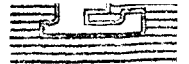


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URBANIZATION AND ECONOMIC DEVELOPMENT

by

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URBANIZATION AND ECONOMIC DEVELOPMENT

I. INTRODUCTION

In the current experience of most under-developed countries, as well as in the histories of those countries that have experienced rapid economic growth in the past, the phenomena of urbanization and economic development are closely inter-related. In any rational attempt to plan the economic development of a country, the two phenomena must be considered jointly, if it is desired to arrive at a consistent policy regarding either.

In the present paper, an attempt will be made to clarify some of the ways in which urbanization and economic development affect each other. The discussion will be focused primarily upon three major problem areas where the two phenomena come into close contact: (i) locational forces; (ii) social overhead capital; (iii) concentration versus dispersion.

1. The problems of the location of economic activities are fundamental to the understanding of urban development, since the industries and other activities which are located or expand in a city determine to an overwhelming extent the course of development of that city, its growth and relative importance, its character and pattern of living. It is well known that a great many industries are attracted to urban areas; conversely, towns are often formed around a nucleus of basic industries. Industrial location is also inter-related with the stock of social overhead capital embodied in urban facilities, since industries follow, and, conversely, generate more social overhead capital. Likewise, industrial location is one of the factors determining the concentration of population, production, income, capital, skills, etc.; while conversely, it is also influenced, - either attracted or repelled, - by concentration. All of these inter-relations need to be explained in more detail.

2. Social overhead capital consists of certain types of basic capital, principally urban, transport and public service facilities, which are indispensable for the development of an industrial economy, but which yield their most essential services primarily outside the channels of market exchange. Among the urban social overhead capital facilities are houses and buildings, streets and sub-surface construction, basic utilities,

/schools and

schools and hospitals, etc. Some of these (for example, houses and commercial buildings) yield a monetary return; however, they also help to provide the urban environment without which modern industry cannot operate. This can be seen characteristically when an industry has unavoidably to be established in the backwoods; in such a case, the productive investment is burdened with additional investment in workers' housing, commercial, recreation and health facilities, transport routes, etc.

In Latin America, as probably in most under-developed regions of the world, an excessively large proportion of new capital formation is channelled into certain urban facilities, especially luxury housing and modern office buildings. At the same time, capital is drawn away from more productive investment, and even from other much-needed categories of urban social overhead facilities, such as housing for the lower income groups. This problem must be examined more closely. Another related problem concerns the timing of social overhead investments: should they anticipate the needs of the economy, in order to stimulate growth, or should they lag behind demand to some extent, in order to liberate capital for more directly productive uses?

3. The problem of concentration versus dispersion can be readily broken down into the following two sub-problems: (i) the inter-relations of metropolitan and urban nuclei of different sizes, each with its own tributary regions; and (ii) the internal organization of major metropolitan districts. In the case of both sub-problems, one has the vague notion that "too much" concentration gives rise to excessively high social costs, due to congestion, traffic problems, difficulties of organizing food supply and wastage disposal, etc; while contrariwise, if there is "too little" concentration, the economies of urban aggregation, such as the elimination of transport costs on intermediate products, the rapid interchange of goods and services, the sharing of common transport and service facilities, etc., are partially foregone. The phenomenon of concentration is, furthermore, linked with the distribution of social overhead capital. The concentration of income provides the resources out of which more social overhead capital can be created; while conversely, industries are attracted to zones with ample existing stocks of social overhead capital and these, in turn, generate

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a further concentration of the same by the additional income to which they give rise. The concentration problem is further related to the problems of minimum economic scales, migration, and the dispersion of risks and entrepreneurship.

In the following three sections, the problems of industrial location, social overhead capital, and concentration versus dispersion, will be taken up in turn with special reference to their inter-relationships. On the basis of this analysis, the major issues of developmental and urban policy will be discussed in a final section.

The discussion presented in this paper is meant primarily for background purposes. No original contribution is intended; indeed, such a contribution would have to rely primarily on a much more thorough empirical survey of the field than the materials at present available permit. In various parts of the paper, attention is drawn to the type of empirical information urgently needed for a more fundamental attack on the problems presented.

II. INDUSTRIAL LOCATION

A. Locational forces

The location of an industry ^{1/} is determined by the interplay of many locational forces, such as the influence of raw materials, markets, cheap labour, advantages of an urban zone, etc. These forces exert their influence in different geographical directions; the actual point of location may be regarded as representing a compromise between the conflicting forces. If one or two of the forces are preponderant in the case of a given industry, the latter is said to be correspondingly oriented. Thus, an industry may be oriented to its raw materials, to its markets, to cheap labour, etc.

The principal types of orientation are:

(a) geographical orientation:

- (i) transport orientation (raw materials, markets, trans-shipment points);

^{1/} "Industry" will be used in the broad sense, to denote any important sector of economic activity, including manufacturing, agriculture, and services.

/(ii) orientation

- (ii) orientation to a factor or a condition of production
(labour, power, taxes, skills, water, waste disposal);
- (b) agglomerative orientation:
 - (i) orientation determined by economies of interaction between industries;
 - (ii) orientation determined by economies of scale.

Geographical orientation is based on a given geographical pattern of raw materials, markets, transport routes and factor supplies. Thus, a geographically oriented industry is attracted to predetermined, fixed points of location, such as a mineral deposit, a major market, a port, or a cheap-labour area. Contrariwise, agglomerative orientation is largely independent of geography. Industries which have an agglomerative orientation are attracted to each other, but the actual geographical point at which the aggregation takes place is, as far as the agglomerative forces are concerned, a matter of indifference. The practical consequence of this type of orientation is that agglomeratively oriented industries will aggregate wherever an initial concentration has taken place.

The varieties of geographical orientation are sufficiently obvious to require little further comment. In general, intermediate points of location between raw material sources and markets are eschewed, unless (i) heavy trans-shipment costs are avoidable by siting industries at such points or (ii) unless raw material sources or markets are widely dispersed and distribution is the decisive factor in location. In the agglomerative orientation category, economies of interaction between industries may consist in the development of a common labour pool with special skills, in common service and marketing facilities, and in the elimination of transport costs on intermediate goods. Economies of large-scale production are well-known; their effect is to tend to merge several small, separately located productive facilities into a single large whole.

B. Special problems

Three important special problems of industrial location with respect to urbanization and economic development are the following: (1) a combination of geographical orientation with the influence of economies of scale; (2) the influence of industrial integration on location; and (3) the

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influence of the developmental sequence on location.

1. Geographical orientation and scale

(i) A combination of market orientation with economies of scale leads to orientation towards urban districts. Clearly, market orientation by itself will not necessarily attract industries to cities. For example, the bakery industry in Latin America is market-oriented and widely dispersed; there is no tendency for this industry to concentrate its production sites in a few major cities. The reason for this is that there are no net economies of scale. (Whatever economies of scale may exist in production are more than offset by diseconomies of scale in distribution, such as delays and deterioration.) Thus, many small individual markets are served by production sites of their own in this industry. Conversely, the metal-transforming industries are typically attracted to cities. While market-orientation and economies of large scale are not the only factors responsible for this (further factors will appear below), they contribute their share toward the result.

(ii) A combination of raw-material or transport-junction orientation with the effects of economies of large scale, may give rise to new independent urban nuclei. Mining towns, sea and river ports are in this category. The role of the economies of large scale is decisive in the formation of an urban nucleus when there is a geographical dispersion of small mines or of alternative, naturally favourable harbour sites; in these cases, the economies of scale in ore-processing or in transport-terminal installations lead to the development of a single (or a few) powerfully developing urban nuclei rather than to the proliferation of smaller ones.

2. The role of industrial integration

Industries characterized by a large degree of integration ^{2/} are much more independent of cities in their location than industries characterized by many separate stages and products, each organized into an independent

^{2/} "Vertical" integration consists of the organization of several stages of production in a single firm; "horizontal" integration consists of the organization of several related processes, usually producing different products, in a single firm.

/business. Thus,

business. Thus, for example, most of the great integrated steel plants in Latin America (Volta Redonda) Huachipato, Paz de Rio, Chimbote, San Nicolas) are located in non-urban districts.^{3/} Basic petrochemicals and other heavy-process industries, such as cement, likewise enjoy a marked degree of independence from cities. Contrariwise, the typical metal-transforming industries show a much smaller degree of integration and are powerfully attracted to urban, and especially to metropolitan, centres. Good examples are the motor industries of Sao Paulo, Cordoba and Belo Horizonte.

3. Locational evolution

The locational forces which are predominant during the early stages of economic development have a powerfully determining effect on the entire subsequent pattern of urban growth, since the early urban nuclei act as kernels for the agglomeration process which, by itself, is independent of geography. It is thus a curious fact that early influences on urbanization, like childhood impressions, continue to exert a controlling effect as it were, "underground", many years after they have ostensibly ceased to exist.

Another way of approaching the same phenomenon is to observe that locational changes are highly irreversible, especially in the short run. Thus, when a locational change takes place, the various forces can exert their influence freely; however, once an action is completed - a railroad built, a port constructed, a steel mill launched, a city founded - it becomes an almost immovable part of the geographical-historical surroundings which control subsequent locational changes. These alterations in turn, consolidate the given pattern of evolution even further, until finally a clearly recognizable historical trend of location and urbanization emerges, which, in part, may have been determined originally by fortuitous circumstances.

Of course, this is not the only trend which controls locational evolution. It is offset by the selective elimination of badly located activities and their physical embodiments. Abandoned roads, declining

^{3/} It should be noted, however, that these steel plants are typically located in the tributary zones of large metropolitan areas.

towns and neglected harbours testify to the fact that, in the long run, the locational patterns of an economy have a higher degree of flexibility than a superficial inspection would indicate. In order to plan economic development this phenomenon must be thoroughly understood.

In Latin America at present, the most important effects of the locational evolution process noted above are connected with the transition from the stage of simple to that of more complex manufacturing. In brief, apart from the usual foreign enclaves in the underdeveloped economies, such as mining or banana companies, the first stage of economic development consists of primary production, the most elementary food-processing, rudimentary transport, simple construction, and apart from these, repair and maintenance, handicrafts, commerce and services. Most countries of the region have progressed beyond this stage to that of the production of consumer goods: more elaborate food-processing, textiles, household necessities, as well as ancillary metal-transforming activities connected with repair and maintenance. The third stage consists of more highly developed metal-transforming activities and the establishment of basic industries, such as steel, chemicals and cement. In terms of locational evolution, the first stage is characterized by a high degree of industrial dispersion. The typical urban unit is the country town. During the second stage, there is a strong tendency for the rapid growth of a smaller number of urban centres, since the typical industries of the second stage are attracted to the principal markets, the social overhead facilities and the pools of better-trained labour available at the larger centres. Thus, the second stage initiates the self-reinforcing growth and concentration process of the urban areas which will be discussed in more detail below.

The transition to the third stage is marked by two contrary tendencies. On the one hand, the more complex metal-transforming activities that mark the third stage are powerfully attracted to the very largest metropolitan centres; and on the other hand, as indicated before, many basic industries (steel, chemicals and cement), are largely independent of cities. If the process of transition is uncontrolled, there seems to be a tendency for those industries intrinsically less tied to cities, to develop nevertheless in the vicinity of the major urban centres. Of course, this aggravates

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severely the metropolitan and regional problems arising from the transition. There is hardly any major metropolitan area in Latin America which does not have its share of these grave difficulties. Yet at the same time, the very existence of a series of heavy industries that are not strongly attracted to urban zones provides the planner with one of his most important tools for controlling and redirecting the pattern of urbanization.

III. SOCIAL OVERHEAD CAPITAL

From the point of view of economic development, the two main classes of social overhead capital are those connected with urbanization and with transport.

Economic development typically follows social overhead capital on the one hand, while creating more of it on the other. Thus, as indicated in the introduction, many industries are strongly attracted to the social overhead facilities and industrial milieu that is found in the cities; however, by the very fact of this attraction and the consequent establishment of additional industries in the city, more income is generated. This in turn provides the resources out of which, through one institutional mechanism or another, more new social overhead capital is built up. Likewise, many new industries are attracted to existing transport facilities, such as ports, railroads, good highways, etc. However, by increasing the volume of traffic, they not only require but also justify the improvement of transport facilities. Other industries are thus attracted too.

The present section will concentrate on urban social overhead capital. The most important transport problems, especially as they affect urbanization, will be summarized.

A. Urban Social Overhead Capital

1. Definition

The following is a list of the major physical facilities associated with urban development:

- i) Housing. a) Low density, free-standing.
 b) High density, free-standing.
 c) Apartments and tenements.
 d) Shantytowns.

/ii) Streets,

- ii) Streets, including paving and lighting.
- iii) Subsurface construction: sewers, utility lines.
- iv) Schools and hospitals.
- v) Buildings for general administration of the city and its services.
- vi) Facilities for police and fire protection.
- vii) Transit facilities, transport terminals and outside connexions.
- viii) Facilities for educational, labour, and social-welfare services, parks and recreation grounds.
- ix) Basic utilities: power, water, gas: plants and distribution net.
- x) Office buildings.
- xi) Shops for commerce and the services.
- xii) Factories: a) Light manufacturing.
b) Heavy manufacturing.

Social overhead capital, by definition, yields its services outside of the channels of market exchange. Streets, public buildings, police and fire protection facilities, public schools, are clearly in this category. The situation is not so clear with regard to utilities or workers' housing. The production of electric power, or the construction of houses for the purpose of selling or renting them, is a commercial activity; yet power and workers' housing are both indispensable for industrial development: their lack or shortage can seriously hamper the growth of a city. Accordingly, the corresponding facilities yield a social service in addition to the commercial product they produce, since the availability of these products has a significance which apparently exceeds their monetary value. However, the same thing can be said, to a greater or lesser degree, of practically any productive sector. The availability of steel has a well-known stimulating effect on industrial growth: should a steel plant, accordingly, be labeled as a social overhead capital facility? Likewise, the local availability of a series of products and services in the city saves time and money for many other businesses: to the extent that such savings arise from the mere presence of economic activities, should their facilities not be regarded as part of the social overhead capital?

