In developing countries this argument is much weaker. Migration flows are still predominantly rural-urban rather than interurban as in developed countries, and rural outmigrants are not used to a high level of infrastructure and public service provision and may remain relatively deprived in this respect when they move to the cities. Accordingly, the availability of jobs is the most powerful influence on the direction of migration flows, increasing the relative importance of location of industry policies.

b. Some Research Priorities

179. Very little evidence (other than crude occupational data) is available on the economic structure of cities of different size in LDCs. Such research would help to test the hypothesis that manufacturing activity in LDCs is disproportionately concentrated in the largest cities. Particularly elusive is hard information on the extent of small-scale manufacturing, its role in job creation and the contribution it makes to urban income and welfare.

180. Rather than abstract theorizing or inconclusive empirical research on the concept of optimal city size, it would be more productive to undertake research on threshold city sizes for cities performing different functions -- rural service centers, manufacturing towns, growth centers, regional metropolises, and so on. It is also important to compare threshold levels of service costs for industry with those for households. Some evidence is available for developed countries but not for LDCs. Although the results may

vary from one environment to another (e.g. in intercontinental comparisons), since cost conditions differ among countries, there should be sufficient uniformity (at least in terms of size ranges) to offer policy guidelines.

181. Assuming that either economic or general societal objectives justify a strategy of decentralization in the sense of promoting cities and towns smaller than the national metropolis and other leading cities in the hierarchy, policymakers are faced with at least four hard questions: When? Where? How? On what scale? We have insufficient knowledge of the evolution of national urban systems to be able to answer these questions with any degree of assurance. An important research priority is detailed studies of the growth and changing structure of the national urban hierarchy in contemporary LDCs and historical analysis of the same process in developed countries. A key focal point is polarization reversal (PR), i.e., when the forces of spatial concentration begin to give way to dispersion tendencies, and the degree to which the process is linked to different phases in economic development (e.g., there are incipient signs of PR in "transitional" economies such as Brazil 1/ and Korea 2/). Analysis of this transformation, even in a market economy, may shed light on how decentralization may be efficiently induced in more interventionist economies.

182. An important research priority is analysis, within an LDC context, of what types of city size distribution offer the best compromise between the hierarchy needed for the production and distribution of goods and services and that required for the transmission and diffusion of growth impulses and innovation over national space. 3/ Although there have been many studies of hierarchical diffusion in developed countries, and even one

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1/ The Brazilian experience is encouraging. Out of nine metropolitan regions, three are already decentralizing to their peripheries (Sao Paulo, Rio and Porto Alegre) and two are decentralizing to their hinterlands (Belo Horizonte, Recife) (Barat and Geiger, 1973). In the 1960s the employment share of cities in the 100,000 - 250,000 size class increased from 3.7 to 9.0 percent while the shares of Rio and Sao Paulo remained unchanged. Productivity in the 1/4 - 1/2 million range was as high as in the two major metropolises (Tolosa, 1975). Since one-half of these cities were in the South East, it supports the hypothesis that decentralization and dispersion were related to earlier metropolitan concentration.

2/ The population growth rate of Seoul was halved to 4.5 percent in the years 1970-75 compared with 1965-70.

3/ In a few exceptional cases, innovations flow upwards from the countryside, and from the periphery to the core. China is the most notable example of this kind (Salter, 1974).

or two in LDCs (Pedersen, 1970; 1975), we know very little about what might constitute an efficient distribution of city sizes. There are strong grounds for the belief that highly primate distributions are far from ideal from the point of view of long-run development, even if they might have a temporary justification in terms of economy of capital costs. A probable outcome of such research is that an efficient hierarchy may take on a variety of different forms and structures. Although relative sizes and distances are important (von Boventer, 1975), we should beware of the delusion of "geometries of population distribution" (Alonso, 1971a). If this hunch about flexibility is correct, it reduces the strain on LDC spatial policymakers since infrastructure location decisions then become somewhat less critical than appears at first sight.