The crux of the difficulty is that, in a market economy, productive activities almost always, to a greater or lesser extent, yield services

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that are not taken into account by the price system. Thus, all capital is, in some degree, social overhead capital. Under the circumstances, the question arises whether it is useful to maintain the distinction between ordinary capital and social overhead capital?

In practice, the distinction is, of course, highly useful. First of all, most of the physical facilities listed earlier can be classified approximately into one or the other of the two categories. With the marginal items, the decision depends primarily on the use that is to be made of the classification.

The concept of social overhead capital plays its primary role with regard to investment decisions. In this respect, social overhead capital differs from ordinary productive capital in three principal ways. First, social overhead investments are generally financed from public funds, raised through taxation; and the mechanism of decision with regard to them is a mechanism of public, often parliamentary, deliberation, rather than the decentralized process of commercial decision-making that is characteristic of private investment decisions. It is interesting to note that with regard to the marginal items, such as utilities or subsidized housing, the decision-making process is often a transition between the above two extremes. Second, the evaluation of the benefits of social overhead capital investments, due to the very lack of a price system for describing these benefits, has to be undertaken on the basis of different criteria, including political and social considerations, both in comparing different social overhead capital investment projects among themselves, and in comparing such projects with directly productive investments. Third, since there is no price mechanism that would equilibrate the costs and benefits of social overhead capital services from the point of view of the individual productive enterprises, social overhead capital can create hidden incentives, or, in some cases, if inequitable taxation is used for financing social overhead investments, disincentives, for individual economic activities.

2. Inter-relations between Social Overhead Capital and Productive Capital

Social overhead capital partly cooperates and partly competes with ordinary productive capital. It cooperates in the sense that certain minimum social overhead facilities are absolutely necessary for industrial development.

/For example,

For example, production is not possible if the working force is not housed in one way or another. (Even if this housing is provided at slum standards, there is an indispensable minimum of police and fire protection, general administration, etc., connected with it.) On the other hand, social overhead capital competes with productive capital in the sense that it makes demands on the scarce investment funds of an economy. This is especially important in underdeveloped countries, where, due to a low absolute income level as well as a generally low savings rate, the availability of capital is critically restricted.

The competitive function of social overhead capital has, in turn, two distinct aspects which are connected with the nature of the services provided by the social overhead facilities.

i) As has been indicated before, these services can have an intermediate character with respect to production, in the sense that they do not become a part of final demand. Such intermediate services are exactly analogous to intermediate goods which are used up in the productive process itself. The intermediate services include all elements that contribute to higher labour productivity, such as education, health, welfare, etc.; they also include the public service aspects of utilities and housing.

ii) The services of social overhead capital can alternately form a part of final consumption, such as, for example, public recreational facilities. Both of the above two kinds of competitive functions of social overhead capital manifest themselves by making demands on the capital budget of an economy. The first kind, which relates to the role of social overhead capital as a productive factor, reduces the availability of ordinary productive capital in the production process; the second kind, which relates to the role of social overhead capital as a supplier of a certain type of final consumption service, reduces the capital that is available for the production of other types of products and services for final demand.

Due to the fact that the benefits of social overhead capital are, by definition, not priced in the market place, it is difficult to quantify the exact extent to which social overhead capital cooperates with productive capital. It is unquestionable that all the urban facilities enumerated earlier which cannot be regarded as directly productive (or which cannot

/be regarded

be regarded as only directly productive, such as utilities), are nevertheless essential in creating the typically urban atmosphere which is associated with efficient production in many branches of economic activity. It is also intuitively acceptable to assume that productivity increases as the amount of social overhead capital associated with a given supply of other factors (including directly productive capital) increases. It is, however, not at all obvious what is the minimum amount of social overhead capital that an economy needs to be able to produce at all; what is the best distribution of this social overhead capital between different facilities; and what is the optimum proportion of social overhead to productive capital for a given set of social goals, such as a maximum growth rate consistent with prescribed consumption standards.

Perhaps the best way of approaching these problems from a practical point of view is through the definition of standards for social overhead capital investment.

3. Standards for Social Overhead Facilities

In the task of defining standards, it is convenient to start with the extremes. At one extreme, one might say that in order to achieve advanced and efficient industrial production, it is necessary to have a high level of productivity. This, in turn, is associated with a certain general cultural level and a standard of living which demands decent workers' housing, high-grade education and health facilities, ample social welfare services, and so forth. A standard of social overhead capital investment embodying these characteristics will be referred to as a "high productive" standard. At the other extreme, one may define an absolute rock-bottom minimum of social overhead capital requirement, which is associated with frankly slum-standard dwellings and related other facilities serving a marginal, floating urban population. Even slums have streets and must have a certain minimum of street lighting, police and fire protection, general administrative and health services, in order to prevent them from being positive menaces to the other parts of a city. Thus, inescapably, even at slum standards it is necessary to associate some social overhead capital with directly productive capital. Between the two extremes, there is, of course, a wide spectrum of gradations.

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In the more advanced countries, a considerable amount of work has been done on urban planning standards with regard to housing densities, schools and playgrounds, social services, zoning for different urban land uses, and similar problems. Unfortunately, little of this work has been related to the problem of production and the allocation of scarce resources, even in the context of an advanced economy; a fortiori, there are few parts of this experience that can be applied to the twin problems of urbanization and economic development in underdeveloped countries.

The problem of defining standards applicable to these countries will require an essentially new start, based on two types of complementary information. i) The collection and evaluation of quantitative data on the amount and structure of social overhead capital investment in different urban areas of the world, representing a wide range of economic development levels. This type of empirical information can be expected to reveal the existence of general trends as well as significant deviations from these trends. For example, it would be of great interest to know the relationship between the percentage distribution of capital between directly productive and urban social overhead uses on the one hand, and the per capita income levels in metropolitan areas and their tributary regions on the other. It would be of equal interest to note whether the especially fast-growing or slow-growing economies show systematic deviations from the general trend, and if so, in what sense. ii) The second type of new information that is required relates to the definition of standards corresponding to "high productive", "slum" and intermediate levels of urban social overhead investment, on the basis of the judgments of experts and practical planners.

4. Distribution of Capital between Productive and Social-Overhead Facilities

In considering the problem of the best distribution of scarce capital resources in an underdeveloped country between productive and social overhead uses, three special problems have to be kept in mind.

First, completely apart from the desirability of a higher level of general urban facilities as an end in itself, it is not at all a foregone conclusion that the lowest technically feasible level of urban social

/overhead capital

overhead capital (the "slum" standard), is the most efficient one from the point of view of maximizing current physical production. It should be borne in mind that social overhead capital cooperates with directly productive capital; and, especially at low proportions of social overhead capital to directly productive capital, the cooperative function may well outweigh the competitive function. In other words, at low levels of urban social overhead capital investment, it is entirely conceivable that a marginal dollar invested in more social overhead capital will increase total physical product by a larger amount than the same dollar invested in directly productive capital. This may come about, for example, through a large increase in the productivity of the working force due to the marginal investment in social overhead facilities.

Second, as indicated earlier, social overhead facilities, in addition to cooperating with physical production, may also render services which are directly consumed outside of the channels of market exchange. This consumption may, in turn, be collective or particular. For example, the services of a public-garden are "collectively consumed". The high-quality paving and lighting of streets habitually observed in the better residential areas of cities are also consumed in part "collectively" - to the extent that the street is used for public transit, - and in part privately, to the extent that the street serves the convenience and prestige of its residents. It should be observed that this type of consumption generally shows a regressive distribution with regard to family income levels which is more accentuated at the lower per capita incomes of the underdeveloped countries. Apart from the typically unequal treatment of different neighbourhoods, which constitutes an obvious case in point, the "collective consumption" of such things as statues or luxurious public buildings in poor countries cuts primarily into the food budgets of the lower-income families. Thus, if the contribution of social overhead capital to total product is considered, and if the directly consumed component of the income generated by social overhead facilities is counted as a part of total product, a completely false picture of social benefit may be obtained if income distribution problems are not considered simultaneously.

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Third, the very fact that it is not feasible to associate a strictly defined amount of social overhead capital "need" with physical production, i.e., that variable "standards" of social overhead facilities are technically possible, opens up a field of discretionary action from the point of view of the practical planner of economic development. In effect, the need for social overhead facilities is compressible, especially in the short run. Thus, if a city is growing and industrializing rapidly, it is possible to maintain temporarily a pool of marginally employed or underemployed, floating urban population at extremely low standards of social overhead investment, and thereby to liberate capital for more directly productive needs. The existence of such a pool enables the economic activities of the city, including the dynamic industries, to expand their working force without the need for incurring social overhead investments, especially workers' housing, at their own expense, and thus constitutes one of the great attractions of urban areas for many industries. Of course, those workers who enter productive employment from the pool of floating labour, have to be lifted reasonably rapidly to levels of urban living that are in excess of the slum standard, otherwise long-run productivity will be adversely affected and intolerable social tensions might develop. This requires additional investment in social overhead facilities. The point is, however, that such investments need not be undertaken by the employing industries themselves. The necessary facilities may be created by public or subsidized private investment. In any event, a good part of the burden of creating these new facilities may be borne by the newly employed workers. The advantage of such an arrangement is that it creates social overhead facilities primarily in response to the needs of the productively employed increment of the working force; in other words, the resultant social overhead facilities will be created to the extent that they cooperate with industrial production. It should be noted that the provision of higher-standard facilities for the entire pool of marginal labour, rather than only for the newly employed workers, would divert scarce social overhead capital for the purpose of supplying final consumption services.

Accordingly, the maintenance of a pool of marginal urban labour at the lowest feasible standard of social overhead facilities constitutes a

/credit to

credit to economic development. As workers are productively employed out of the pool, they are replaced by the urban population increment, which originates to a significant extent in the well-known process of migration toward the cities, typical of all underdeveloped countries. Thus the pool maintains itself, or, more typically, tends to grow; moreover, due to the selective employment of its best-qualified members, it tends to concentrate within itself the less productive part of the urban population increment.

The compression of social overhead capital needs by the mechanism described above is, of course, highly inequitable in that it places the greatest burden on those who are least able to defend themselves. The less active, the less intelligent, the old, the sick, the emotionally disturbed, the unattached women and their children: these are the ones who tend to stagnate in the marginal urban population, even under the best of conditions, i.e., when the employable persons are actually absorbed at a sufficiently fast rate to prevent their spending an excessive period of time waiting for their turn. In a concrete situation, considerations of economic growth have to be balanced against considerations of equity of this kind. Unfortunately, the social overhead capital needs of a rapidly growing and urbanizing population are so overwhelming that in practice there may be little choice or no choice at all in this respect.

Finally, the compression of social overhead capital requirements has a technical as well as a social side. The immediate capital costs of sewers, traffic arteries, etc., may be cut down by underdimensioning them. The resultant saving is, however, purchased at the cost of far greater future expenditures, since the enlargement of small-diameter pipes or excessively narrow streets is a substantially more expensive process than building them somewhat larger in the first place. In this respect it should be noted that the typical form of Latin American slums - the shantytown of freestanding units - might very well be a highly expensive proposition in the long run, since it is characterized by an excessively low residential density, and thus requires huge areas for accommodating a given population. This, in turn, increases the problem of utility connexions, protective services, and transit, and, in addition, may cut off the rest of the city from its natural lines of expansion.

5. The Structure and Benefits of Urban Social Overhead Investments

A striking phenomenon connected with investments in urban social overhead facilities is the variety of agencies that have a hand in them. Streets, sewers, public buildings, parks, and in part, schools and hospitals are usually provided by public agencies, and are typically financed from tax funds. However, many schools and hospitals are provided and controlled by private organizations, partly as a public service, and in some cases on a commercial basis. Housing is largely provided by the private sector, but in many instances, low-income housing is publicly subsidized or provided by semi-public organizations, such as mutual insurance funds. Transit facilities, utility plants and distribution networks are typically privately-owned, but operated on a public-service basis, with strong public regulation. Commercial and industrial facilities are, of course, with minor exceptions, privately-owned and operated. The situation is complicated by the fact that in most cases, public investments and their control are divided between a variety of agencies, representing different levels of government. The urban zone itself may be cut up between several autonomous municipalities; in addition, there are usually regulatory and investment functions that correspond to the regional (state, province, department) level, and others that correspond to the national (federal, central) level.

Under such conditions, it is easy to see that, generally speaking, no good co-ordination of investments in various urban facilities can be expected. In the more developed countries, this has been recognized and remedied by the establishment of central urban planning agencies that have been concerned primarily with urban land use, transit, and the provision of public services. In underdeveloped countries, the problem is further complicated by the imperious necessity of considering investment in urban social overhead facilities within the framework of the entire problem of economic development and capital allocation. In the face of this need, the actual situation in most underdeveloped countries, and specifically in Latin America, is that the structure of urban social overhead investments is unknown and consequently uncontrolled. Even on superficial observation, it is obvious that a disquietingly high proportion of total investment goes into urban social overhead facilities, especially in the largest

/metropolitan centers;

metropolitan centers; moreover, there is a simultaneous over- and under-investment in social overhead capital; as cited earlier, too much goes into luxury housing and high-class office buildings, too little into the housing and facilities serving the lower income groups.

Another unfortunate feature of the present situation with regard to urban social overhead investment is the following. Since there is no appreciation of the costs of the distinct classes of social overhead facilities, nor of the distribution of the benefits they convey, there is no consciousness of the widespread subsidization of many economic activities in the largest urban centers at the expense of activities at the periphery. Ideally, the balance between the urban services obtained by individual productive enterprises, and the contribution they make to the financing of these services, in the form of taxes, should be used to regulate the process of urban concentration. At present, the process is typically out of control, and also typically leaves the urban enterprises with a favourable balance between contributions made and benefits received. It would be instructive to study this phenomenon empirically in sufficient detail to establish how much of the generally observed urban over-concentration process in Latin America can be explained by reference to this factor alone.

B. Social Overhead Capital Embodied in Fixed Transport Facilities

While the social overhead investments in transport facilities, such as transport arteries (roads, railroads, canals), terminals (ports, stations, public loading and storage facilities) and interchanges (crossings, junctions, locks), have an extremely important effect on economic development in general and on the urbanization process in particular, very little is known to date about the criteria to be followed with regard to these investments in the context of economic development programming. Yet such knowledge would be required with great urgency in the formulation of rational programme of regional and urban development.

The main features of the problem can be stated as follows. Obviously, the investment in fixed transport facilities affects the cost of transportation. The latter, on the other hand, influences strongly the pattern of industrial location, which in turn determines the volume of traffic between different points. This, again, reacts on the costs of transportation and

/on the

on the investment decisions relating to transport facilities. The phenomena of urbanization, however, depend critically on the locational pattern of economic activities that emerges from the above closed chain of interactions. Thus, to understand the urbanization process, it is necessary to penetrate the complex interrelations between transport and production.

1. The Structure of Transport Costs

Transport costs can be broken down into three elements: overhead costs, direct costs and congestion costs. Overhead costs include interest, depreciation and maintenance on the fixed investment. Direct costs include interest, depreciation and maintenance of rolling stock or ships; interest and insurance on goods in transit; fuels and lubricants; and various categories of labour and related costs. Congestion costs are the costs associated with the slowing down of traffic flow in overloaded transport networks.

An investment in fixed transport facilities necessarily reduces, or at worst, leaves unchanged, direct costs and congestion costs. Direct costs are reduced due to time and materials saved by the use of improved transport facilities; the reduction of congestion costs is obvious. However, the effect of the new investment on overhead costs per unit of transit is less definite, and depends on the relation between additional investment, additional transport capacity, and degree of utilization. If the capacity of the transport network increases faster than the investment, and if the degree of utilization is high, unit overhead costs will fall. These costs can likewise fall if the degree of utilization improves significantly, due to lower direct or congestion costs. In these cases, all components of unit transport cost diminish with increasing investment. On the other hand, at low traffic densities, the additional investment may not be justified if the fall in direct costs is more than offset by a rise in unit overhead costs. (Congestion costs do not occur in such cases.)

2. The Dynamic Effects of Transport Costs

Obviously, a purely static comparison of costs is not an adequate criterion for making investment decisions with regard to fixed transport facilities. It has to be taken into account that the cost structure described above gives rise to a circular chain of causation between

/transport costs

transport costs and the volume of traffic, which results in the concentration of economic activities in some areas and in the retardation of others.

The chain of causation works in the following way. If transport connections are poor between certain points, traffic will tend to avoid this route: industries will be influenced to locate in such a way as to eliminate the high transport cost associated with the poor transport facilities. Accordingly, traffic density on the route will remain low. While this is the case, however, there will be no incentive to improve the route, since additional investment under conditions of low traffic density, as seen earlier, may well result in higher unit transport costs than before. Thus the chain of causation runs from bad facilities to high costs to low traffic density to lack of improvement of bad facilities. The result is that the area served by the poor transport route will experience a retarding effect on its growth, while a corresponding additional stimulus to growth is created in more fortunate areas.

In the latter areas, transport connections are better, and transport costs correspondingly lower. The economic activities attracted by the lower transport costs generate additional traffic; the resulting higher traffic density creates an incentive for additional investment in the given transport routes, since this will lower transport costs. The lower costs, in turn, reinitiate the cycle of causation, which runs from better facilities to lower costs to higher traffic density to further improvements of facilities.

3. The Social-Overhead Functions of Transport Facilities

Transport facilities have two principal social-overhead functions: (i) the full cost of fixed investments is often not charged to the user, i.e., on public roads or under special railroad fare policies; (ii) a transport network conveys extraordinarily important benefits to all economic activities, even those that are not directly served by it; and these benefits are not priced in the market.

(i) With regard to the first point, it should be noted that the exact determination of unit overhead costs is rendered very difficult by the following facts.

First, there is a question as to whether all of the overhead costs should be borne by the users of the route. It is argued that owners of

/adjoining property

adjoining property experience a rise in the value of this property, and that they should bear a corresponding share of the costs. It is also argued that the communities served by the route obtain indirect benefits and should contribute to the cost accordingly. (Both of these considerations touch upon the second class of social-overhead function mentioned above.) There is very little theoretical basis for making an exact evaluation; in a concrete situation, some division may be made on a largely arbitrary basis. (A case in point is an interesting study by the Highway Department of the State of Washington, U.S.A.)

Secondly, even if the share of overhead costs to be borne collectively by the users of a transport network is determined, it is difficult to divide these costs between different classes of users. To cite the example of a highway: physical deterioration is affected by the weight and speed of the vehicles; the timing of the use of the highway affects the fluctuations of traffic density, and thus, for example, congestion costs during periods of heavy use; the choice of route across a transport network by the individual vehicle affects the capacity of all sections of the network, etc. etc. Similar problems arise in assigning joint costs to different classes of uses of a railroad network, or of a system of canals or ports.

In spite of the difficulty of evaluating unit transport costs, a great effort is justified in this field, in order to avoid among other things, the subsidization of urban overconcentration. It so happens that congestion becomes the major problem with regard to the organization of entering and leaving traffic in the larger metropolitan areas, and its solution requires highly costly investments. If the exact costs corresponding to individual parts of a transport network are not known, it will typically happen that the costliest parts are subsidized, through the device of charging average costs everywhere. This is especially true in the case of rail and highway traffic. If, for example, an attempt were made to estimate and charge the true marginal costs corresponding to the complexities of a metropolitan road interchange system, the subsidization of industries located inside the metropolitan areas could be avoided, and the corresponding retarding effect on smaller urban centers could be checked.

It is noted that the problem of assigning the exact costs corresponding to the use of a transport network may be evaded by using the

/corresponding charge

corresponding charge as a policy instrument, for creating incentives or disincentives for given traffic flows. In principle, such a policy could be highly effective if used by an efficient planning agency with a view to promoting rapid and balanced growth. In practice, however, the structure of charges (for example, railroad fares) can easily become a tool in the struggle of powerful pressure groups intent on promoting their parochial aims; accordingly, in a given case it might be wiser to renounce the use of this particular instrument than to risk the opening up of a political Pandora's box.

(ii) The indirect benefits of an improved transport system that accrue to all economic activities consist of the lowering of the production costs of all products and services that use transport directly or indirectly. For example, if the transport costs on iron ore are reduced, the effects of this reduction will redound to the benefit of all users of iron and steel and its products. Since transport is by far the widest-used of all intermediate commodities, the direct and indirect benefits of a transport cost reduction will spread throughout the whole economy.

The benefits of a given transport cost reduction achieved through investment in transport facilities are more difficult to evaluate than the benefits of, say, a reduction of steel cost, achieved by technological improvement. The reason for this is that any one ton of steel is like any other ton of steel in all of its uses; however, transport services are geographically differentiated, and thus, a given transport improvement is different in its effects from any other transport improvement. Generally speaking, it is, however, obvious that the major benefits of a transport network will be captured by the areas directly served by this network, and that the cumulative effects of the indirect benefits will be greater in proportion to the degree of self-sufficiency of these areas.

4. Effects of Transport on Urbanization

The principal effects of transport on urbanization may be summarized as follows:

(i) The interaction of transport costs and investment in new transport facilities has a strongly concentrating effect that will tend to focus economic growth into a few favoured regions and their urban centers, and to retard growth elsewhere.

/(ii) The indirect

(ii) The indirect benefits of transport are spread throughout the economy; however, the major share of these benefits goes to the regions and their urban centers served by the best transport facilities.

These conclusions indicate clearly that investments in transport facilities can play a key role in regulating the process of urbanization. On the one hand, lagging regions may be stimulated by systematically anticipating their transport needs, and, through the lower costs achieved by creating improved facilities, additional economic activities may be channeled toward these regions. On the other hand, overconcentration in a few urban centers can be counteracted by creating disincentives through geographically differentiated transport charges.

IV. CONCENTRATION

As indicated in the introductory section of this paper, it will be convenient to break down the problem of geographical concentration into two sub-problems, to be referred to as "regional" and "metropolitan" concentration. The first of these refers to the interrelations of urban nuclei of different sizes, each considered together with its tributary region; the second refers to the problems of internal organization of a metropolitan center and its tributary region. For example, the problem of the concentration of dynamic economic activities in the Southern industrial region of Brazil, at the expense of stagnation in the Northeast, is a typical problem of regional concentration. On the other hand, the internal problems of the Sao Paulo metropolitan zone, such as the interrelations of economic activities in the urban nucleus, workers' housing in the suburbs, transportation problems within the metropolitan zone, etc., constitute a typical metropolitan concentration problem.

A. Regional Concentration

1. General Considerations

The notion of a regional concentration process involves many economic and extra-economic variables. The most important phenomena of regional concentration are the following: differential migration rates toward the leading centers; selective migration of high-grade labour; the establishment of a proportionately large number of new economic activities at the

/leading centers,

leading centers, especially in the dynamic industrial sectors; the concentration of income and of markets; the concentration of productive and social overhead capital; differential standards of nutrition, health, education and social welfare that favour the leading centers and reflect themselves in an accumulation of skills and an increased productivity at these centers; a concentration of technical and managerial skills, as well as of enterprise as a productive factor; and an unequal distribution of business risks between the leading centers and the periphery.

There exists an intuitive notion that concentration has advantages as well as disadvantages; and that there is such a thing as "too much" concentration on the one hand, and "too little" concentration on the other. Too much concentration involves sharply different growth rates between different regions that leave some regions stagnant, while channeling so much new activity to other regions that the latter are plagued by diseconomies, such as metropolitan transport and food supply problems, excessive land rents, etc. Contrariwise, too little concentration implies the dispersal of economic activities among centers of more or less equal importance, which deprives the economy as a whole of the benefits of major urban aggregations. These benefits are, for example, the elimination of transport costs on many intermediate products that are exchanged between different productive processes; the creation of pools of specialized labour and technical skills; the ease with which commercial arrangements, such as subcontracting, can be worked out in a major metropolitan area, thereby promoting a more efficient division of labour; and the development of special entrepreneurial skills which favour the growth of the country as a whole.

From the notion of too little concentration on the one hand and too much on the other, it follows that there should be an optimal degree of concentration for any given developmental stage of a country. While so much can be readily admitted, it is difficult to define generally acceptable standards of what constitutes an optimal degree of concentration. Generally speaking, in Latin America overconcentration in each national economy appears to be more of a problem than a lack of sufficient concentration. On the other hand, looking at the Latin American economic area as a whole, it may be observed that the existence of many autonomous

/national economies

national economies has favoured the emergence of a comparatively large number of fast-growing metropolitan areas, which might not have been the case under an economically integrated régime practicing the laissez-faire principles which were characteristic of economic policy in the area until the mid-thirties.

The issue of optimal concentration will be taken up in the following section, dedicated to policy problems. In the present section, the mechanisms responsible for concentration will be inspected in more detail.

2. The Concept of "Feedback Systems"

All mechanisms of concentration are closed chains of causation, technically called "feedback systems". An example of a feedback system has been discussed in the previous section, in connection with investments in transport facilities. It is recalled that in this system the chain of causation ran from higher investments to lower transport costs to higher traffic density to more investments; and conversely in the other direction. The changes both upward and downward have been seen to be cumulative; in other words, any existing tendency was found to reinforce itself through a chain of causes and effects. The circular chains of causation, also called "feedback loops", can be represented schematically as follows (see Fig. 1):

Figure 1

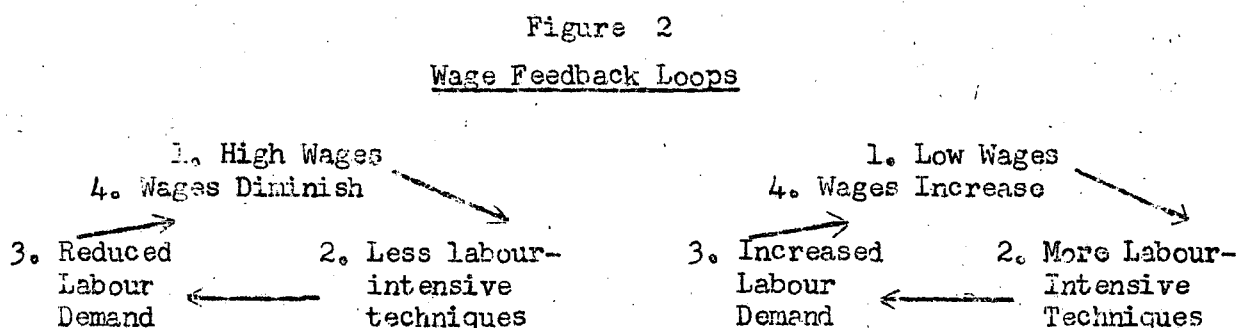
Transport Feedback loops



The kind of feedback system which, as the transport investment system pictured above, tends to reinforce its own changes cumulatively, is said to be characterized by "positive feedback". In other words, the indirect effect produced by an original change in a variable, which through a chain of induced events finally comes to react back on the given variable itself, has the same direction as the original change, thereby reinforcing it. It

may be observed in the feedback loops of Fig. 1 that the above statement is true for every one of the variables in the loop.

Conversely, negative feedback is observed when the indirectly induced change has the opposite direction as the original change, thereby diminishing its magnitude. An example of negative feedback is a mechanism which tends to reduce differences between wages in different areas. Where wages are low, more labour-intensive production techniques are used in the productive processes; this increases the demand for labour, thereby raising its price. Where wages are high, the mechanism runs in the opposite direction. In both cases, the induced price movement counteracts the deviation of the original price level from the norm of labour prices. The corresponding feedback loops are shown in Fig. 2:



It is noted with reference to Fig. 2 that, as the cycle of causation runs the second time around the loop, all changes are reversed, while the third time they are again in the original direction, etc.

Positive feedback always results in self-reinforcing change. Negative feedback results in self-regulating adjustment to an equilibrium state, unless the feedback is so strong that it "overshoots" the original deviation in the opposite direction, thereby giving rise to ever wider oscillations about the equilibrium state.

With regard to the spatial structure of economic growth, negative feedback effects are on the whole much weaker than positive ones. The negative feedback effects tend to keep the growth rates of different regions in step with one another; the positive feedback effects, contrariwise, tend to induce divergences in the growth rates. The observed concentration effects reflect the dominance of positive feedback.