183. It is obvious that size of a country makes a difference to the need for and scope of a city size strategy: the prescriptions for Brazil and for a small Caribbean country, for example, can hardly be reduced to a common denominator. Agglomeration economies decay with distance, so that once a country reaches a certain size, high order functions cannot be supplied to the nation as a whole from the primate city, even if it is located centrally. The key problem is determining the threshold where the size of the national space economy makes a difference. This is a question hardly touched upon in current research. In fact, the issue of the size of the national territory is only a specific case of the more general proposition that individual characteristics of the country, its institutional environment, location, and culture, influence the most appropriate spatial strategy which should be adopted. For instance, a small landlocked country surrounded by other small countries might be better advised to consider a multinational urban hierarchy strategy in which development diffusion was planned on an international scale (this argument for regional integration has been ignored in the economic integration literature). How far we can afford to generalize is a question that cannot be answered without much more research.

184. A difficult area, but a critical one, is how the design and implementation of a spatial strategy is affected by (i) the nature of a country's economic planning system and (ii) its political structure. The prima facie argument is that the more market-oriented a country's economy the less easy it is to introduce effective spatial planning. On the other hand, LDCs with strong national economic planning systems tend to be heavily biased in favor of sectoral planning, subordinating spatial planning to a secondary role (this bias is a rational response to the persistent scarcity of trained planners). Spatial measures, by definition, discriminate in favor of some areas and against others. Most democratically elected regimes have political systems with voting organized geographically so that neglect of the needs of certain cities and regions may have a high electoral cost. In many LDCs the distribution of political power between the cities and the rural areas will influence the strength of actions to inject scarce capital resources into urban infrastructure or of rural development strategies. Whether the political structure is federal or unitary may also have an impact. The presumption would be that federal systems should have a more decentralized pattern

of development, but especially in LDCs even federal systems are frequently so heavily centralized that this may be confounded. These considerations demand much more research by economic planners and political scientists.

185. Most LDCs suffer from serious deficiencies in their interurban (interregional) transportation and communication networks. Efficient transportation linkages are important for capitalizing on the systemic effects of the national urban hierarchy. 1/ If both the urban hierarchy and the transportation network are incomplete, urban infrastructure and transportation investments must be kept in step. Research on the implementation of spatial strategies has tended to neglect the role of the transportation system. How much should be invested in the transportation network? Where? At what capacity? How should the development of the network be phased? What risks are involved in investing in the urban infrastructure of a peripheral city if it is inadequately connected to the rest of the space economy? Resolving these questions requires joint research on urban spatial structure and on the national transportation network, whereas urban spatial strategists and transportation analysts have usually worked independently.

186. More research is needed on the relative effectiveness of industrial location subsidies and infrastructure subsidies in LDCs. There may be no general answer, since much depends on the economic and social conditions of each country such as the degree of reliance on the private sector, per capita incomes and expectations of the population, and the structure and maturity of the national urban hierarchy. The most satisfactory research approach would be a cross-sectional study of a sample of LDCs.

187. This report has stressed the importance of implicit spatial policies as influences on the spatial distribution of population and economic activity in general and on the national urban hierarchy in particular. Yet although it is clear that almost all economic and social policies have spatial impacts, a satisfactory methodology has yet to be developed for measuring the net spatial impacts of several non-spatial policies operating simultaneously and for separating out these impacts from those of spatial policies. Without such a methodology it will be difficult to ensure that spatial and non-spatial policies are mutually consistent and it will be hard to determine the strength with which a particular spatial measure should be applied.

188. Agglomeration economies are a complex "catch-all" category of polarization effects that are important in explaining the role of urban centers in economic development. Although they can be classified in a variety of ways (e.g. see Richardson, 1973b), little is known about which agglomeration economies might be critical in different phases of development and in dissimilar institutional environments. The role of agglomeration economies in the growth of LDC cities and their measurement is a major priority for research.