3. Mechanisms of Concentration

In the present section, the individual feedback mechanisms connected with concentration and dispersion will be examined in detail. In order to permit a synopsis of the large variety of mechanisms, Table 1 has been prepared, which presents a classification of the principal mechanisms. This classification is of course not the only possible one, nor does it pretend to completeness; for example, a variety of political-sociological mechanisms may be advanced that would extend the list. Nevertheless, the table is believed to be useful for a first orientation in this largely unexplored field.

(a) Mechanisms Connected with Labour

(i) The choice of technique, i.e., the selection of labour-intensive vs. capital-intensive production processes for the production of a given commodity, has two opposite effects on wage rates and thus on income levels in different geographical zones. On the one hand, through the medium of labour productivity, it has a strong concentrating effect; on the other hand, through the medium of the supply-and-demand situation in the factor markets, it has a weaker equalizing effect.

The first mechanism works in the following way. In high-wage areas, it is attractive to choose more capital-intensive and less labour-intensive techniques. This raises the productivity of labour. The increased productivity, in turn, creates the basis for successful labour pressure for capturing at least part of the fruits of this increased productivity, in the form of wage increases that raise the originally high level of wages even further, thereby reinitiating the cycle. Conversely, in low-wage areas, the stagnant levels of wages and of productivity will be perpetuated by the choice of labour-intensive techniques.

The second mechanism is identical with the former one in its first link, the choice of technique in response to the wage level.

Table 1

A SURVEY OF FEEDBACK MECHANISMS CONNECTED WITH
GEOGRAPHICAL CONCENTRATION AND DISPERSION ^{a/}

A. Labour

- (i) Technique of production:
 - + technique-productivity cycle
 - technique-factor demand cycle
- (ii) Location:
 - + location-productivity cycle
 - location-factor demand cycle
 - + location-market cycle
- (iii) Migration.
 - migration-labour supply cycle
 - + migration-productivity cycle
- (iv) N.H.W.E. (Nutrition, health, welfare and education):
 - + N.H.W.E.-productivity cycle

B. Capital

- interest-capital supply cycle
- + risk-capital supply cycle
- + enterprise-capital supply cycle

C. Social Overhead Capital

- + social overhead capital-productivity cycle
- + social overhead capital-location cycle
- + social overhead capital-risk cycle

D. Transport

- + transport investment-traffic volume cycle

(Also note following one-way causations:
transport cost-migration effect
transport cost-product distribution and location effect.)

E. Agglomeration

- + concentration-external economy cycle
- concentration-external diseconomy cycle

F. Balance of payments

(Note: these cycles equilibrate the balance of payments, but disequilibrate growth rates.)

- terms of trade-income cycle
- employment-income cycle

G. Fiscal policy

- income-tax payment cycle (progressive taxes)
- + income-tax payment cycle (regressive taxes)
- social overhead benefit-specific tax cycle (effective tax)
- social overhead benefit-specific tax cycle (effective subsidy)

However, in this second case a different effect of the choice of technique is brought into play: its effect on the factor markets. In high-wage areas, the choice of capital-intensive techniques diminishes labour demand and increases the demand for capital, thereby tending to lower the relative price of labour. Conversely, in low-wage areas, the choice of labour-intensive techniques tends to increase the demand for labour and thereby to raise its price. The effect of this second mechanism is to lower the wage rate in high-wage areas and to raise the wage rate in low-wage zones; in other words, it has an equalizing or leveling effect, instead of a concentrating one.

The important question arises: on the balance, which of the two effects of the choice of technique is dominant, the concentrating effect or the equalizing effect? In other words, does the choice of technique have a net concentrating effect or a net equalizing effect? It is to be noted that classical economic theory emphasized the equalizing effect, to the practically complete exclusion of the concentrating effect. It is, however, obvious that the equalizing effect can work efficiently only when the labour supply is inelastic in the low as well as in the high-wage areas, so that moderate changes in labour demand may be reflected in significant wage changes. Generally, this is not the case. In the low-wage area, a large reservoir of unemployed or underemployed labour makes the supply of labour extremely elastic; while in the high-wage area, the wage level will usually be more sensitive to institutional factors than to the demand of labour. The wage level in high-wage areas is typically determined by institutionally enforced collective bargaining, and is based more on the ability of the employer to pay than on labour supply and demand. An interesting corollary of this situation is a concentration effect that operates not only geographically, but between different branches of economic activity at the same location as well. There is a gradation of wage levels from the most dynamic and productive industries, which pay highest, to commercial activities, which pay considerably less, to floating marginal employment, which may offer little over the bare subsistence level. The differences are maintained by a careful compartmentalization of labour, institutionally enforced, which prevents competition between members of the work force and the consequent fall of wage levels in the higher paying /activities. Clearly.

activities. Clearly, the incentive for capital-intensive techniques will be greatest at the top, which raises productivity fastest, drawing the top echelons of wages after it; while at the bottom, there will be a stagnation of wage and productivity levels.

While it would be extremely interesting to have an empirical study of the relative forces of the concentration and equalization effects, it can be stated with fair confidence on the basis of the foregoing observations that the concentrating effect has the upper hand.

(ii) The choice of location for given productive activities, as well as its counterpart, the choice of particular products or services to be produced at given locations, has concentrating and equalizing effects very similar to the ones discussed above.

The effect of productivity is again a concentrating one. In high-wage areas, there will be a tendency for the location of more capital-intensive production activities, which will lead to increased productivity, and ultimately to even higher wage levels; while low-wage areas will tend to attract more labour-intensive activities, which usually have a lower productivity and thus provide a weaker stimulus for the raising of wages.

On the other hand, there is an equalizing mechanism analogous to the one discussed before, which acts through the supply and demand for labour, reducing the excess supply of labour in the low-wage area, and raising it in the high-wage area. The same considerations apply to the relative strengths of these two mechanisms as the ones cited earlier.

The above conclusions should be qualified from two points of view.

(i) A stagnant regional economy would often welcome labour-intensive productive activities, such as textile mills or the assembly of electronic products, if it could only get them, since the additional employment, in spite of the low prevailing wage levels, would be far better than no employment at all. Many backward areas pin their hopes on such labour-intensive activities to a degree which is pathetic, in view of the fact that while low wages may often be a necessary condition of attracting certain industries, they are almost never a sufficient condition. It should be kept in mind that low wages do not imply low labour costs, if productivity is low in a backward area due to reasons of ill health, poor education and the like, as it usually is. Besides, the backward area

/typically lacks

typically lacks indispensable co-operating factors of production, especially social overhead capital and entrepreneurship. Finally, the advantages of lower labour costs may be outweighed by an added factor of risk in the backward area. As a result of these considerations, which constitute independent concentrating cycles in their own right, the effects discussed before are often submerged. (ii) Locational choice gives rise to a concentrating cycle in many ways more important than the location-productivity and location-factor demand cycles cited above, namely the location-market cycle. This cycle has its origin in the strong attraction many industries and other economic activities experience with regard to their markets. The principal markets are found at locations of considerable population concentration. If wage levels are higher at such locations this raises the average incomes and thus enlarges the markets. New productive activities that are attracted to locate at such pre-existing concentrations give rise to additional income, which enlarges the market even further, thereby increasing its attraction as a productive location. Thus, a self-reinforcing cycle is set in motion. This cycle will be further reinforced if, beside market orientation, the industries attracted to the markets are also characterized by economies of large scale in their productive processes. If this is the case, smaller markets will not be served from independent plants, since the cost of operating several smaller plants will be considerably higher than the cost of operating a larger plant. Accordingly, the concentration process will converge on the location of the largest markets, serving smaller markets from these locations up to distances determined approximately by the balance of additional economies of scale on the one hand and additional distribution costs on the other.

(iii) Migration gives rise to a third set of feedback mechanisms connected with labour. The classical economic mechanism propounds that wage differences or unemployment pressures give rise to migration from low-wage (or unemployment) areas to higher-wage areas, thereby reducing labour supply in the low-wage zone and increasing it at the high-wage zone, until wage differences are eliminated. This is a negative-feedback system to be referred to as the migration-labour supply cycle. Evidently, this mechanism does not account for the well-established reality of

/persistent international

persistent international and interregional wage differences. As far as international migration is concerned, the institutional barriers are of course obvious. It is harder to account for disequilibrium situations notoriously observed between regions of a single country, which, it should be noted, are generally more severe in underdeveloped countries than in more advanced ones.

The migration-labour supply cycle clearly has some major limitations. It should be pointed out, first of all, that even in the absence of any competing mechanism, the equalization of wage rates does not follow from the structure of this cycle, only the narrowing of wage differentials that would exist in its absence. If, for example, the natural population increase in the backward region is strong, labour supply may rise and the wage differential with respect to a more advanced region may widen, in spite of the migration-labour supply cycle. (A pedestrian, or shall we say nautical, illustration, is that of a bathtub, which may overflow even when the stopper is out, if the water is poured in fast enough.)

In practice, the migration rate is seldom high enough to solve the problem of stagnation of a backward region. Moreover, there are costs associated with migration that often prevent it from taking place at any considerable rate, in spite of the strong pressures that may exist to promote it, until a point of such desperation is reached that an abortive and catastrophic attempt at mass migration may be undertaken.

It is suggested occasionally that the large empty tropical zones of a number of Latin American countries would be suitable for absorbing the surplus population of some desperately overpopulated regions in these same countries, adducing in support the massive pre-Columbian migrations that are known to have taken place in the Central American regions and elsewhere. The difficulties would, however, be so formidable, and the human costs so appalling, especially in terms of mortality, if a transition from upland climates to tropical zones, with their endemic diseases, were involved, that this solution is in fact less attractive than almost any alternative policy approach.

A second limitation on the migration-labour supply cycle is that wage differentials, even though they exist, may be made partly ineffective by institutional restrictions. For example, the stratification of urban

/labour with

labour with respect to wage rates, which has been cited earlier, will reduce the effective wage differential for the migrant very substantially, since upon entering the more advanced zone, he will find himself at the bottom of the pyramid, among the group of marginal workers. It should, nevertheless, be noted that the chances of eventual betterment, especially for a young and vigorous or a trained worker, are considerably more favourable in the advanced metropolitan zone than in the backward area.

This leads directly to the consideration of a second mechanism connected with migration, which is characterized by positive feedback, and thus tends toward concentration. This mechanism rests on the selective migration of persons: in other words, the preponderance of the young, the healthy, the unattached, the better trained and the better qualified among the migrants. Since this raises the average productivity of the population at the center, while reducing it correspondingly in the backward zone, it contributes to the widening of the wage and income differences which induce migration in the first place.

(iv) Nutrition, health, welfare and education likewise give rise to positive feedback systems through the agency of productivity. The levels of all these desiderata are better in the high-wage and high-income zones, partly because people can afford to avail themselves of these services to a larger extent through ordinary market channels, and partly since many kinds of these services are provided on a collective basis; in the latter case, the higher per capita incomes in the advanced zones create the basis for higher levels of the corresponding services. The net effect in each case is to raise productivity; this, in turn, is translated into higher per capita incomes. Conversely, in the low-wage and low-income zones, the standards of nutrition, health, welfare and education, as well as the standards of productivity, tend to stagnate.

It should be noted that, while each of the services that have been mentioned may give rise to a feedback cycle of its own, they are also interrelated among themselves. For example, poor nutrition of school-children notoriously leads to poor scholastic achievements. The interrelations of the various feedback systems will be discussed in more detail below.

(b) Mechanisms Connected with Capital

The classical mechanism related to capital is the interest rate-capital supply (and demand) cycle. This negative-feedback system rests on the flow of capital from regions of low interest rates to regions of higher interest rates. Correspondingly, capital supply increases where interest is high, decreases where interest is low; this, in turn, brings about a negative-feedback adjustment of the earlier interest rates, tending to equalize them.

This mechanism has a low degree of applicability under almost any practical conditions, but especially so in underdeveloped countries.

It should be noted that this mechanism, to the extent that it operates under a given set of practical circumstances, will tend to reinforce two of the cycles discussed earlier with reference to labour, namely the technique-factor demand and the location-factor demand cycles, which are characterized by negative feedback. However, in underdeveloped countries this mechanism has little practical effect. Market interest rates have little meaning, since access to capital is rationed, and the rates are far from being equilibrium rates (in the sense of equating the supply and demand of capital.) Thus, it is difficult to decide whether the mechanism operates or not: it may be adduced that it would operate if only the differences in interest rates were large enough to have a measurable effect. Moreover, the effects of this mechanism are often confounded with the element of risk. If no capital movements are observed to take place, in spite of apparent differences in market interest rates, it is argued that the difference in interest rates is just enough to compensate for additional risk, and that, accordingly, no "effective" difference in interest rates exist. If this reasoning is accepted, the explanation of capital movements becomes in good part tautological.

The problem with the foregoing use of the concept of risk is that it is not quantified independently from the process it is supposed to explain. Such a quantification is, however, entirely possible. "Risk" can be defined, for example, as varying inversely with the number of successful business ventures in a given zone.

Using the foregoing concept of risk, a second cycle pertaining to

/capital can

capital can be introduced, which is characterized by positive feedback. The cycle operates as follows. Low-risk zones, i.e., the ones with many successful business ventures, attract capital, and lead to the establishment of additional economic activities. This, in turn, lowers risk even further and makes the zone ever more attractive for capital inflow. Conversely, backward areas, which have few economic activities, are by that very fact high-risk zones, and tend to offer a disincentive to the inflow of capital.

Beside the factor of risk pertaining to the localization of a given economic activity, there is another aspect of investment risk which likewise leads to a positive-feedback system. This aspect pertains to the diversification of risks within the investment portfolio of an individual investor. In a region with a limited set of economic opportunities, little investment diversification is possible locally, and therefore it will be natural for a substantial fraction of indigenous savings to seek an outlet in other regions. Naturally, the capital drained away in this fashion retards the diversification of the backward region, by slowing down its over-all development. Conversely, a more advanced and therefore more diversified region will be able to hang on to a larger or overwhelming fraction of its savings, and thereby promote more rapid growth and an attendant further diversification.

A further cycle referring to capital which is also characterized by positive feedback is based on the entrepreneurial factor. It is well-known that one of the impediments to the development of backward areas is the lack of local business and entrepreneurial talent which would organize new ventures, taking advantage of the resources of the area in question. Thus, if favourable conditions for certain economic activities exist in a backward area, these activities might still be at a net disadvantage with respect to more advanced regions simply for the reason that they are never worked out in detail and promoted efficiently. For example, even conditions of preferential financing offered to a backward region by an economic development agency (which represents capital willing to move "uphill", against unfavourable risks), may remain without effect if no investment projects are submitted from the region in question, or if they are submitted in such a poor form that they cannot reasonably be considered.

/The positive-

The positive-feedback system operates with respect to the entrepreneurial factor through the agency of a dynamic business environment, which is the only effective source of additional entrepreneurial talent. Thus, where there is a great deal of economic activity, more entrepreneurial talent will be generated, which in turn will attract capital and promote additional economic activities for the advanced region. In the backward region, contrariwise, no indigenous entrepreneurial talent will be raised, for lack of a business climate, and the lack of entrepreneurs will prevent the attraction of capital and the initiation of a more intensive business activity.

As a result of the combined action of the positive-feedback systems based on risk and on the entrepreneurial factor, capital is far more likely to flow on its own account from backward regions to advanced regions than in the opposite direction. The resultant syphoning-off of savings from the periphery to the center is, in fact, one of the ills generally recognized in countries with significant regional problems. It is, of course, also an international problem with regard to underdeveloped countries as a group versus the major metropolitan centers of the world.

(c) Mechanisms Connected with Social Overhead Capital

The principal cycle connected with social overhead capital is a positive-feedback system, with productivity acting as the most important link in the circular chain of causation. The mechanism works exactly like the other ones discussed earlier that operate through productivity, to wit: in advanced areas, there is more social overhead capital; this increases the productivity of all investments and thereby per capita incomes in the area; these, in turn, create the basis for increasing social overhead capital investments in the area. Contrariwise, in backward regions, the lack of social overhead capital holds productivity down, and thus helps to maintain income at stagnant levels, which makes it more difficult to create more social overhead capital out of local resources.

A related positive-feedback system works through locational attraction: new investments are attracted to ample existing stocks of social overhead capital, and by the additional income they generate, they provide, in turn, the basis for further additions to social overhead capital in the more advanced zone; and contrariwise in backward zones.

/Beside the

Beside the two cycles discussed above, social overhead capital may be related to business risks. In an earlier section it has been suggested that the number of successful business ventures in a region be used for the quantification of risk; this concept may, however, be refined by the inclusion of the existing stocks of social overhead capital in a given zone among the factors that determine the chances of success of a venture. If this concept of risk is accepted as realistic, then an additional cycle can be stated, which runs from more social overhead capital to less risk to more new business ventures to more income, and finally to a positive feedback on social overhead capital. In backward regions, the cycle runs in reverse.

An additional cycle related to the financing of social overhead capital will be discussed in a subsequent section.

(d) Mechanisms Related to Transport

The transport investment-traffic volume cycle, which constitutes a system with positive feedback, has been discussed in detail in connection with social overhead capital embodied in transport facilities, in Section III-B-2. The effect of this cycle, as has been indicated there, is to concentrate economic activities, incomes and transport facilities in the more advanced zones.

In addition to this feedback system, there are also important one-way effects running from transport to migration and to the location of production and product distribution. These effects play an important role in the study of a question that has been open for a long time, to wit, whether a lowering of transport costs has a concentrating or a dispersing effect on economic activities. As has been amply revealed in the previous pages, any given variation is likely to have differing and often contrary effects, through separate mechanisms of causation. The effect of a lowering of transport costs is no exception to this observation. On the one hand, a lowering of transport costs is equivalent to a closer union of geographically separated markets; this has the effect of reducing the spread of factor prices (wages) and the prices of products and services, through the ordinary operations of the market mechanism. This effect is equilibrating. On the other hand, a lowering of transport costs exposes the generally less efficient economic activities of more backward zones

/to the

to the intense competition of productive activities located at the more advanced centers, and thereby tends to damage them or at least slow down their growth considerably. Which one of the two effects is likely to be dominant? No answer can be given to this question in the abstract, especially since the answer is apt to vary with the level of transport costs. In other words, at near-zero levels of transport costs the balance will perhaps be in favour of the equilibrating effect, while at somewhat higher levels it may favour the concentrating effect. Much depends on the relative mobilities of goods on the one hand and members of the working force on the other. Different results are likely to be obtained if workers can commute to central zones from areas with a radius of two miles, ten miles, or fifty miles. Here is a tremendous task of empirical research, which would be of great significance for policy decisions especially under the conditions of the underdeveloped countries.

(e) The Mechanisms of Agglomeration

The concept of agglomeration is used to denote a set of interactions between economic activities that are grouped geographically close together. Agglomeration has already been mentioned briefly in the section on locational forces (see Section II-A). It is recalled that agglomeration effects are of two classes: economies of scale - which can be interpreted as arising from the interaction of identical processes - and economies of interaction between dissimilar processes, such as the elimination of transport costs on intermediate products, the development of a common labour pool with special skills, common service and marketing facilities, etc. All of these effects give rise to a positive-feedback system. It has not, however, been mentioned heretofore that agglomeration can also give rise to diseconomies. There are certain cost elements associated with production that increase with scale. Some have simple technical reasons: for example, temperature control becomes progressively more complicated in the interior of larger reaction vessels in the chemical industry. Other excess costs are connected with the increasing complexity of communications and co-ordination in larger organizations. Analogous diseconomies arise in the geographical interaction of dissimilar processes, which become especially noticeable when the degree of concentration and

/the absolute

the absolute size of a nucleus becomes very large, as it can be observed in the major metropolitan areas of Latin America and elsewhere. These diseconomies are connected with the increasing complexity and cost of metropolitan transit and the organization of other common services, such as water supply, waste removal, etc. The diseconomies of agglomeration give rise to a cycle characterized by negative feedback.

Both the positive and the negative feedback systems of agglomeration operate through the agency of locational attraction for new enterprises. The economies of agglomeration increase with the number of economic activities that form the nucleus of aggregation; thus, a larger nucleus exercises a more powerful attraction on many types of new economic activities than a smaller one. Accordingly, a larger nucleus tends to grow faster, by capturing proportionately more new activities than a smaller one. Of course, the larger it grows, the more powerfully it will tend to attract further activities. The limit to this process is set only by the gradual strengthening of the opposite forces due to the diseconomies of agglomeration. These also manifest themselves to a larger degree if the size of the nucleus increases. To the extent that they operate, they will tend to repel the location of new activities at the given nucleus. The effect of this is a slowing up of the growth rate, which in turn reduces growth of the diseconomies of agglomeration. In practice, it would of course be important to know the relative strengths of the opposing forces at different aggregation sizes. It appears from the observation of the urbanization process that the positive-feedback system is dominant up to very large metropolitan sizes; however, it is not apparent how much of the observed concentration is due to agglomerative forces and how much is due to the other mechanisms discussed in this section. A clarification of this issue is one of the important empirical tasks that need to be undertaken in the field of urbanization studies.

(f) Mechanisms Connected with the Balance of Payments

Every geographical region, just as every country, is subject to the restraints of the balance of payments. This balance is a definitional identity between the in- and outpayments of an area, which may be on current account - payment for goods or services -, or capital account - money flows due to lending or repayment operations. While the balance

of payments always balances, the point of balance may not necessarily be achieved in a way that is desirable from the point of view of the region, or country, in question. Balance may be achieved at a high rate of growth or at a level of stagnation. The most important variables that indicate whether the balance is desirable or not are the terms of trade, in other words, the price relationship between the things the region sells and the things it buys, and the level of employment. These variables intervene in a fundamental way in the determination of the growth rate of per capita incomes in the region.

While it is emphasized again that the balance of payments must necessarily remain in balance as a whole, for reasons of definition, this does not mean that individual components are also necessarily in balance. For example, if a region imports certain consumer goods on 30-day credit and then does not actually pay these obligations for two years, this means that the rest of the world has involuntarily converted a 30-day credit to the region into a two-year credit. This item is then out of balance, in the sense that the region enjoys a larger amount of long-term credit than the amount that corresponds to the intentions of the lenders. Clearly, the situation is unstable, for this method of long-term financing brings rapid repercussions elsewhere; shipment of additional goods will be stopped, except on a cash basis. In a similar manner, actual imports and exports may get out of balance with intended amounts that correspond to a given constellation of prices, income levels and other determinants of the situation. Whenever the individual items of the balance of payments get disequilibrated in this manner, a chain of repercussions is started up which leads to a feedback system.

There are two feedback systems of especial importance that serve to keep the actual amounts of current and capital operations in step with their intended amounts. Both are characterized by negative feedback and both operate through the levels of income: they compress the income of a region that tends to import more than can be financed out of exports and stable borrowing; contrariwise, they expand the income of a region that shows the opposite tendency. However, these mechanisms differ among themselves with regard to the way in which the compression or expansion of income is achieved. The first one adjusts income by modifying the terms

/of trade;

of trade; the second, by changing the levels of employment. These income changes, in turn, give rise to negative feedback effects on imports: when income falls, less is imported, and vice versa. In the case of an adjustment by means of the terms of trade, moreover, there may also result a negative feedback effect on exports: at lower prices, total export income increases for commodities which have elastic demands.

While these cycles maintain the components of the balance of payments in equilibrium, they offer no assurance at all that the growth rates of different regions will be maintained in step with each other. On the contrary, with the typical export supply and import demand structures which characterize developed regions on the one hand and backward regions on the other, the maintenance of equilibrium in the balance of payments necessarily implies divergent growth rates, which tend to accelerate the growth of the developed regions and maintain the backward regions in a state of stagnation. This is due to the low income-elasticity of the typical exports of backward regions (foodstuffs and other primary products) and the high income-elasticity of the imports of these same regions (capital equipment, intermediate goods, consumer products). There is no effective way of getting away from this conclusion, unless the structure of imports is changed in the backward regions, by means of new productive activities established in these regions (agricultural rationalization, industrialization, export diversification); or unless one is willing to assume alternately the continuous and increasing transference of immense amounts of capital to the backward regions, clearly not a feasible alternative.

The other feedback mechanisms discussed in this section interact with the considerations based on the balance of payments to the extent that they independently influence the structure of production and the location of economic activities; by these means, they participate in the determination of exports and imports, and furthermore, the structure of stable capital movements to and from each region. Moreover, by acting on wage levels and interest rates independently, they also affect the level of production costs in each region, which in turn influences the interregional terms of trade.

(b) Mechanisms Related to Fiscal Policy

Fiscal policy has at least two important effects on regional concentration. First, through the general tax structure, which may be progressive or regressive, it can give rise to important interregional capital transfers. Second, through its selective incidence (or lack of it) on certain activities or services, it may influence the geographical distribution of these activities and services, with related secondary effects.

General tax collections that vary strongly with individual incomes - regardless of whether they are formally income taxes or not - will automatically lead to proportionately larger tax collections in the more advanced regions of a country. If government expenditures are, at the same time, evenly distributed, or especially if they proportionately tend to favour the backward regions, the fiscal system will have an important equilibrating effect, tending to equalize regional growth rates. On the other hand, regressive taxation, especially if coupled with a concentration of government expenditures at the principal centers of the country, will have a concentrating effect.

Among the specific taxes, the most important ones from the point of view of geographical concentration are the ones pertaining to social overhead services. Urban and transport social overhead capital investments, as already indicated, convey a large range of benefits to productive enterprises located in the cities or served directly by certain transport facilities. To the extent that these benefits are not compensated by taxes, they constitute an important concentrating effect, leading to a positive feedback system. The benefits attract more enterprises to the privileged area; these create additional income; and to the extent that social overhead capital is created from local income, or is responsive to local needs, the creation of additional amounts of social overhead capital will be encouraged in the advanced zones. Conversely, if social overhead benefits are overcompensated by specific taxes, there will be a deconcentrating effect.

4. Interrelations among the Mechanisms of Geographical Concentration

The individual feedback systems connected with geographical concentration which have been discussed briefly in the foregoing pages, are

/clearly not

clearly not independent of each other. In fact, some of the interrelations among them, for example the balance between positive and negative feedback systems of a certain kind, or the relations between mechanisms of the balance of payments and other feedback systems, have already been touched upon during the previous discussion. These interrelations are extremely important if a quantitative rather than merely qualitative understanding of the process of geographical concentration is to be gained, since the dynamics of adjustment of each feedback mechanism are influenced by all of the others with which it shares variables. Thus, for example, the variable of productivity was seen to be involved in a large number of these feedback systems; likewise, the wage level prevailing in a given geographical zone plays an important role in a number of different feedback systems.

The net result of the interaction of all the mechanisms is the generally observed strong tendency toward increasing geographical concentration during the course of economic development, indicating the dominance of the combined effect of the positive feedback systems over the negative ones. However, at the present time the relative importance of each of the individual mechanisms, acting in one or the other of the two directions, cannot be ascertained, and remains as a problem for future research.

The qualitative understanding of the various mechanisms involved in the phenomenon of geographic concentration will, nevertheless, serve as an indispensable background in the discussion of specifically metropolitan problems and the analysis of alternative policies dealing with urbanization and economic development.

B. Metropolitan Concentration Problems

The problems of metropolitan concentration are well known: congestion, traffic problems, irrational land use, excessive speculation, social deterioration, and many others. These problems will be dealt with in this paper only in a summary fashion; and in this section, an attempt will be made to link them specifically to the generally accepted concepts of economic planning.

1. Market Failure in Metropolitan Resource Allocation

The metropolitan problems listed above, as well as others, such as poorly co-ordinated investments in productive and social overhead facilities, the overinvestment in certain types of facilities, such as luxury housing, and the simultaneous underinvestment in others, especially the facilities of working-class neighbourhoods, phenomena which are markedly notorious in underdeveloped areas, can be traced in good measure to the failure of the market mechanism. It is, of course, a commonplace that in many respects the market mechanism in an underdeveloped country cannot be relied on to organize efficiently the resources of the economy; yet with regard to metropolitan problems, this observation has a special force, since in this respect the market mechanism is very inefficient even in the more developed countries.