1/ In Mexico, transportation improvements after 1940 appear to have had little impact on the spatial distribution of the national urban hierarchy. But cities with the highest levels of accessibility in 1940 appear to have grown fastest since then. See IBRD (1976a, Vol. I).

Table 1

POPULATION DISTRIBUTION IN THE DEVELOPING WORLD

	Year	Population (m.)	Percentage Distribution				
			Rural	Urban			
				I	II	III	IV
Northern Africa	1950	52.044	75.4	9.8	4.5	3.4	6.8
	1960	66.012	70.4	11.3	6.5	3.8	8.0
	1970	85.095	65.4	13.5	7.7	2.6	10.7
Western Africa	1950	58.619	89.4	7.8	2.8	-	-
	1960	82.076	85.3	9.8	4.3	0.7	-
	1970	111.890	80.3	12.3	4.8	2.6	-
Eastern Africa	1950	59.828	94.4	4.2	1.4	-	-
	1960	76.251	92.5	4.7	2.8	-	-
	1970	97.242	90.1	5.0	3.7	1.2	-
Middle and Southern Africa	1950	26.321	93.4	4.9	1.7	-	-
	1960	31.487	88.4	7.1	4.5	-	-
	1970	38.297	84.6	9.4	4.5	1.5	-
Middle America	1950	34.670	60.8	25.5	7.2	-	6.4
	1960	46.917	53.8	28.9	8.4	2.8	6.0
	1970	67.404	47.0	32.9	9.3	1.9	8.8
Caribbean	1950	16.261	64.8	20.8	7.7	-	6.6
	1960	20.252	61.5	21.1	7.0	2.7	7.6
	1970	25.752	57.5	21.8	6.2	7.9	6.6
Tropical South America	1950	83.646	64.2	19.3	6.4	3.5	6.6
	1960	113.490	55.3	20.9	8.1	3.0	12.7
	1970	149.910	46.9	20.9	6.9	5.0	20.2
Temperate South America	1950	5.561	40.9	20.8	9.6	4.4	24.3
	1960	6.268	35.0	19.5	10.8	6.9	27.8
	1970	7.020	29.8	18.1	9.9	7.4	34.8
East Asia	1950	601.392	87.9	4.1	2.8	1.9	3.2
	1960	721.281	82.0	6.2	3.0	2.1	6.7
	1970	817.575	74.7	9.2	3.7	1.5	10.9
South East Asia	1950	170.967	86.4	6.5	2.5	2.1	2.5
	1960	218.317	83.4	6.9	3.6	1.1	5.0
	1970	284.951	79.9	8.0	3.0	2.1	7.0

Table 1

(continued)

	Year	Population (m.)	Percentage Distribution				
			Rural	Urban			
				I	II	III	IV
Middle East	1950	61.669	75.8	13.7	6.3	2.5	1.7
	1960	80.381	70.5	14.4	8.6	2.5	4.1
	1970	103.235	64.5	13.8	9.2	4.5	8.1
South Central Asia	1950	462.705	84.8	8.0	3.2	1.0	3.0
	1960	560.766	83.6	8.0	3.8	0.8	3.8
	1970	705.889	82.2	8.0	3.8	1.5	4.5
Eastern Europe	1950	88.634	57.6	25.1	6.3	3.2	7.8
	1960	96.902	51.6	27.9	8.9	3.3	8.3
	1970	103.788	45.4	30.3	9.0	3.7	11.6
Oceania	1950	2.344	95.1	4.9	-	-	-
	1960	3.062	94.0	6.0	-	-	-
	1970	3.913	91.5	8.5	-	-	-

Source: K. Davis, World Urbanization 1950-1970, Vol. I (Berkeley: Population Monograph Series, No. 4, 1969)

Urban Size Classes: I =< 100,000; II = 100,000 < 500,000; III = 500,000 < 1,000,000; IV = > 1,000,000.

Notes: East Asia includes mainland China but excludes Japan; Eastern Europe excludes the USSR; Oceania excludes Australia and New Zealand.