For theoretical reasons, the market cannot allocate land rationally between competing uses on a metropolitan scale. Such a scale, even though large from the point of view of the typical individual metropolitan land using function, is still quite small when measured by the dimensions of the country as a whole; and more important, the detail of internal differentiation within the metropolitan zone is far richer than in the country at large. This leads to the following phenomenon: within the metropolitan area, one given piece of land is far less replaceable for another piece than outside the urban zone, the consequence of which is the ineluctable creation of monopoly positions associated with every tract of urban land. It should be noted that the creation of these monopoly positions does not depend on the institution of private land ownership; the monopoly positions, in the economic sense, would arise in a similar fashion under social ownership, provided that decentralized production and investment decisions were to be established. In any event, the necessary existence of monopoly positions rules out the simultaneous existence of a stable price structure. The contradiction can be resolved only if the individual land holding is vanishingly small compared with the significant detail of urban geographical structure - in practice, an absurd supposition.

The consequence of monopoly positions associated with land holdings would theoretically be a constantly shifting price structure that never settles down into a fixed pattern. In practice, however, the inherent

/instability of

instability of urban land prices is completely submerged under a series of other phenomena which would tend to dominate even a stable market equilibrium, if one existed.

First of all, the physical life of urban capital facilities, such as buildings, shops, factories, streets, subsurface construction, etc., is very long, and thus typically it takes a long time before urban land can be reallocated to a new use, without incurring an excessive cost. Accordingly, the time lag of all adjustments is large, and the response to price incentives is sluggish. For this reason, large divergences between optimal current use and actual use of a tract of urban land are common. This hides the inherent instability of urban land prices.

Secondly, the urban land uses associated with social overhead investments necessarily have to be allocated outside the market mechanism, since the benefits of social overhead capital, by definition, accrue outside the market, and thus a social-overhead land use cannot compete with an industrial or commercial land use on the basis of market-determined productivities. This further reduces the role of the market in allocating urban land between competing uses.

As an additional complication, the dynamic effects of economic growth in the cities are extremely important: thus, even if there existed a perfect price system which took into account all of the present needs of a metropolitan area, these prices would constitute inadequate guides for investment decisions, since the latter have to take into consideration future needs. For example, it is generally recognized that decisions with regard to the establishment of transit systems have to be based on estimated future uses, since ulterior expansion of an underdimensioned system is very costly. Accordingly, an adequate system of land prices would have to incorporate an allowance for possible future land uses as well as for current ones. It should be noted that this theoretical need for a price system that would anticipate future conditions, exists with regard to all economic activities: however, its importance becomes dominant to the extent that low-cost, marginal adjustments are technically ruled out. For example, there is no critical need for a careful anticipation of the future demand for haircuts: the corresponding service facilities can be created easily as the need arises. With regard to

/major, indivisible

major, indivisible investments, however, such as basic industries, the need for considering future prices together with current ones is evident, if the decisions are to be made in a decentralized fashion. The dominance of future prices in the problem of metropolitan resource allocation follows from the long life of urban investments, the resultant inflexibility and the high cost of adjustments if they cannot be avoided. Since future prices are never taken into account systematically in the market, here is an additional reason why little can be expected from the market as an organizer of metropolitan resource allocation decisions.

2. The Problem of Urban Real Estate Speculation

Real estate speculation creates one further troublesome aspect of the metropolitan land allocation problem, but contrary to occasional misconceptions, it does not represent a failure of the market mechanism, but rather one of its consequences, socially undesirable as it may be.

Speculation is observed whenever the demand for a commodity, such as urban real estate, arises in considerable part for asset-holding purposes, rather than for the purpose of enjoying the services that the given commodity provides, such as housing or commercial accommodations. The effect of the "asset-demand" for real estate is to raise its combined demand above the level that would be determined by the "service demand" alone. Moreover, the asset-demand often results in a positive feedback cycle with regard to the prices of certain properties. To the extent that people buy real estate not only as a form of holding property or as a hedge against inflation, but also with a view to possible speculative profits by resale, a given property may appear more desirable not only in relation to its inherent service-determined value, but in relation to its previous price increase. Thus, the types of property on which speculative demand converges originally, fortuitously or in anticipation of future service demand, will by the very fact of this initial convergence and consequent price rise appear even more desirable to later generations of buyers. Price increases can continue to the point where they lose all connection with service-determined value. Speculative cycles of this kind are well-known; the price increases can go on as long as new buyers come into the market or as old participants manage to bring new money

/into it,

into it, usually by means of a credit expansion. ^{4/} The phenomenon of real estate speculation is observed in practically all major Latin American metropolitan areas, especially the ones situated in rapidly expanding economies. Metropolitan real estate is an exceptionally suitable speculative medium for several reasons. First of all, there is a real basis for price increases in the rapid growth of service-oriented demand in these zones; then, the major savings in these countries accrue at these same metropolitan centers; and the speculative outlet for these savings settles naturally on the type of transaction whose object is physically close at hand and can be readily inspected in person. The latter factor is especially important in view of the fact that self-generating price increases require not just a few transactions, but a whole series of them referring to the same class of objects.

The socially undesirable consequences of real estate speculation are well known. Speculation, by driving up the prices of tracts of land and other urban properties, withdraws these properties from many rational service-oriented uses; moreover, it makes the allocation of urban land far less sensitive to changes in service-oriented demand, since the latter is submerged by the high speculative demand; and finally, if it manages to anticipate inelastic service-oriented demands (for example, the demand for a piece of land in the path of a public street) it can raise the corresponding prices to fantastic levels. To curb these excesses, especially in relation to social-overhead-type land uses, expropriation and the designation of a "fair" compensation is a commonly accepted practice even in those countries that give the widest play to the market mechanism.

While this latter type of provision can prevent speculative excesses related to one kind or another of social-overhead land use, it is generally not suitable for curbing the speculative rise in the price level of the entire body of real estate available at and near to, a given metropolitan area. In fact, the compensation awarded in connection with expropriation,

^{4/} Famous historic examples of speculation are the Dutch tulip-mania, and more recently the stock-market and real-estate boom of the twenties in the United States, both of which ended in spectacular collapses.

according to generally accepted standards of fairness, has to be adjusted to the level of property values prevailing in the area; thus, it incorporates the general speculative rise of property values.

In an underdeveloped country, this general and usually not excessively rapid rise of real estate values is perhaps even more undesirable socially than the more spectacular, but isolated, instances of speculative profits, for the following reasons.

(i) The general rise amounts to a powerful regressive redistribution of incomes in the economy at large. The receivers of additional income are the narrow higher-income classes of the metropolitan zones who can afford to participate in the speculative process. The losers are the lower-income urban classes on the one hand, whose rents are driven up; and in addition, to the extent that the cost of social-overhead facilities is raised, all contributors to these social-overhead facilities, including lower-income taxpayers, are additionally burdened.

(ii) Investment incentives are distorted. Speculation serves as an attractive outlet for savings out of higher incomes, and to this extent, productive investments are handicapped. In addition, a series of completely unproductive investments are undertaken. It is said that in one of the largest Latin American metropolitan areas, the number of improved building lots (with streets, lighting, service connections) that have been sold on installment credit is sufficient to take care of all building needs for the next two generations! These investments represent a frightening waste of a critically scarce productive factor.

(iii) Credit is misdirected. In underdeveloped countries, where credit has a critically important function in the financing of economic development, its channelling into real estate speculation makes the sound financing of worth-while investment projects correspondingly more difficult.

(iv) In the last analysis, consumption is stimulated at the expense of productive investment. It should be borne in mind that every time a piece of property is bought for speculative purposes, the same transaction puts liquid purchasing power in the hands of the seller. If the seller, in turn, buys another piece of property with the money, the second transaction will likewise end up with cash in someone's hands. It is a frequently

/encountered fallacy

encountered fallacy that speculation soaks up financial resources like a sponge; on the contrary, the capital gains associated with the corresponding sales must find their way out again from the network of speculative transactions, and into other channels. Part of these funds are invested in capital facilities associated with real estate; land improvements, luxury housing, large office buildings, etc.; another part may be invested in other sectors, but this part is likely to be small, due to the distortion of investment incentives; and a considerable fraction probably finds its way into higher consumption expenditures of the upper income groups.

(v) The entire structure of savings, credit operations, investments and the capital market in general is affected by the existence of real estate speculation; as a consequence, any drastic frontal attack on the problem, such as the expropriation of all unused urban lots and the compulsory lowering of rentals, which has been undertaken in one recent instance in Latin America, has a series of repercussions which might be very difficult to control, especially in the short run.

3. Urban Programming in Context

It is now widely recognized that the market mechanism cannot be relied upon to solve the problems of metropolitan resource allocation, and the concept of a centrally co-ordinated urban programming process has correspondingly come to the fore. The notion of city planning and regional planning, in the sense of resolving primarily those problems of land allocation, transport organization and social functions in metropolitan areas and their tributary zones which the market cannot handle effectively is now widely accepted in the more advanced as well as the less developed countries. In the latter countries, however, metropolitan planning makes little sense without co-ordinating this planning process with planning in other fields where, it is realized, the market is also failing to perform its traditionally postulated directive and organizing functions: to wit, in the general field of co-ordinating the requirements for economic development for the country as a whole.

In underdeveloped countries, it is not sufficient to plan urban traffic arteries, industrial, commercial and residential zones, the sites

/of schools

of schools and parks, public housing projects: in one word, the more traditional aspects of the city planner's concerns. Even in the more developed countries, city planning is coming to comprise more and more concern for the problems of the economic base of a city, its employment structure, its attraction for different types of economic activities; concerns which have a far greater urgency in underdeveloped countries where, with increasing urbanization, the development of the urban centers is inseparably tied up with the development of the economy. For this reason, in these countries it is necessary to consider the specifically urban problems in the context of the distribution of economic activities between urban and extra-urban zones, as well as between urban centers of different sizes; and to set the requirements of urban investments of different classes into the context of the general problem of the distribution of investments in the country. On the basis of the concepts elaborated heretofore, the elements of an integrated policy towards urbanization and economic development will be laid out in the next section.

V. THE INTEGRATED PROGRAMMING OF URBANIZATION AND ECONOMIC DEVELOPMENT

This section represents an attempt to fit urbanization into a framework of general economic programming for under-developed countries. The discussion will be presented in two parts. The first of these, relating to policy objectives, will present a programming framework modified by the inclusion of considerations relating to regional and urban problems: the second part will discuss briefly some issues relating to the choice of policy instruments for the execution of the programmes prepared.

A. POLICY OBJECTIVES

While there is wide divergence among specific approaches to the programming problem in the western orbit, some basic principles stand out with sufficient clarity to permit a meaningful discussion of the urbanization problem in relation to economic programming, without the need for entering into a controversy on the issues of economic programming itself. The following discussion will be centered on the programming framework of the Economic Commission for Latin America, embodied in a series of country studies^{6/} carried out in the Latin American region.^{7/} This framework itself is in continuous process of development, and has been somewhat extended (by the specific inclusion of social pricing principles) for the purposes of the discussion of this paper. The intention is, however, not so much to argue the merits of one given programming approach, as to point out the kinds of difficulties that are likely to be encountered when urban problems are involved in the economic programming process.

1. Urbanization Problems and the Economic Programming Framework

The basic principle adopted in fitting urbanization problems into the economic programming framework will be to follow the levels of analysis of that framework, and thus break down the highly complex inter-relations

6/ Colombia, Brazil, Mexico, Argentina, Bolivia, Peru

7/ See Volumes II, III, IV, V, VII of the series Analyses and Projections of Economic Development, corresponding to the studies on economic development of Brazil, Colombia, Bolivia, Argentina and Peru. (United Nations Publications, Sales No. 1956.II.G.2; 1957.II.G.3; 1958.II.G.2; 1949.II.G.3 (Volume 1), and 1959.II.G.2. See also "Advice and Assistance to Governments in Programming Economic Development" (E/CN.12/518).

between urbanization and economic growth into smaller, self-contained problem areas. Of course, the individual levels of analysis with respect to urbanization have to be made consistent, by means of successive revisions or otherwise, with the corresponding levels of general economic programming, as well as with each other.

At the global level, the growth profile of the economy in general has to be supplemented with the growth profile of the major areas and their metropolitan centres in aggregate terms. In addition, a general policy with respect to social overhead investment has to be formulated at this level.

At the intersectoral level, the expansion requirements of the individual sectors and industries determined for the economy at large have to be supplemented with an area-metropolitan breakdown of these expansions. The requirements and availabilities of productive factors, as well as of social overhead capital, likewise have to be analysed by areas and metropolitan districts. Concurrently, the broad outlines of the transport network and urban land use in the principal centres have to be laid out in terms of physical planning.

At the sub-sectoral level, the comparison of alternative investment projects has to be broadened to include detailed locational analyses. The objective is to arrive at an area-metropolitan distribution of the more dynamic industries in the economy. Complementary social-overhead investments have to be studied not only from the economic, but also from the physical-planning point of view. At this level of analysis, the topography of land use in individual urban centres and the physical interconnections between these centres and their hinterlands have to be set out in detail.

At the project-enterprise level, the principal task is to ensure that the more backward areas and centres are adequately represented with potential investment projects, in order to prevent the programming of investment on the basis of an incomplete range of alternatives, since the latter would introduce a bias in favour of the more advanced zones. This precaution should extend to social overhead investment projects as well as to productive investment. Project plans have to include physical and topographical detail.

2. Global Programming and the Concentration Problem

In setting out programming goals with regard to the growth profiles of individual areas and their metropolitan centres within the general growth of the economy, decisions have to be reached regarding the degree to which concentration of economic activities is desirable. It has been indicated in an earlier section that too little concentration as well as too much concentration are "undesirable" in a loosely-defined way; the first, because it means a sacrifice of the economies of agglomeration and urbanization that could be achieved by greater concentration and the second, because it gives rise to serious diseconomies in the overcrowded centres and results in the stagnation of the more backward zones.