Table 2

DEMOGRAPHIC, URBANIZATION AND SOCIO-ECONOMIC DATA: LATIN AMERICAN COUNTRIES

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
Argentina	24.35	1,080.0	22.5	8,400	34.5	3.0	1	4	11	16	2.22	57.5	4.03	79.4	0.80	8	2,687	1,530	10.4	8.1	799	17.8	F	68.9	87	36	39.9
Bolivia	4.66	419.5	11.1	564	12.1	2.3	0	1	1	2	0.40	19.6		63.0	0.56		1,156	780			122	63.4	U	97,8	12	8	
Brazil	93.24	3,275.5	28.4	7,849	8.4	6.4	6	5	25	36	18.36	28.1	0.77	44.7	1.36	5	3,000	1,813	10.0	9.8	375	51.6	F	58.0	49	15	50.2
Chile	9.78	286.4	34.2	2,781	28.4	3.1	1	0	5	6	3.49	54.7	3.97	71.4	1.26	12	2,400	1,000	5.3	6.5	453	27.7	U	97.5	80	22	60.3
Colombia	22.16	439.8	50.4	2,551	11.5	7.3	2	2	11	15	4.18	36.4	0.94	41.8	1.71		1,063	780	10.7	25.7	373	47.2	U	70.6	63	22	25.3
Cuba	8.34	41.6	200.5	1,963	23.5	0.9	1	0	5	6		42.3	2.48		1.06		908	908			516	41.5	U		78	22	
Ecuador	6.03	105.7	57.0	766	12.7	5.9	0	2	0	2	0.98	26.9		48.5	1.20	5	563	563			223	55.6	U	81.0	56	10	38.8
Mexico	50.72	763.9	66.4	8,360	16.5	2.3	3	1	19	23	18.71	29.6	1.22*	74.3	1.74	8	2,360	1,400	10.0	53.6	415	54.2	F	90.5	59	20	33.9
Paraguay	2.42	157.0	15.4	464	19.2	3.6	0	0	1	1	0.41	16.8		83.3	0.78						193	29.6	U	-	66	14	
Peru	13.59	514.1	26.4	2,815	20.7	5.1	1	0	3	4	3.29	28.9	5.32	81.7	1.37	7	1,438	1,125	12.0	24.2	269	49.7	U	95.6	42	-	70.9
Uruguay	2.89	72.2	40.0	1,415	49.0	4.7	1	0	0	1	0.90	61.3		86.7	1.62		500	500			561	17.9	U	-	95	-	
Venezuela	10.70	394.0	27.3	2,277	21.2	5.3	1	1	5	7	4.10	47.2	1.81	61.4	2.95	8	1,400	688	8.5	22.1	644	32.3	F	87.1	52	18	

* Mexico City defined as "Ciudad de Mexico" not the Federal District.

Key to the above table:

(1) Population 1970
(2) Area ('000 square miles)
(3) Population Density (Inhabitants per square mile)
(4) Size of Largest City, 1970
(5) Largest City Population as % of National Population
(6) Rate of growth of Largest City, 1960s (% per annum)
(7) Number of cities > 1 million
(8) Number of cities between 500,000 and 1 million
(9) Number of cities between 100,000 and 500,000
(10) Number of cities > 100,000
(11) Population in Urban Places < 100,000 (million)
(12) Percentage of Population in Towns of 20,000+
(13) Primacy Index A (Four-City Index)
(14) Primacy Index B
(15) Rural-Urban Migration Rates (% per annum)
(16) Number of Regions
(17) Maximum Distance between First Order Urban Centers and National Border (km.)
(18) Maximum Distance between First Order Urban Centers and peripheral populated (> 5 persons/km^2) areas
(19) Ratio of Maximum/Minimum Regional Income
(20) Percentage of Population in Areas with Income per Capita less than 50% of National Average
(21) Incomes per Capita ($,1961)
(22) Percentage of Labor Force in Agriculture, Forestry and Fishing
(23) Type of Political System (F = Federal; U = Unitary)
(24) Central Government Share in National Budget (%)
(25) Literacy Rate (%)
(26) Percentage of Population in Middle and Upper Class
(27) Percentage of manufacturing employment in largest industrial city