The problem of optimum concentration is one of criteria. It may be provisionally affirmed that concentration should be carried to the point at which the economies of concentration obtained by moving the location of a marginal enterprise from the periphery to the centres are exactly offset by the corresponding diseconomies. This criterion has two weaknesses. First, it raises some tricky conceptual and empirical problems. For example, in a dynamic growth situation, it would not do to evaluate economies versus diseconomies at current prices, since many effects of a given locational decision carry far over into the future. Thus, all the problems of using future and current prices conjointly are introduced. In addition, the benefits due to social overhead capital do not appear at market prices; therefore, the problem of corrections for social-accounting purposes is introduced. The empirical problem of measuring the economies and the diseconomies would be a difficult one even if these considerations were disregarded. In short, the criterion is very hard to apply. However, it can be attacked on more fundamental grounds from a different angle. Since the criterion considers only economies and diseconomies in general, i.e., from the point of view of the entire economy, it shelves questions of equity in the regional distribution of the benefits of growth. Supposing that a maximum growth for the economy as a whole is ensured by a certain set of policies with regard to concentration: is this acceptable if it implies the crass stagnation of certain areas, which thus become virtually colonies of the more advanced centres ?

/In practice,

In practice, there are some obvious net diseconomies of over-concentration that can be observed in the very largest metropolitan centres in Latin America; however, assuming that these can be corrected by relatively straightforward urbanization policies, the question still remains whether the growth pattern is sufficiently balanced as between areas to be acceptable from the point of view of equity? And, if not, how much sacrifice of overall national growth should be accepted, in order to stimulate the more backward zones? These are clearly questions of social policy which have to be dealt with by the processes of policy-shaping. The function of professional programming in this field is to work out the range of alternative, internally consistent, possibilities on the basis of which a choice of policy can be made. (Incidentally, this separation of the two functions is highly desirable even when they are performed by the same individual or group. In other words, it is bad practice to mix up technical considerations and considerations of policy.)

The principal sacrifices of decentralization are connected with social overhead capital, transport and productivity. The development of more backward areas typically requires not only productive investment, but also a series of auxiliary social overhead investments that could be largely avoided by emphasizing expansion in the more advanced areas. A higher ratio of social overhead to productive investment lowers the capital-output ratio: in other words, capital that could have been used to increase national income directly, is tied up in improvements that do not yield a directly measurable return. In addition, transport costs may be increased by forcing the development of under-developed areas; the initially established industries will be lacking in local suppliers of raw materials, intermediate products and services; likewise, they will often lack sufficiently broad local markets. Finally, productivity in the less developed areas will generally be lower than in the advanced centres. Lower productivity of labour is not necessarily socially harmful if the under-developed area is one with a labour surplus; but lower productivity of capital, which is also to be expected, is a direct social sacrifice.

/In the

In the adoption of decisions as to the comparative growth profiles of areas within the national development programme, all of these effects have to be quantified to the largest possible extent. It should be noted that many of the sacrifices that appear greatest in the short run are, fortunately, of a transitory nature if economic growth is successfully set in motion. Thus, social overhead capital investments fall in proportion to progressive development, as they are spread over a larger volume of productive activities; transport requirements decrease as the local economy is rendered more self-contained by increasing diversification; and productivity improves as a direct result of the growth of industrialization. All of the self-reinforcing feedback mechanisms discussed in Section III-A, which work against an underdeveloped zone while it is in a state of stagnation, go into reverse and become self-reinforcing growth mechanisms as development attains a certain impetus.

In a later section, the instruments of decentralization will be discussed in some detail; the present intention is to clarify primarily the ways in which over all programming objectives are defined within this field.

Before the problem is dismissed, it may be mentioned in passing that there are some empirical regularities with regard to the degree of concentration in the more advanced countries which may serve as a background for programming decisions. In large and well-integrated economies, population centres follow a hyperbolic rank-size rule, the reasons for which are obscure, but which is well established by empirical observations. This rule states that when urban areas in such economies are ranked according to their population sizes, the product of their rank by their population is constant. Accordingly, the largest centre is approximately twice as large as the second largest, ten times as large as the tenth largest, fifty times as large as the fiftieth largest, etc. It is also observed that internally unbalanced economies do not follow the rule. In Latin American countries, the largest centres often tend to stand out sharply from the relationship, indicating overconcentration. In the absence of more directly useful criteria, area growth profiles in the larger countries may be defined by a gradual policy

/of adjusting

of adjusting size relationships to this norm. Likewise, decisions with regard to area growths that are arrived at for reasons of policy may also be checked against this norm, in order to detect tendencies representing significant deviations.

3. Global Programming and the Formulation of a General Policy with Respect to Social Overhead Investment

At the global programming stage, as indicated in the foregoing section, growth profiles are determined for the economy as a whole and for the individual areas, highly aggregated economic indicators being used for this purpose. Among these is investment, whose magnitude is set for the economy and for each area, for every year of the programme.

The requirements of individual capital facilities which make up the aggregate of investment are determined at lower levels of analysis, on the basis of the growth of production in the individual sectors and industries. However, this method does not work for social overhead investment. As will be shown in more detail below, the fact that social overhead investments have benefits which by definition are not priced in the market, makes it impossible to evaluate their productive contribution directly. As an alternative, they may be assigned as a correlative part of a group of productive investment projects; in this case, the entire group, including the social-overhead projects, is evaluated as a unit. This method is, however, not entirely satisfactory; the more diffuse the benefits of a given social overhead investment, the more arbitrary becomes the assignment of this investment as a direct burden on a group of selected productive processes.

In addition, problems of standards inevitably arise. Just how much social overhead investment is necessary as a complement to production? (See Section III-A-3.) As no direct answer can be given, the "assignment" of social overhead investments to productive investments, discussed above, becomes even more indefinite.

In order to deal with these problems in a practical way, it is suggested that social overhead capital budgeting should be included from the very first in the global programming procedure. Given the aggregate amount of investment assigned to each area and metropolitan centre, this should be tentatively

/broken down

broken down into categories of productive investment and social overhead investment. These tentative assignments have to be revised, of course, at a later stage of programming, with reference to lower levels of analysis which, as will be seen, include the preparation of detailed physical plans (topography, land use, transport system). At the global level, however, general decisions have to be taken with regard to the following two issues: i) the proportion of productive investments to social-overhead investments in the economy; and ii) the regional distribution of social overhead investments.

i) What standards of social-overhead investment should be applied to the economy as a whole? In other words, should productive investments be emphasized to the utmost, at the expense of social-overhead investments, in order to arrive at high capital-output ratios, or otherwise, should social-overhead facilities anticipate to some extent the productive needs of the economy, in order to stimulate productive investments?

While the discussion of this issue carries over into the field of policy instruments, which will be taken up in detail in the next major section, it appears desirable to deal with this question at the present juncture.

First, the decision will have to depend considerably on the choice of policy instruments in general. If a large part of the economy is left to operate on a decentralized basis, as is the case in all occidental economies, the stimulating effect of social overhead investments has to be given more weight than in a situation where the majority of investment decisions is under public control, and where productive investments can be directly coordinated with their social-overhead type complements.

Secondly, the effect of different types of social overhead investments stimulates production to different degrees. Thus, electric power is almost always the fulcrum of development, and a lag of power facilities behind the needs has a very strongly retarding effect. Next to power, transport has a key importance. Not as critical in the short run but, it will probably be generally agreed, no less vital in the longer run, is the role of education, since it is directly related to productivity increases.

/A further

A further consideration with regard to the compression of social overhead needs is the following: social-overhead facilities that are complementary to productive facilities through the mechanism of productivity, should be provided for each sector, industry or activity in proportion to the dynamic role which these activities play in the economy as a whole or in individual regions. A special problem arises with regard to agriculture which, in many under-developed countries and regions, is called upon to fulfill a dynamic role, yet which is capable of absorbing enormous amounts of social overhead capital that cannot be spared for this purpose. In most of the countries of Latin America, however, this problem is simplified by the fact that, for the time being, investments in rural storage, transport and distribution facilities, which can be decided on purely technical grounds, have a high priority over investment in other rural facilities which would yield their contributions to the raising of productivity through their effects on the quality of the working force, rather than by their direct technical benefits.

In sum, the most rational way of taking a programming decision with regard to the proportion of social-overhead to productive capital investments appears to be : (1) the definition of a base line of maximum compression, and (2) the subsequent relaxation of the corresponding austere standards.

This relaxation is carried out on the basis of two considerations: first, equity, social justice and, incidentally, political considerations; second, the need to provide adequate incentives for the large decentralized business sector of the economy which has to carry a major part of the total responsibility for economic growth. It is emphasized that, in any event, the original proportion set at the global level is a tentative one which has to be revised repeatedly on the basis of the detail disclosed by the lower levels of analysis.

8/ It is interesting to point out that the logic of the maximum compression of social overhead needs is simply a variant of the argument that a highly regressive distribution of real incomes promotes economic growth.

ii) The regional distribution of social overhead investments within the global programming framework can be undertaken largely on the basis of the same principles which have been discussed in the foregoing paragraphs. It is assumed that regional growth rates have already been decided upon, and aggregate investments have been assigned to each region. The proportion between productive investments and social overhead investments in each region can then be undertaken by initially determining a base line of maximum compression of social overhead investments; this can, subsequently, be revised upward on the basis of the two considerations mentioned before, equity and the incentive effect on decentralized business expansion. In the case of individual regions, it should be noted, the latter effect has especially great importance, since inadequate stocks of social overhead capital in backward regions set in motion a positive-feedback system that tends to concentrate decentralized business investments powerfully in those areas better provided with social overhead facilities. (See Sec. N-A-3).

As a result of the existing, typically uneven, distribution of social overhead facilities between different areas and urban centres in Latin American countries (and probably elsewhere also), the policy of maximum compression of social-overhead investments, accordingly, has the strong concentrating effect noted above. On the other hand, the upward revision of the standards of social overhead investment in individual backward regions is one of the powerful instruments for counteracting the tendency for excessive concentration in these countries. To what extent this instrument will be used, is a matter that depends on the relative weight and the dynamic role of the decentralized business sector, as well as the availability of other instruments for controlling concentration. These issues will be discussed in Section V-B.

4. Intersectoral programming and the Regional Distribution of Activities

At the level of intersectoral programming areas breakdowns of the expansion requirements of individual industries and other sectors of economic activity have to be prepared. The regional breakdowns, of course, have to be consistent with the aggregate growth profiles of each region incorporated in the global level of planning; in addition they have to be structurally balanced in each region, and further have to be directly related to the locational analyses of the sub-sectoral level.

It has been noted before that the intersectoral level of analysis, even when couched in aggregate terms for the economy as a whole, i.e., without area distinctions, implicitly incorporates certain assumptions with regard to the area distribution of activities. For one thing, social overhead capital requirements associated with production differ between regions. These requirements, which are formally included in final demand, cannot be quantified accurately unless the regional distribution of economic expansion is visualized. Capital and labour requirements, and even more so transport requirements, also vary with the regional distribution of production. These implicit assumptions are clarified and made explicit by the regional breakdown indicated above.

The requirement of structural balance in each area is related to the well-known concept of balanced growth which has been expounded many times as a requirement for the development of underdeveloped countries. It means, among other things, that a region, like a country, cannot develop with a stagnant agricultural sector (except under the most unusual circumstances); that no sudden and drastic changes can take place in the proportions of industrial, commercial and service activities; that social overhead capital has to grow as production grows. It means, in addition, that an increasing proportion of inter-industrial transactions has to take place inside each area, rather than by means of inter-area exchanges, as the individual areas develop. The detail of the web of intersectoral relations within an area as well as between areas, is determined by locational considerations; however, at the intersectoral level, only the results of the interaction of the locational forces are stated, without an explicit analysis of these forces themselves. The breakdown of activities at this level anticipates the results of the sub-sectoral analysis; if, subsequently, it is found that the latter are in conflict with the former, they have to be mutually revised to make them consistent with each other.^{9/}

9/ The area breakdown may be achieved by formal input-output or linear programming models that distinguish between activities in different areas; alternately, the simple input-output model for the economy as a whole may be supplemented by less formal area breakdowns and projections of interarea commerce. In the formal models, consistency and efficiency (from the point of view of prices) is achieved automatically, but at the cost of a high degree of complexity; if informal methods are used, successive revisions are required to achieve these ends.

Concurrently with the intersectoral level of analysis, it is necessary to prepare in broad outline the physical development plans of the major regions and their metropolitan cores, in order to be able to estimate the social overhead capital needs and the orders of magnitude of transport costs. The preparation of these plans is aided by the simultaneous definition of the productive structure of each area and the projection of inter-area commercial interchanges.

5. Locational Problems at the Sub-Sectoral Level of Programming

The sub-sectoral level of analysis is the level of project evaluation. As has been noted before, when urbanization phenomena are considered together with general economic planning, careful consideration must be given to the locational aspects of individual investment projects and of economic enterprises in general.

In practice, it is hardly possible to consider individually each expansion of economic activity connected with the development of a country. In all occidental economies, the majority of decisions with regard to the expansion of productive enterprises is left in private hands; the function of planning is primarily to provide a framework for these decisions, to intervene directly in the development of basic and especially dynamic industries and sectors, to rationalize social overhead investments, and to regulate the decentralized private sectors of the economy by appropriately chosen incentives and disincentives. Thus, the analysis at the subsectoral level reduced itself largely to the evaluation of major private projects, especially if organized with public support, and social-overhead type projects.

(a) Directly Productive Investment Projects and Enterprises

A locational analysis of these projects involves comparative cost studies under the price conditions of different areas and urban centres. As indicated in the section on general economic planning (Sec. IV-1), in underdeveloped countries, market prices are not a suitable criterion of project evaluation from the social point of view. This is as true of locational studies as of others. However, with regard to locational studies an additional complication is introduced: the geographical structure of social

/accounting prices

accounting prices has to be taken into account. This structure has to be derived from the structure of production in each area and from the flows of products between regions.

Generally, the social accounting prices of productive factors are related to the availabilities and requirements of these factors in the individual areas, exactly as in the aggregative analysis of the economy as a whole; likewise, the social accounting prices of individual products are related to the direct and indirect utilization of the factors in the production of each product. However, it has to be taken into account that products can be transported between areas. Therefore, the social accounting prices of products are subject to this condition: if a product is exported from one area to another, the social accounting prices in the two areas have to differ by the amount of the transport costs between them, with the area of origin having the lower social accounting price. If there are no flows of a given commodity between two areas, then the prices in them are independent of each other and may be determined by local conditions or by interactions with other areas.

The locational structure derived for the basic and dynamic industries of the economy at the sub-sectoral level has to be consistent with the productive structure of each area defined at the inter-sectoral level. If there are conflicts between these levels, two kinds of revisions have to be considered. First, the aggregate structure of production at the intersectoral level may have to be adjusted. Secondly, if for reasons of stimulating growth in backward areas, more activities are to be channeled to them than indicated by the original locational analysis, the system of social accounting prices has to be modified, by the inclusion of specific subsidies for productive activities in the areas where expansion is desired; thereafter, the locational analysis has to be repeated.

It should be noted that when the aggregate productive structure of an area is adjusted at the intersectoral level, the corresponding social accounting prices may also have to be modified, since the new productive structure changes the relative scarcities of the productive factors in each area as well as the commercial interchanges between areas.

/(b) Social

(b) Social Overhead Investment Projects

The evaluation of these projects cannot be undertaken on the same basis as the evaluation of productive investments, since their benefits are not quantified by the market mechanism. It might be suggested that these benefits should be taken into consideration at social-accounting prices, but this would be begging the question, since the assignment of social-accounting prices to the benefits presupposes a way of evaluating them.

There are two practical ways of dealing with social overhead investment projects; in a specific situation, both are best used in a complementary fashion. First, the social-overhead investments can be assigned as a burden to a group of productive projects with which they cooperate. The exact nature of the interrelations between productive and social-overhead investments has to be clarified on the basis of detailed topographical, land-use and transport plans prepared concurrently with the sub-sectoral level of analysis. The result of this approach is a strong locational attraction of the productive investments to the areas which, on the one hand, already have a considerable stock of social overhead capital, and on the other hand, are not yet subject to major diseconomies of concentration. The second approach is to assign social overhead investment budgets to all areas and urban centres on the basis of a general policy relating these budgets to area growth projections (See Sec. V-A-3); subsequently, at the sub-sectoral level, each social overhead investment project is evaluated, with reference to detailed physical plans, on the basis of its estimated contribution to productivity in the given zone. Thus, social overhead projects of a given zone are evaluated in competition with each other, but not in other zones, or with productive investments.

Projects relating to facilities that have social overhead benefits as well as benefits that are priced in the market, such as, for example, power plants or housing projects, can likewise be evaluated by any of the two methods. If the first method is used, the market benefits of these projects are simply added to the benefits of the productive projects with which they cooperate.

B. POLICY INSTRUMENT

This section will discuss the various instruments that are available for carrying out integrated policies with respect to urbanization and economic development, whose goals have been developed into a consistent and, in so far as possible, efficient framework according to the techniques of the foregoing section.

The discussion will be restricted to policy instruments in the fields of area and metropolitan concentration, since a general discussion of instruments for the execution of economic development programmes is a vast topic all by itself. It should be stated at the outset, incidentally, that the field of policy instruments for economic development is almost virgin territory in Western economic theory; such generalizations as do exist have largely been adapted, well or badly, from the theory of advanced economies. The practical application of policy instruments in underdeveloped countries is, accordingly, mostly a matter of experience and intuition.

A discussion of instruments for controlling concentration is a suitable focus for the concerns of the present paper, since the two other topics which have been emphasized strongly, namely industrial location and social overhead capital, fit in naturally with this discussion.

1. Policy Instruments for Controlling Area Concentration

The problem of controlling area concentration is, in effect, a problem in decentralization. In economies which leave the majority of investment and production decisions to decentralized private initiative, concentration is largely controlled by indirect measures. Even so, there is a possibility of directing the location of important basic industries by fiat; however, for the very reason that such a course of action represents the most powerful and ultimate instrument, its use has to be reserved for the rare instances when other, milder and more indirect, measures fall short of achieving their objectives.

In other words, rational planning requires that the control of concentration be exercised to the largest possible extent by following the lines of force of industrial location factors, rather than working against these lines of force.

The three principal tools for the control of regional concentration are the following :

(i) Centrally directed capital transfers for social-overhead and productive purposes;

(ii) The dispersion of special locational incentives: enterprises, factor pools, productivity and protection against risk;

(iii) The imputation of social overhead capital costs to enterprises enjoying the benefits of social overhead facilities;

2. Centrally Directed Capital Transfers

The most powerful class of tools has been listed first: clearly, with large enough centrally directed capital transfers, there can be no difficulty in regulating area concentration. This, in effect, is the ultimate tool referred to earlier. Nevertheless, even within this class of tools there are varying degrees of arbitrary control. For example, the differential incidence of progressive income taxation between advanced and backward areas creates a directed inter-area capital transfer, provided that the benefits financed by this taxation are distributed more evenly than the tax collections. This mechanism is the least arbitrary among the instruments in its class, and can be used with good effect to build up the social overhead capital stock of the more backward areas. It can be justified especially easily when the social overhead investments take the form of major interregional transport connections: these convey their direct benefits primarily to the outlying areas, yet at the same time they have a wider effect in that they integrate geographically the economy of a country as a whole.

The provision of capital funds for development banks charged with promoting enterprises in backward areas is a more specific form of directed capital transfers. Correspondingly, it can have a higher degree of arbitrariness, especially if development loans are granted at interest rates which are below the social-accounting value of capital for the country as a whole. If this is the case, it represents a direct subsidy for enterprises locating in the more backward areas. On the other hand, if the proper social

/accounting price

accounting price of capital corresponding to the more developed zones is charged on these loans, this is not necessarily arbitrary. It is of course true that, due to the greater scarcity of capital in the backward areas, interest rates should be somewhat higher in these areas. However, in practice the market interest rates in the backward areas are greatly raised by considerations of risk. To the extent that the loans granted by development banks are founded on well-organized projects which enjoy the active encouragement of planning authorities and are assured of complementary social overhead services, these risks are greatly reduced; accordingly, the charging of an interest rate normal for the more advanced centres can be largely justified.

Returning to the granting of development loans at subsidized rates: such subsidization is not necessarily contrary to the most efficient utilization of resources. It should be kept in mind that in a dynamic growth situation, as discussed earlier, not only current prices, but also future prices are highly germane to investment decisions, since the life of an investment project stretches far into the future. Since, in the more backward regions, most costs of production can be expected to fall relative to the more advanced zones, as productivity rises, agglomeration economies are achieved and the structure of production becomes more self-contained, an investment that is somewhat unattractive at current prices can be well worth while from the social point of view if evaluated with due consideration given to future prices. In such a situation a temporary subsidy, such as a low interest development loan that is to be retired within a reasonable length of time, can amount to a correction of the prevailing market prices in the direction of the true social accounting prices averaged out over the life of the project.

Finally, a drastically arbitrary method of directed capital transfer to an area is the establishment of basic industries in this area by means of direct government investments, with little if any consideration given to locational factors. If such industries enjoy a monopoly position, the extra costs of uneconomical location can be loaded directly onto the prices of their

/products; otherwise,

products; otherwise, they can be operated under continuous government subsidization. Clearly, this is the least desirable of all the methods of directed capital transfer, and should be avoided whenever possible.

3. The Dispersion of Special Locational Incentives

The decentralization of enterprise, factor pools, productivity and protection against risk is in practice the cheapest and easiest way of achieving a strong deconcentrating effect, and should in all cases be pushed to the utmost, regardless of the application of other instruments.

The decentralization of enterprise has to be initiated by area development agencies (which need not have any lending functions whatever). These have to be charged with a survey of the resources and potentialities of an area, the preparation of preliminary feasibility studies with respect to individual investment projects, the detailed elaboration of the more promising projects, the promotion of business ventures based on local capital or on the attraction of capital from the more advanced centres; they have to be storehouses of information pertaining to prices and transport rates, qualities and supply conditions of raw materials and services, and all kinds of marketing information; they have to assist private ventures in the adequate exploration and preparation of their projects; they have to supply aid and comfort to visiting businessmen from the more advanced centres in all respects pertaining to local problems; and they have to continue helping and stimulating newly established businesses during their initial breaking-in period or during any periods of crisis. In one word, these agencies have to supply the missing entrepreneurial function in the area during the initial period of development, and have to be centres of managerial excellence thereafter. Their services should generally be free.

It should be pointed out immediately that the function performed by these agencies is not a programming one, even though in practice they have to cooperate closely with area programming organizations.

The decentralization of factor pools refers to the task of remedying the widespread lack of technical and managerial skills, trained labour, and industrial development capital that characterizes the more backward areas.

/With regard

With regard to technical and managerial skills, an effort may be made to supply them directly, in conjunction with the development agencies described in the previous paragraph. As the cost of maintaining an adequate technical-managerial pool is, however, considerably larger than that of running a development agency, it will be generally preferable to seek some form of cost sharing with the enterprises that are benefited. A low-cost and yet efficient way of making the required services available is to organize channels of instantaneous and efficient communication with technical-managerial organizations in the more advanced centres, in order to make their services available to enterprises in the backward areas with as little frictional delay as possible. The subsidization of communication and travel requirements may likewise be considered as a potential low-cost solution, since the marginal cost of these services is often small to the government, if, for example, it operates airlines or telecommunication systems.

In this same category, should be mentioned the tremendous stimulating effect on backward regions that can be obtained by the simple device of bringing interurban telephone communications to levels of modern efficiency. The shackling influence of the often miserable interurban communications in Latin America can hardly be overestimated.

With regard to pools of trained labour, the disadvantage of the backward regions can be reduced by well-organized labour training programmes. The cost of these need not be excessive, especially if they are coordinated with the establishment of new industries. It is entirely feasible to make such programmes partly self-supporting, by use of a variety of devices. For example such a device is the lending of skilled labours to new enterprises which thereupon undertake to provide partial support for training programmes at their own plants; these programmes can then be utilized to train additional skilled labour for employment in other industries.

With regard to the level of productivity of the labour force, there are serious problems of nutrition, health, education and general level of living in some backward regions. However, this seldom poses as serious a problem in Latin America, especially at the urban centres, as for example in Asia

/or Africa.

or Africa. Once certain minimum standards are met in these respects, the remaining differences in productivity are relatively easy to bridge. It has been found in a number of suggestive instances that above the minima referred to earlier, productivity is primarily related to the quality of management, rather than to the putative quality of the working force. Thus, by concentrating on improvements in the quality of management - a relatively inexpensive proposition - spectacular improvements of productivity can often be obtained.

The decentralization of protection against risk is primarily a matter of organization, rather than of financial resources. Backward areas are poorer risks largely because they offer a smaller diversity of productive resources to draw upon: thus, if a source of supply or a service fails, it is more difficult to replace than in more advanced regions. There is also a general climate of lower efficiency with respect to public utilities and government services, which may adversely affect individual businesses, especially if they are not managed by persons with long-standing local backgrounds and connections. These additional elements of risk in backward areas can be reduced significantly by the work of development and programming agencies.

Finally, among the factors whose supply had to be decentralized, industrial development capital has not yet been mentioned. Apart from the establishment of development banks, discussed in the previous section, the supply of capital for this purpose is influenced primarily by considerations of risk. To the extent that risk can be reduced, it will be progressively easier to attract outside capital and to prevent the flight of local savings. It has already been indicated earlier that the diversification of economic activities, as a region develops, helps to retain local capital by permitting a greater diversification of the portfolios of individual investors. (See Section IV-A-3-b).

4. The imputation of social overhead capital costs

Since the benefits due to social overhead capital are not priced in the market, business enterprises operating in zones where a large amount of such benefits accrue, are subsidized at the expense of enterprises operating in zones where social overhead facilities and their benefits are more scarce. This subsidization creates a strong incentive for new enterprises to be located or expansions to occur preferentially in zones with good pre-existing social overhead capital facilities. (See Sec. III-A-5). It has been seen earlier (Sec. IV-A-3) that social overhead investments and productivity form a self-reinforcing feedback system; thus, the implicit subsidization has a strong concentrating effect.

The imputation of charges corresponding to social overhead benefits can be used as an instrument for counteracting concentration. At present, the only form in which such charges are made in practice are municipal land, property and license taxes: however, there is no attempt to measure the social overhead benefits received by different kinds of businesses, and to charge them in proportion to these benefits, rather than in proportion to some irrelevant criterion, such as assessed value of property, footage fronting on public roads, area occupied, or even income. If charges were related to benefits, they would become an imputed cost of operation of the individual businesses, and would lead to a corresponding rise of the prices of the products and services produced by these businesses in the areas served by the respective social overhead investments.

If the charges are in good agreement with the benefits received, the deconcentrating effect is especially strong in the larger metropolitan areas where the provision of services connected with transport, water supply and wastage disposal can be very high; on the other hand, there still remains weaker residual concentrating effect, especially in relation to smaller urban centres, due to the fact that agglomeration economies are observed in the provision of social overhead services as well as in connection with productive activities.

/The balance

The balance of benefits and charges can also be biased in favor of the more backward areas; i.e., businesses in more advanced areas can be somewhat overcharged, while businesses in less advanced areas can be left with a favourable balance of benefits versus charges. This, of course, is simply a device of regionally differentiated taxation, which can have an important deconcentrating influence. It has already been mentioned that progressive income taxation has a similar effect.

It is noted finally that the imputation of the costs corresponding to the benefits of social overhead investments can be used as an effective instrument for the regulation of metropolitan concentration.

The control of metropolitan concentration problems has two principal aspects. First, if concentration within the metropolitan area itself is to be controlled, the rate of accretion of new economic activities seeking space within the metropolitan region has to be subjected to control. The instruments serving this purpose have been discussed in the foregoing sections. Secondly, once the aggregate of activities to be accommodated by the metropolitan region is decided upon, the spatial organization of these activities at the core and in the hinterland, as well as the relations between the two, have to be brought into conformity with the topographical, land-use and transport-organization plans drawn up concurrently with the general economic plans. The variety of instruments that can be used for this purpose has had to be left outside the field of inquiry of this paper. It is, however, obvious that the imputation of the costs corresponding to the social overhead benefits received by businesses in various parts of the metropolitan zone can be used as an effective instrument for counteracting excessive concentration. The basis for the charges, moreover, should be the future structure of costs and benefits, rather than exclusively the current cost-price situation, since urban investment decisions have long-lasting effects which can cause serious dislocations many years after the investments have been undertaken.