Table 3

URBAN AND RURAL CONDITIONS IN SIX ASIAN COUNTRIES

	India	Thailand	Philippines	West Malaysia	Indonesia	Korea
Ratio of urban to total population growth rates, 1960-70	1.58	1.68	1.74	2.00	2.26	2.55
% Urban Population (1970)	20	15	32	17	18	56
% Population Increase 1960-70 Absorbed in Rural Areas	75	76	55	62	70	30
Primacy (4-city index, 1970)	0.68	9.00	4.56	0.93	1.20	1.45
Rural/Urban Wage Ratio	0.57	0.43	0.40	0.40	0.75	0.88
Food as % of Total Imports	21	4	4	21	13	16

Source: Friedmann and Douglas (1976)

GLOSSARY OF TERMS

1. Most of the terms in this appendix lack a precise definition. Where alternative interpretations are possible, that chosen is the one closest to the way in which the term is used in the text. Since many of the terms refer to similar phenomena, their definitions are woven together in an overall description rather than defined separately term by term. This avoids tedious repetition. The para number where the term first appears is given in parentheses.

2. Urbanization (para. 4) is the process of transition from a rural to an urban-dominated economy. It is associated with population transfers from rural to urban areas, intersectoral reallocation of resources and economic development. Its progress may be measured by the percentage of population remaining non-urbanized. The national settlement pattern (para. 6) is the spatial distribution of population in the national economy. The national urban hierarchy (para. 7) is a truncated portion of the national settlement pattern, starting from the largest city in the system, the primate city (para 10), and descending in rank to some urban threshold cut-off point. This may be described in terms of both the spatial distribution of cities (para. 31), a self-explanatory term usually measured by interurban distances between cities of the same and/or adjacent size classes, and the size distribution of cities (para. 5), which is usually measured by some kind of statistical function. A common measure is the rank-size distribution (para. 9), i.e., $R = KP^{-q}$ where R = city rank, P = city size and K and q are constants. A special case is the rank-size rule, where $q = 1$ and $K = P_1$, the size of the primate city. The Pareto distribution (para. 9) is the same as the rank-size distribution except that the cumulative percentage of cities above a threshold size is substituted for rank. Primacy (para. 9) is a measure of the size of the primate city relative to the rest of the national urban hierarchy, or some portion of it.

3. An urban area (para. 8) is a generic term for cities and towns above a minimum (usually low) threshold size. A metropolis (para. 8) is either a synonym for the primate city or it is another very large city, such as the largest city in a region. Secondary centers (para. 43) or intermediate cities (para. 20) are lower down the hierarchy; although they have no precise cut-off point, perhaps less than 250,000 and larger than 50,000 indicate a typical range. A satellite city (para. 35) is a smaller city spatially distinct from but functionally dependent on a metropolis.

4. A polinuclear metropolitan region (para. 27) is an urban region based on several interdependent centers. Suburbanization (para 37, n.1) is the process whereby residential population moves out of the urban core towards the periphery of the urban area. Decentralization (para. 8) is sometimes used to describe the parallel process for industry, but in this report it more often means the relocation of industry to other cities and regions. Decentralization, on the other hand, implies relocation out of a metropolis into the surrounding

region. The economic structure (para. 27) of a city is its distribution of output among economic sectors (manufacturing and services) whereas its functions (para. 27) are the roles it plays and the services it supplies to itself, its hinterland and the rest of the urban system. The central place model (para.32) is a theory used to stratify urban centers into a hierarchy according to the number and type of services they supply to their hinterlands. The infrastructure (para. 12) of a city is its fixed capital, including its roads, public works and buildings. It is common to divide urban infrastructure into industrial infrastructure (para. 97), i.e., roads and utilities catering for business, and social infrastructure (para. 100), meeting the needs of residential population (e.g., schools, hospitals, public buildings, housing).

5. The economy of a less developed country can usually be divided into a core (para. 9), a relatively advanced region usually in close contact with the international economy, and a periphery (para. 9), the rest of the system made up of backward and underdeveloped regions. This dichotomy is sometimes described as spatial dualism (para. 38). The flow of resources towards the core is described as polarization (para. 8), another description of the same phenomenon is backwash (para, 41). Resource flows are polarized because of agglomeration economies (para. 12) which represent the internal and external economies of scale associated with spatial concentration. Cumulative causation (para. 39) is a process in which polarization becomes self-reinforcing because of the pull of continuously increasing returns in the core. Dispersion (para. 8), diffusion (para. 16) and spread (para. 41) are synonyms for contacts and relationships between the core and the periphery that favor the development of the latter. The maximization of spatial diffusion potential (para. 87) is a policy objective referring to evolution of the urban hierarchy so as to increase the rate of spread and dispersion. When backwash yields to spread as the dominant spatial force it may be described as polarization reversal (para. 43). This may be an important precondition of national spatial integration (para. 20), a measure of the maturity of the space economy in which all the major regions and cities are linked together as an interdependent system. Spatial integration requires a reduction in spatial frictions (para. 33), i.e., transport and communication costs and other resistances to spatial interaction.

6. Optimum geography (para. 121) is an idealistic concept referring to an optimum spatial distribution of economic activities and population in the national economy. Optimal city size (para. 21) is an equally ideal concept representing a city size where marginal social benefits and social costs are equalized. A growth center (para 18), or growth pole (para 134), is an urban area selected for expansion and justified by the argument that spatial concentration of development is important for economic efficiency. The success of a growth center is frequently measured by its capacity to generate net spatial spillovers (para 136), i.e., the net effect of spread and backwash in the pole's hinterland. If the pole has little interaction with its hinterland, it is described as an enclave (para. 139). A growth center promoted at a distance from a large city benefits from the hinterland effect (para. 123), a sheltered monopoly position resulting from having a hinterland beyond the reach of competing cities. Intervening opportunities (para. 110) represent locations, frequently growth centers, between areas of origin and destination (especially a metropolitan destination) which may divert migrants by attracting them to alternative

job and income-earning opportunities. A countermagnet (para. 129) is a very large growth center aiming at creating a counter-weight to the primate city. Sometimes growth centers are promoted along a development axis (para. 126), typically a transportation corridor with major cities at its terminals along which development is more easily promoted because of positive externalities (para. 23) (another term for agglomeration economies), communication economies (para. 25), i.e., economies in information flows, and reduced spatial frictions.

7. Spatial planning (para. 6) is national or subnational planning applied to the space economy, to be contrasted with sectoral planning. A national spatial policy (para. 44), is a program of spatial planning designed for the national economy as a whole. An important element in such a policy is a national urban growth strategy (para. 15) which implies concerted measures to increase the size of some cities (including the possible designation of new towns) and in some cases to restrict the growth of others. An urban promotion strategy is a policy for boosting the size of one or more cities. Regional policy (para. 69) aims at changing the distribution of economic activity, either within a region or between regions, so as to achieve some predetermined goals. Implicit urban policies (para. 6) are general economic and social policies of a macro or sectoral character that have indirect, and often unintended, spatial impacts. Regional imbalances (para. 40) imply uneven growth rates among regions, or market disparities in the level of development and in per capita incomes. Urban imbalances (para. 87) mean similar differentials among the cities of the national urban system. Interregional equity (para. 35) is a common spatial objective which aims at the narrowing of average per capita income differentials among regions. Intrametropolitan equity (para. 114), on the other hand, is a policy goal concerned with the improvement of the personal distribution of income (and welfare) within a large city.

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